

To: Judge Mellgrin

April 12, 2023

From: Greg Larkin

Regarding: List of Witnesses which I am requesting Cross Examination of to provide documentation regarding the decision to either issue or reject Idaho Power's request for a Certificate of Public Convenience and Necessity: CPN-5

The Witnesses are being cross examined due to the following questions regarding the testimony and responses to previously requested Data Requests.

MANY OF THE NECESSARY CROSS EXAMINATION REQUESTS ARE IN REGARDS TO RESPONSES INDICATING THAT THE QUESTIONS WERE UNCLEAR , AMBIGUOUS OR REQUIRED A LEGAL OPINION. IN THOSE INSTANCES, I APPOLOGIZE FOR THE LACK OF CLARITY. DURING CROSS EXAMINATION, THE QUESTIONS WILL BE ASKED IN A CLEAR AND CONCISE MANNER. WITH OPPORTUNITY FOR INDIVIDUALS TO REQUEST CLARIFICATION. IN INSTANCES WHERE THE LACK OF CLARITY RESULTED IN A RESPONSE THAT THE QUESTION REQUIRED A 'LEGAL OPINION' WHERE NONE WAS REQUIRED, THE QUESTIONS WILL BE ASKED IN A MANNER THAT CLARIFIES THAT MY INTENT WAS NOT TO REQUEST A LEGAL RESPONSE, BUT RATHER INFORMATON REGARDING HOW RULES AND STATUTES WERE APPLIED. CROSS EXAMINATION WILL PROVIDE CLARITY OR ADDITIONAL

INFORMATION WHEN IT APPEARS THAT THE INDIVIDUAL DID NOT UNDERSTAND WHAT WAS BEING REQUESTED, OR RESPONDED WITH INFORMATION THAT DID NOT APPEAR TO ANSWER THE QUESTION BEING ASKED.

WHILE THE PUC MAY CONSIDER DECISIONS OF THE OREGON DEPARTMENT OF ENERGY, THEY MUST MAKE AN INDEPENDENT DETERMINATION REGARDING THE IMPACTS OF NOISE ON SAFETY AND COSTS AS WELL AS WHETHER OR NOT THE DEVELOPMENT IS IN THE BEST INTERESTS OF THE PUBLIC. COSTS ARE ONE EXAMPLE OF AN ISSUE THAT IS NOT AN EFSC STANDARD, BUT MUST BE ADDRESSED BY THE PUC IN ORDER TO ISSUE A CERTIFICATE. QUESTIONS WILL PROVIDE INFORMATION NECESSARY FOR THE PUC TO DETERMINE IF IT SHOULD ISSUE A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AND WHETHER THE INFORMATION PROVIDED BY IDAHO POWER IS ADEQUATE, REPRESENTS DUE DILLIGENCE ON THE PART OF THE DEVELOPER AND WHETHER IT IS ADEQUATE FOR THE PUC TO MAKE THEIR REQUIRED FINDINGS.

THE CROSS-EXAMINATION REQUESTS ARE REASONABLY LIKELY TO PROVIDE INFORMATION THAT RELATES TO THE ISSUES BEING ADDRESSED BY THE PUC. CROSS EXAMINATION QUESTIONS WILL ADDRESS:



- A. HAS THE DEVELOPER MADE CONTACT WITH IMPACTED RESIDENTS TO DETERMINE IF THERE ARE PREEXISTING CONDITIONS THAT MAY BE EXACERBATED BY NOISE FROM THE TRANSMISSION LINE AND PROVIDED THAT INFORMATION IN THEIR APPLICATION?
- B. HAVE THE IMPACTED CITIZENS BEEN PROVIDED NOTICE IN THE MANNER REQUIRED BY ORS 183.415 ASSURING THAT THEY WERE MADE AWARE OF THE IMPACTS OF THE AGENCY DECISIONS AND THEIR RIGHT TO A HEARING REGARDING THOSE IMPACTS. THE STATUTE ADDRESSES IMPACTS THAT CONSTRUCTION OF THE TRANSMISSION LINE WILL HAVE ON CITIZENS BEING ABLE TO CONTINUE THE USE OF THEIR PROPERTY ABSENT THREATS TO THEIR SAFETY, LOSS OF ECONOMIC SECURITY, EMOTIONAL AND PHYSICAL WELL BEING AND THE COSTS BEING PROJECTED OR ASSUMED BY CITIZENS IN THE COUNTIES THE TRANSMISSION LINE WILL CROSS.
- C. COSTS CONTINUE TO BE AN ISSUE NEEDING FURTHER CLARIFICATION IN TERMS OF THE FIGURES BEING SUBMITTED BY IDAHO POWER AND THE LACK OF INFORMATION BEING MADE AVAILABLE BY PACIFICORP.
- D. HISTORIC RECORD OF SAFETY RESULTS BASED UPON PACIFICORP AND TO A LESSER EXTENT, IDAHO POWER'S HISTORICAL FAILURE TO PROVIDE

ADEQUATE MANAGEMENT OF INCREASED FIRE RISKS THAT THEIR EXISTING TRANSMISSION LINES HAVE CREATED IN THE PAST.

- E. FAILURE TO IDENTIFY THE COSTS BEING TRANSFERRED TO PROPERTY OWNERS AND CITIZENS OF OREGON FOR RESTORATION OF THE SITE SHOULD EITHER PARTNER FAIL TO MEET THEIR COMMITMENT TO RESTORE THE SITE AND A LACK OF INFORMATION REGARDING RESPONSIBILITY AND ACCOUNTABILITY FOR MAINTAINING THE SAFETY OF CITIZENS FROM BOTH FINANCIAL AND SAFETY FAILURES GIVEN THE JOINT OWNERSHIP OF THE DEVELOPMENT.
- F. COST FIGURES BEING SUBMITTED CONTINUE TO BE ELUSIVE AND LACK DOCUMENTATION AND DETAILS NECESSARY FOR THE PUC OR THE PUBLIC TO HAVE CONFIDENCE THAT THEY LEGITIMATELY REFLECT THE RISK BEING PLACED ON ELECTRIC CUSTOMERS AND OREGON CITIZENS. INFORMATION REGARDING HOW THE COSTS WILL BE TRANSFERRED TO OREGON CUSTOMERS OR THE AMOUNT OF COSTS TO BE TRANSFERRED ARE NEARLY ENTIRELY LACKING OR PROVIDED IN LARGE GENERAL STATEMENTS LACKING DETAIL TO EVALUATE WHETHER OR NOT THEY ARE REASONABLE PROJECTIONS. BENEFITS AND COSTS AND ACCOUNTABILITY ARE EVEN MORE UNCLEAR GIVEN PACIFICORP INVOLVEMENT AS A PARTNER. COSTS

ARE PARTICULARLY TROUBLING GIVEN THE SMALL NUMBER OF OREGON CUSTOMERS SERVED BY IDAHO POWER AND THE FACT THAT ONLY ROUGHLY 25% OF PACIFICORP CUSTOMERS ARE OREGON RESIDENTS.

G. RELIANCE ON DECISIONS MADE BY THE OREGON DEPARTMENT OF ENERGY AND THE LACK OF DOCUMENTATION SUPPORTING THOSE DECISIONS IS QUESTIONABLE GIVEN THE DIFFERENT APPROVAL REQUIREMENTS AND FOCUS OF PUC EVALUATIONS.

H. THE ONGOING LACK OF SUPPORTING DOCUMENTATION..

I. THE PUBLIC AND PUC HAVE ONLY BEEN PROVIDED GENERAL IDEAS REGARDING HOW THE DEVELOPER MAY OR MAY NOT ACTUALLY ADDRESS THE IMPACTS OF THE DEVELOPMENT ON SAFETY AND HEALTH, FIRE RISK, ECONOMIC DAMAGES, NOXIOUS WEEDS, AND A HOST OF OTHER IMPACTS WHICH LEAVES THE PUC AND THE PUBLIC IN THE DIFFICULT POSITION OF DETERMINING WHETHER THE CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY WILL PROVIDE OPPORTUNITY FOR CONDEMNATION OF PRIVATE PROPERTY ABSENT PROTECTIONS NECESSARY TO PROTECT THE PUBLIC FROM THE IMPACTS OF THE DEVELOPMENT.

J. BOTH SHORT AND LONG TERM RISKS TRANSFERRED TO CUSTOMERS, CITIZENS AND THE STATE, INCLUDING PREDICTABLE LITIGATION IN AREAS

SUCH AS BUT NOT INCLUDING NOISE, WILDFIRE, DAMAGES TO  
THREATENED AN ENDANGERED SPECIES, SOIL MOVEMENT, AND THE  
FAILURE TO INFORM CITIZENS OF THEIR RIGHTS IN THE MANNER REQUIRED  
BY ORS 183.484 ARE EITHER LACKING OR APPEAR TO BE UNDERSTATED.,

- K. CROSS EXAMINATION WILL PROVIDE THE PUBLIC UTILITY COMMISSION  
INFORMATION WHICH WILL DOCUMENT AREAS THAT NEED TO BE  
ADDRESSED PRIOR TO ISSUING A CERTIFICATE OF PUBLIC CONVENIENCE  
AND NECESSITY AND WHETHER THE JUSTIFICATION FOR THE PROJECT IN  
MEETING THE NEEDS OF THE PUBLIC ARE OUTWEIGHED BY THE COSTS AND  
AVAILABILITY OF ALTERNATIVE RESOURCES.

Identification of Cross Examination Witnesses, projected time to complete Cross  
Examination and the areas that the cross examination will be focused on  
regarding the PUC decision Process:

Mr. BASTASCH One Hr.

The following questions are in relation to testimony of Idaho Power's expert  
witness, Mr. Bastasch. The Cross Examination is being requested to obtain  
specific information directly from Mr. Bastasch regarding his experience,  
processes and interpretations of noise data in relation to Oregon's Ambient

Degradation Standard, the involvement of the Oregon Department of Energy in the review and approval of the procedures used, and the basis for his determination that processes that are not consistent with the requirements of the Statutes and Rules provided results that were at least as comprehensive as those in the statutes and rules. Questions will identify the basis of his application and process decisions regarding noise and his conclusions regarding the impacts of noise on the safety of citizens being exposed to the noise exceedances.

CROSS EXAMINATION WILL FOCUS ON PROVIDING CLARIFICATION REGARDING THE AREA OF HIS EXPERTISE AND HIS INVOLVEMENT IN THE DEVELOPMENT OF THE PA AS WELL AS THE PORTIONS OF HIS TESTIMONY THAT APPLY TO PROTECTION OF NON-LISTED HISTORIC PROPERTIES, SITES AND OBJECTS. AS A MEMBER OF THE COMMITTEE DEVELOPING THE PA, THERE ARE QUESTIONS REGARDING THE FOCUS OF THE PA AND AREAS ADDRESSED BY THAT DOCUMENT.

**CROSS EXAMINATION OF MITCH COLBURN: 40 minutes**

**The purpose of this cross examination is to clarify information regarding his testimony in relation to the impact on costs of the project to Idaho Power and to affected landowners. I also need clarification regarding his statements relating to the provision of notice and opportunities for participation in the EFSC , PUC and**

**involvement of Idaho Power in providing any notice or information regarding those processes.**

**There is some confusion and conflicting information regarding consideration of co-locating the transmission line with the Wheatridge here is a need to clarify the basis of Mr. Colburn's statements regarding the potential for collocating the Project with the Wheatridge Interconnection Transmission Lines.**

**Questions are reasonably likely to provide information regarding costs, public opportunity to participate, and information available to the public in order to evaluate their need to participate in the processes related to the B2H Transmission Line.**

**Cross Ellen Bogan – 45 minutes**

**Greg's health and impacts of noise and his experience with power line impacts of safety and health.**

**Cross Examination Ellsworth – 30 minutes**

Questions address the level of personal involvement in the data provided, the availability of supporting data, whether his comments are based upon multiple resources, or rely primarily on a single source, whether the numbers provided represent actual averages of data, or are relying upon sampling of data and whether he had access to the documentation supporting his testimony, whether

he considered options to address his projected needs. The questions will resolve whether the opinions expressed are his own as an expert witness, or rely upon other resources, and if so, what analysis did he do to confirm the accuracy of the information he provided.

### **CROSS EXAMINATION OF Jocelyn PEACE: 60 minutes**

**Questions relate to her involvement in the B2H project, her role with Idaho Power and the source of information she provided. Questions will also clarify the intent of the questions that were responded to by statements such as the question is overly broad, unclear, requires a legal opinion, or outside the scope of the PUC decision process in order to obtain the information that I intended to have addressed and to provide the questions in a manner that is clear to her. Questions focus on the responses that she made representing Idaho Power rather than responses she provided that were directed toward other witnesses. Questions will clarify the process and documentation being provided to landowners in order to establish fair compensation for the use of their property as a transmission line right of way, the information that is actually included in the appraisals being obtained by Idaho Power, the status of development of Monitoring and Mitigation Plan finalization and how the process is actually occurring in real time, parties involved and the specificity of the final plans. There also remain unclear responses to how the payments to**

**landowners are considered in relation to providing mitigation for impacts of the transmission line on the economic impacts of the development on landowners and citizens of the state.**



IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	APPLICATION OF ANNE
	)	MORRISON, ATTORNEY, TO
v.	)	APPEAR AS <i>AMICUS CURIAE</i>
	)	IN SUPPORT OF
OREGON DEP'T OF	)	PETITIONER'S PETITION FOR
ENERGY, OREGON	)	EXPEDITED REVIEW
ENERGY FACILITY	)	
SITING COUNCIL, and	)	
IDAHO POWER	)	
COMPANY	)	EXPEDITED JUDICIAL
<i>Respondents</i>	)	REVIEW UNDER ORS 469.403
	)	

**APPLICATION**

Pursuant to ORAP 8.15, Anne Morrison respectfully applies to appear before the Oregon Supreme Court as *Amicus Curiae*, in support of the Expedited Petition for Review filed in this matter. Anne Morrison intends to present in this Brandeis brief an essential background for this case that does *not* affect a private interest of her own. ORAP 8.15(1)(a).

Anne Morrison is aligned with the STOP B2H COALITION, the Petitioner on review before this court. ORAP 8.15(1)(b).

The deadline that is relevant to the timeliness of this *Amicus* application is December 20, 2020. ORAP 8.15(1)(c). This application is

timely because it was filed within 14 days of the filing of the Petition for Review (filed on December 6, 2020). ORAP 8.15(1)(d); ORAP 8.15(5)(b).

Anne Morrison is a retired attorney and a decades-long resident of eastern Oregon who speaks as a private citizen to voice her concern regarding the process by the Energy Facility Siting Council has issued a site certificate for the Boardman to Hemingway transmission, as resulting from multiple flawed actions by an ethically compromised state agency. As an attorney, *amicus* knows that it is critical to the function of a democratic government that government agencies represent the interests of a state's own residents, and that those interests are jeopardized when an agency's allegiance is compromised because it receives substantial funding directly from the entities which that agency is expected to regulate.

If allowed to appear, Anne Morrison will work to assist this Court in considering the background of and the process by which the site certificate has been issued, as well as the fact that the Oregon Department of Energy, which is statutorily mandated to protect the health and welfare of the people of the state of Oregon and to comply with Oregon's environmental policies enacted to protect the natural resources of the state, has been compromised as a state agency,

because it has received over \$4 million from applicant Idaho Power

Company for its work to assist applicant in obtaining the Boardman to

Hemingway Site Certificate.

Pursuant to ORAP 8.15(3) Anne Morrison's proposed *Amicus* Brief in support of the Petition for Expedited Review is filed concurrently with this application, and that Brief complies with the requirements of <sup>[L]</sup><sub>[SEP]</sub>ORAP 8.15.

Anne Morrison respectfully requests that this Court grant its application to appear before the Supreme Court as *Amicus Curiae* on this matter.

Dated: December 20, 2022.

Respectfully submitted,

s/ Anne Morrison

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*for proposed Amicus Anne Morrison*

## **CERTIFICATE OF FILING AND SERVICE**

I hereby certify that on December 20, 2022 I filed this Application of Anne Morrison To Appear as *Amicus Curiae* in Support of Petition for Review by electronic filing.

I hereby certify that on December 20, 2022, I filed the foregoing Application to Appear as *Amicus Curiae* with the Appellate Court Administrator by electronic filing, using the court's eFiling system.

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I additionally certify that on December 20, 2022 I served a true and correct copy of this Application to Appear as *Amicus Curiae* upon Jocelyn Claire Pease, attorney for respondent Idaho Power Company,

by mailing such in an envelope with prepaid first-class postage

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	)	Supreme Court No. S069919
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	)	MORRISON IN SUPPORT OF
v.	)	PETITIONER'S PETITION FOR
	)	EXPEDITED REVIEW
OREGON DEP'T OF	)	
ENERGY, OREGON	)	
ENERGY FACILITY	)	
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## I. INTRODUCTION

Anne Morrison, *amicus*, submits this Brandeis brief on the fundamental issue raised by the Stop B2H Coalition and individual petitioners: whether the Energy Siting Facility Council (EFSC, or Council) erred in issuing a site certificate for the Boardman-to-Hemingway transmission line. *Amicus* submits this Brandeis brief to provide a broader context for the appeals of the decision to issue a site certificate for the B2H transmission line, now pending before this Court.

As a decades-long resident of eastern Oregon, *amicus* speaks as a private citizen to voice her concern regarding EFSC's issuance of a site certificate for the 300-mile, five county-long B2H line, as resulting from multiple flawed actions by an ethically compromised state agency. As a retired attorney, *amicus* knows that it is critical to the function of a democratic government that government agencies represent the interests of a state's own residents, and that those interests are jeopardized when an agency's allegiance is compromised because it receives substantial funding directly from the entities which that agency is expected to regulate.

The EFSC's decision to issue a siting certificate allowing construction of the B2H transmission line raises the broader issue: When a state agency abandons its statutory obligation to protect the

interests of Oregon residents, and instead uses its vast resources against the interests of Oregonians who are not positioned to challenge corporate and agency interests, *who represents the interests of everyday Oregonians?*

Consideration of this question should guide this court in deciding this case, as discussed below.

## II. BACKGROUND

From its inception, the B2H project has been controversial and hotly contested. Opponents have raised numerous concerns,<sup>1,2</sup> including whether the line is actually needed or being built merely because extant provisions of the 1936 Rural Electrification Act guarantee utilities an automatic 10%, rate-payer-paid return on the cost of constructing energy

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<sup>1</sup> See, e.g., Todd Brown, *Regulate Eminent Domain*, The [La Grande] Observer, Sept. 14, 2010; Cherise Kaechele, *Union County Commissioners Approve, Appoint B2H Advisory Committee*, The [La Grande] Observer, Dec. 16, 2015; Jayson Jacoby, *B2H Battle: Officials Try to Limit Effects of Proposed Power Line*, The [La Grande] Observer, Dec 1, 2016; Cherise Kaechele, *County, City Hold Joint Session; Commissioners, Councilors Meet to Discuss B2H*, The [La Grande] Observer, Aug 2, 12017; Erick Peterson, *Power Play: In the Path of the New Eastern Oregon Transmission Line*, Capital Press, Feb 12, 2022.

These small newspapers do not have hyperlinks to their articles, but the articles can be accessed by typing the titles into a search engine.

<sup>2</sup> ODOE - B2HAPPD0c2-1 Proposed Order on ASC w Hyperlink Attachments 2019-07-02, Attachment 2: DPO Comment Index and DPO Comments.  
(<https://onedrive.live.com/?authkey=%21AEBE%2Dm62XANUTiQ&cid=026041F18E096594&id=26041F18E096594%215420&parId=26041F18E096594%215419&o=OneUp>)

facilities. Coley Girouard, *How Do Electric Utilities Make Money?*, Apr 28, 2015, <https://blog.aee.net/how-do-electric-utilities-make-money>.

Those concerns are heightened when the line is proposed at a time when America's energy system is poised to transition from the traditional grid system epitomized by high-voltage transmission into one which relies on local systems to distribute local sources of energy, decreasing the need for traditional transmission lines.<sup>3</sup>

Opponents have also voiced concerns about the proposed B2H line when the traditional energy industry has been widely accused of

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<sup>3</sup> See, e.g., Dameon Pesanti, *BPA Drops I-5 Corridor Reinforcement Project*, May 18, 2017, <https://www.columbian.com/news/2017/may/18/bpa-drops-i-5-corridor-project-transmission-line/>; Todd Woody, *An Experimental Green Suburb Rises in Riverside County. Is it the Future of Single-Family Housing?*, Nov. 26, 2022, <https://www.latimes.com/business/story/2022-11-26/is-this-experimental-green-suburb-the-future-of-single-family-housing>; Lisa Cohn, *What are Non-Wire Alternatives?* June 21, 2019, <https://www.microgridknowledge.com/about-microgrids/article/11429614/what-are-non-wires-alternatives>; Catherine Von Burg, *Microgrids to Provide Energy Resilience Beyond Transmission Lines*, 2018, <https://www.batterypoweronline.com/articles/microgrids-to-provide-energy-resilience-beyond-transmission-lines/>; Erica Gies, *Microgrids Keep These Cities Running When the Power Goes Out*, Dec 4, 2017, <https://microgridknowlwdgw.com/news/04122017/microgrid-emergency-power-backup-renewable-energy-cities-electric-grid/>; Elisa Wood, *How Many Hurricanes Must Slam the Grid Before We Get the Message?*, Sept 2, 2021, <https://www.microgridknowledge.com/editors-choise/article/11427757/how-many-hurricanes-must-slam-the-grid-before-we-get-the-message>.

actively impeding the change to green power for financial gain.<sup>4</sup> It is significant that the line would serve only as a conduit for transporting electrical power to Idaho residents, while causing significant damage to Oregon's own resources and the interests of affected Oregon property owners. The line is not an energy source and generates no power. Energy still must be purchased and transmitted, raising electrical rates across the region.

### **III. OREGON LAW CREATES A PARTICULAR POTENTIAL FOR UNDUE INDUSTRY INFLUENCE.**

#### **A. Corruption in the energy industry, including undue industry influence on legislators and regulators, has been a growing nationwide concern.**

The past decade has seen growing numbers of reports regarding corruption in the energy industry.<sup>5</sup> In 2021, the energy/natural resources

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<sup>4</sup> Mario Alejandro Ariza, Miranda Green, Annie Martin, *Leaked: US Power Companies Secretly Spending Millions to Protect Profits and Fight Clean Energy*, July 2022, <https://www.theguardian.com/environment/2022/jul/27/leaked-us-leaked-power-companies-spending-profits-stop-clean-energy?>

<sup>5</sup> The number of articles addressing this issue is staggering. For a general overview, see generally, Leah Cardamore Stokes, *et.al.*, *Short Circuiting Policy: Interest Groups and the Battle Over Clean Energy and Climate Policy in the United States*, Oxford University Press (2020); Heather Payne, *Game Over: Regulatory Capture, Negotiation, and Utility Rate Cases in an Age of Disruption*, 52 U.S.F.L. Rev. 75, (2017); Adam Nix, Stephanie Decker, Carola Wolf, *Enron and the California Energy Crisis: The Role of Networks in Enabling Organizational Corruption*, January 12, 2022, <https://www.cambridge.org/core/journals/business-history-review/article/enron-and-the-california-energy-crisis-the-role-of->

industry was among the top five spenders for federal lobbying, paying out over \$307,000,000.<sup>6</sup> In multiple states, utilities have become embroiled in one corruption scandal after another.<sup>7</sup> Utilities have been implicated in corporate payouts, sometimes involving billions of dollars, made to secure legislators' votes on legislation favorable to the energy industries.<sup>8</sup> Major utilities have also been implicated in efforts to mislead

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[networks-in-enabling-organizational-corruption/457B1E245C6E6DE8903F531DD768D3F4](https://www.opensecrets.org/news/reports/layers-of-lobbying/state-and-federal-lobbying).

<sup>6</sup> Dan Auble, Brendan Glavin and Pete Quist, *Layers of Lobbying: An Examination of 2021 State and Federal Lobbying from K Street to Main Street*, June 22, 2022, <https://www.opensecrets.org/news/reports/layers-of-lobbying/state-and-federal-lobbying>.

<sup>7</sup> See generally, Matt Kasper, *First Energy Scandal is Latest Example of Corruption, Deceit*, July 23, 2020, <https://www.energyandpolicy.org/utility-corruption/>; U.S. Attorney's Office, District of South Carolina, *Former SCANA Executive Pleads Guilty to Fraud Charges Tied to Failed SC Nuclear Project*, July 23, 2020, <https://www.justice.gov/usao-sc/pr/former-scana-executive-pleads-guilty-conspiracy-commit-mail-and-wire-fraud>; Jaclyn Diaz, *An Energy Company Behind A Major Bribery Scandal In Ohio Will Pay A \$230 Million Fine*, July 23, 2021, <https://www.npr.org/2021/07/23/1019567905/an-energy-company-behind-a-major-bribery-scandal-in-ohio-will-pay-a-230-million->; Justin Gillis, *When Utility Money Talks*, N.Y. Times, Aug. 2, 2020, <https://www.nytimes.com/2020/08/02/opinion/utility-corruption-energy.html>

<sup>8</sup> See, Justin Gillis, *supra*; Mary Ellen Klas, Nicholas Nehamas, Ana Claudia Chacin, *This Florida Utility's Secret Cash Helped GOP Win Gainesville State Senate Seat*, Aug. 8, 2022, <https://www.tampabay.com/news/florida-politics/2022/08/08/this-florida-utilitys-secret-cash-helped-gop-win-gainesville-state-senate-seat/>; Mary Ellen Klas, Nicholas Nehamas, *DeSantis Got \$25K from Nonprofit*

legislators, regulators, and the public; and to influence rulemaking, sometimes by placing industry-supported utility regulators in powerful agency positions. As a result, multiple major energy projects have failed, communities have seen the liability on their investments soar, and ratepayers have seen utility rates skyrocket.<sup>9</sup>

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*Secretly Funded by Florida Utility*, Sep. 7, 2022, <https://www.seattletimes.com/nation-world/nation-politics/desantis-got-25k-from-nonprofit-secretly-funded-florida-utility/>; Jason Garcia, *Man Behind 'Ghost' Candidate Cash also Led Dark-Money Group Supporting Florida's Big Utility Companies*, Oct 20, 2021, <https://www.orlandosentinel.com/news/os-ne-prem-senate-ghost-candidate-dark-money-utility-industry-20211020-sbve4xsyzvazne3qxnci4epxmi-story.html>; Mark Gillispe, Julie Carr Smyth, *A Year Out, \$60M Bribery Scandal Felt in Business, Politics*, July 19, 2021, <https://www.seattletimes.com/business/a-year-out-60m-bribery-scandal-felt-in-business-politics/>; Jaclyn Diaz, *An Energy Company Behind A Major Bribery Scandal In Ohio Will Pay A \$230 Million Fine*, July 23, 2021, <https://www.npr.org/2021/07/23/1019567905/an-energy-company-behind-a-major-bribery-scandal-in-ohio-will-pay-a-230-million->; Nate Monroe, *Florida Power & Light dominated the state. Now scandal darkens its future*, July 28, 2022, <https://news.yahoo.com/florida-power-light-dominated-state-205851312.html>, Akela Lacy, *Energy Companies Have Spent Billions on Projects That Go Nowhere*, August 7 2020, <https://theintercept.com/2020/08/07/nuclear-power-energy-utility-bribery-scandal/>; Mark Pischea, *Energy Corruption Not Just an Ohio Problem, It Is a Monopoly Problem*, September 4, 2020, <https://insidesources.com/energy-corruption-not-just-an-ohio-problem-it-is-a-monopoly-problem/>; Andrew J. Tobias, *FBI Raid Brings Scrutiny on Obscure but Powerful Ohio Energy Regulator*, Dec. 06, 2020, <https://www.cleveland.com/open/2020/12/fbi-raid-brings-scrutiny-on-obscure-but-powerful-ohio-energy-regulator.html>.

<sup>9</sup> Jeff Amy, *Georgia Nuclear Plant's Cost Now Projected to Top \$30B*, May 3, 2022, <https://www.usnews.com/news/best-states/florida/articles/2022-05-08/georgia-nuclear-plants-cost-now->

Industry analysts warn that the energy sector is particularly vulnerable to corruption because individuals in government have power over multi-million dollar decisions related to the siting, construction, and operation of the energy system.<sup>10</sup> Some analysts have discussed these issues in terms of “regulatory capture,” where the regulations guiding utility behavior become so complex and onerous that the utilities themselves become the experts and are largely trusted by legislators and public service commissions to steer policy. *Id.*<sup>11</sup>

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[forecast-to-top-30-billion](#); Ray Long, *ComEd to Give Back \$38 Million in Wake of Madigan Scandal, But Critic Says it Falls Short*, Aug 17, 2022, <https://www.chicagotribune.com/politics/ct-comed-returns-38-million-over-madigan-scandal-20220817-bctxrnaec5gvpgg64xh5gsh4ru-story.html>; Hannah Grover, *PRC Accuses PNM of Misleading Regulators, Requires Utility to Issue Rate Credits Upon San Juan Unit Closures*, June 30, 2022, <https://nmpoliticalreport.com/2022/06/30/prc-accuses-pnm-of-misleading-regulators-requires-utility-to-issue-rate-credits-upon-san-juan-unit-closure/>; Tracy Samilton, *Consumers Energy Seeks "Crippling" Wind Farm Tax Clawbacks from Tuscola County Schools*, November 13, 2022, <https://www.michiganradio.org/environment-climate-change/2022-11-13/consumers-energy-seeks-crippling-wind-farm-tax-clawbacks-from-tuscola-county-schools>.

<sup>10</sup> Matthias Ruth, *Corruption and the Energy Sector*, November 2002, [https://pdf.usaid.gov/pdf\\_docs/PNACT875.pdf](https://pdf.usaid.gov/pdf_docs/PNACT875.pdf); Pischea, *supra*.

<sup>11</sup> In the context of undue industry influence on legislation in other states, Oregon law generally requires appellate challenges to power lines sitings that involve tens of thousands of pages of documents and multiple agency hearings over many years, to be briefed, heard and decided within six months. ORS 469.403. In contrast, the normal appellate process for comparatively simple issues often allows years for cases to be briefed, argued and decided.



There is no reason why Oregon would be immune from the same powerful corrupting forces at play in other states, and ODOE has its own history of involvement in corruption scandals. In 2015, Governor John Kitzhaber resigned amid accusations that ODOE officials, including the Department's director, had urged a contractor to give a \$60,000 subcontract to Kitzhaber companion Cylvia Hayes, despite her marked lack of experience or qualifications, or the fact that Hayes' firm had scored lowest in ODOE's competitive bidding process.<sup>12,13</sup>

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<sup>12</sup> Benjamin Brink, *Documents Detail Oregon's Intervention in Subcontract for Cylvia Hayes, Companion of Gov. John Kitzhaber*, Jan 26, 2011, [https://www.oregonlive.com/politics/2011/01/documents\\_detail\\_states\\_interv.html](https://www.oregonlive.com/politics/2011/01/documents_detail_states_interv.html); Nigel Jaquiss, *The Cylvia Files*, June 14, 2011, <https://www.wweek.com/portland/article-17619-the-cylvia-files.html>.

<sup>13</sup> Oregon's Department of Justice chose not to prosecute the ODOE employees involved but recommended they be fired. *Id.* Four employees were placed on leave but ultimately reinstated without criminal charges or discipline for their actions following the Department of Justice's admission of mistakes in the DOJ investigation. Nigel Jaquiss, *Updated: Four Suspended ODOE Employees To Be Reinstated*, June 1, 2011, <https://www.wweek.com/portland/blog-27212-updated-four-suspended-odoe-employees-to-be-reinstated.html>.



B. Oregon law charges ODOE with conflicting responsibilities.

The Oregon Department of Energy is charged with implementing inherently conflicting, and possibly mutually exclusive, responsibilities.

*1. ODOE is charged with assisting and advising the Energy Facility Siting Council (EFSC) regarding the legal and technical complexities of siting decisions.*

The EFSC serves as Oregon's one-stop permitting authority for siting large energy facilities, and one of ODOE's major responsibilities is to provide staff and technical support to the EFSC regarding the approval of large energy facilities. Throughout the siting process, ODOE is responsible for researching issues, making recommendations, and advising the Council regarding decisions related to siting applications.

ORS 469.040(1) provides:

“The State Department of Energy shall be under the supervision of the Director of the State Department of Energy, who shall:

“ \* \* \*

“(b) Supervise and facilitate the work and research on energy facility siting applications at the direction of the Energy Facility Siting Council.”

Additionally, ORS 469.450(6) provides that ODOE “shall provide clerical and staff support to the council and fund the activities of the council.” The EFSC's website explains the relationship further:

“Oregon Department of Energy employees serve as staff members for the council, handling the ongoing work related to the regulation of energy facilities. Staff are energy experts who research issues involved with locating, building and operating

large energy facilities. They make recommendations to the council based on their research and analysis.”<sup>14</sup>

Thus, ODOE staff have been involved in the siting B2H siting process since 2010, when Idaho Power submitted its first Notice of Intent to the Department. See, Final Order on the ASC for the Boardman to Hemingway at Transmission Line at 3. ODOE staff has worked closely with Idaho Power staff throughout the 14 years of the siting process. See *generally, id.* at 2-8 (procedural history).

*2. ODOE also has a statutory obligation to protect the Oregon public.*

ODOE’s statutory responsibilities regarding the siting of an energy facility are not unlimited. At the same time that ODOE provides staff to advise the EFSC in regard to decisions regarding the siting, construction, operation and regulation of energy facilities, ODOE is also mandated to protect the health and welfare of the people of the state of Oregon and to comply with Oregon’s environmental policies enacted to protect the natural resources of the state.<sup>15</sup>

ORS 469.310 provides:

“In the interests of the public health and the welfare of the people of this state, it is the declared public policy of this state that the siting, construction and operation of energy facilities shall be

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<sup>14</sup> <https://www.oregon.gov/energy/facilities-safety/facilities/Pages/About-the-Council.aspx>.

<sup>15</sup> Note that the law requires compliance with, not avoidance or the issuance of exceptions or variances to, the various Oregon environmental protection laws.

accomplished in a manner **consistent with** protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of this state.”

(Emphasis added). The statutory mandate is reiterated in OAR 345-001-0020(1), which provides in pertinent part:

“These rules are to ensure that the siting, construction, operation and retirement of energy facilities and disposal facilities and the transport of radioactive materials are done **consistent with** protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of Oregon.”

(Emphasis added).

The policies regarding public health, welfare and environmental concerns with which ODOE is required to comply are expansive in their scope. They include, but are not limited to, policies which require Oregon's Department of Agriculture to protect Oregon's water resources,<sup>16</sup> policies which require the Department of Environmental Quality to enforce noise regulations promulgated in accordance with

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<sup>16</sup> ORS 568.225(1) provides:

“ \* \* \* [I]t is hereby declared to be the policy of the Legislative Assembly to provide for the conservation of the renewable natural resources of the state and thereby to conserve and develop natural resources, control and prevent soil erosion, control floods, conserve and develop water resources and water quality, \* \* \* conserve natural beauty, promote recreational development, promote collaborative conservation efforts to protect and enhance healthy watershed functions, assist in the development of renewable energy and energy efficiency resources, \* \* \* protect public lands and protect and promote the health, safety and general welfare of the people of this state.”

state policy,<sup>17</sup> and policies which require Oregon's Department of

Forestry to manage Oregon forestlands to maximize benefits.<sup>18,19</sup>

The mandate to ODOE to site energy facilities consistent with and in compliance with Oregon's environmental protection laws is not restricted to a particular stage of the siting process, and it is not time

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<sup>17</sup> ORS 467.010 provides that the DEQ shall adopt and enforce compliance with standards designed to “ \* \* \* provide protection of the health, safety and welfare of Oregon citizens from the hazards and deterioration of the quality of life imposed by excessive noise emissions, it is hereby declared that the State of Oregon has an interest in the control of such pollution, and that a program of protection should be initiated.

\* \* \* ”

<sup>18</sup> ORS 526.460 (1) sets forth the policy guiding Oregon's Department of Forestry. That statute provides:

“ \* \* \* The environmental benefits include maintenance of a forest cover and soil, air and water resources. Other benefits provided are habitats for wildlife and aquatic life, recreation and forest range. Management of all forestlands in Oregon should be encouraged to provide continuous production of all forest benefits.”

<sup>19</sup> Some of the many additional environmental policies and statutes with which ODOE is mandated to comply when siting an energy facility include those which require Oregon's Water Resources Commission to manage Oregon's water resource for multiple purposes, ORS 536.220(2)(a); the Department of Agriculture and to protect Oregon's native plants, ORS 564.105, and to control noxious weeds, ORS 569.180; the Environmental Quality Commission to protect Oregon waters from pollution, ORS 468B.015, and to safeguard the quality of Oregon's air, ORS 468A.010; the State Fish and Wildlife Commission to protect Oregon's wildlife, ORS 496.012; and the Department of Forestry to prevent and suppress wildfires, ORS 477.005.

limited. It does not permit ODOE to claim that by soliciting public input at the start of the siting process, it has met its obligation to protect the public and is free to disregard the public interest regarding siting decisions, including mitigation planning, thereafter. It is a mandate to site, construct, operate, and retire energy facilities in a manner consistent with protecting public health, public safety and Oregon's environmental protections – and to do so through the entire siting process, from inception to completion. The mandate to site energy facilities in accordance with Oregon's public health and safety environmental protection laws is neither optional nor aspirational.<sup>20</sup> The statute imposes on ODOE the concrete responsibility to comply with Oregon's environmental laws and public interests when making siting decisions.

ODOE's dual obligations create the potential for a conflict of interest between ODOE's duty to protect the public health and safety

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<sup>20</sup> Nor would a failure of any other agency to become involved in the siting process be an excuse for ODOE to avoid its charge to act in the public interest. Oregon law imposes on ODOE an independent obligation to comply with Oregon's environmental laws when working to site an energy facility.

As one example, the Oregon Department of Agriculture has been unable to fund its native (rare) plant protection program consistently since 2014 and therefore unable to update its list of rare plants since 1988. This list was started using the federal list and has never been updated for an Oregon-specific list. The standard is meaningless without an updated list and ODOE has not consulted the ODA since 2013.

and to comply with state environmental policies, and ODOE's

concomitant role as an advisor regarding the siting and regulation of energy facilities within the state. ODOE is placed in an inherently conflicted position:

- ODOE is charged with advising industry applicants regarding the technical details of siting a facility.

- ODOE is paid by the applicant for ODOE's work to research, evaluate, and make recommendations regarding an energy facility siting application.

- ODOE also advises the EFSC whether the application which an applicant has paid ODOE to help develop complies with applicable laws.

- And ODOE must protect the public's interests in the siting process.

It is difficult to imagine a more perfect way to mire an agency in conflicting obligations.

C. Oregon's funding system invites undue industry influence by giving ODOE a direct financial stake in seeing energy projects move forward.

Oregon law invites undue industry influence in the siting process by creating a unique funding scheme for ODOE. Like other departments and agencies, ODOE receives funding through the legislature. But ODOE differs from other agencies because industry applicants and project operators don't pay into Oregon's general fund to reimburse

agency expenses; instead, an applicant pays ODOE directly for work related to developing an application. ORS 469.421 provides in pertinent part:

“(1) Subject to the provisions of ORS 469.441, any person submitting \* \* \* an application for a site certificate or a request to amend a site certificate shall pay all expenses incurred by the Energy Facility Siting Council and the department related to the review and decision of the council.”

Reimbursable expenses may include legal expenses, expenses incurred in processing and evaluating the application, expenses incurred in issuing a final order or site certificate, expenses incurred in commissioning an independent study, or expenses incurred by the council in making rule changes that are specifically required and related to the particular site certificate. *Id.* In addition, Oregon law requires facility operators to continue direct payments to ODOE after a facility has been completed, including annual fees for costs associated with

monitoring the operation of a facility, ORS 469.421(5),<sup>21</sup> and an annual assessment to fund the programs and activities of EFSC and ODOE.<sup>22,23</sup>

Oregon law allows—and, in fact, *requires*—an applicant to reimburse ODOE directly for expenses related to the development of a project. At its essence, the statutory scheme sets up an arrangement where an industry applicant pays the Department the salaries of the

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<sup>21</sup> ORS 469.421(5) provides that each holder of a certificate shall pay an annual fee following issuance of a site certificate. The fee includes:

“costs based on the size and complexity of the facility, anticipated costs of ensuring compliance with certificate conditions, anticipated costs of conducting inspections and compliance reviews, and anticipated costs of compensating agencies and local governments for expenses incurred at the request of the council.”

<sup>22</sup> ORS 469.421(8)(a) provides that in addition to any other required fees, each energy resource supplier shall pay ODOE annually its share of an assessment to fund the programs and activities of the council and the department.

<sup>23</sup> The B2H transmission line is hardly the only project which may be paying costs and fees to ODOE. The EFSC website lists 18 operating facilities under EFSC jurisdiction, 5 approved facilities, 5 proposed facilities, as well as 8 facilities under review or construction. [https://www.oregon.gov/energy/facilities-safety/facilities/Pages/Facilities-Under-EFSC.aspx?Paged=TRUE&p\\_Facility\\_Page=8\\_%3cd%20div%20style%3d%27text%20align%3d%27left%27%3e%3ca%20title%3d%27Click%20for%20more%20info%27%20href%3d%27%2e%2e%2fPages%2fWES%2easpx%27%3eWest%20End%20Solar%20Project%3c%2fa%3e%3c%2fd%20div%3e&p\\_Title=West%20End%20Solar%20Project&p\\_ID=143&PageFirstRow=61&&View={0820E20D-761F-4D86-88A6-28050E77AD6A}](https://www.oregon.gov/energy/facilities-safety/facilities/Pages/Facilities-Under-EFSC.aspx?Paged=TRUE&p_Facility_Page=8_%3cd%20div%20style%3d%27text%20align%3d%27left%27%3e%3ca%20title%3d%27Click%20for%20more%20info%27%20href%3d%27%2e%2e%2fPages%2fWES%2easpx%27%3eWest%20End%20Solar%20Project%3c%2fa%3e%3c%2fd%20div%3e&p_Title=West%20End%20Solar%20Project&p_ID=143&PageFirstRow=61&&View={0820E20D-761F-4D86-88A6-28050E77AD6A})



individuals who are assigned to work on the Idaho Power's project and whose duties involve advising the applicant regarding the project—not unlike having an industry applicant's own employees work on the applicant's behalf from inside ODOE. If needed, a billion-dollar corporation can always provide additional funding to support additional consultants and experts to analyze and give direction regarding its own project. Oregon's funding blueprint gives ODOE employees a direct incentive to see that the project which generates contributes to agency funding and which directly pays their own livelihoods remains viable by ignoring issues that might make a project unbuildable, and pushing for completion of the project, regardless of merit. Further, ODOE will benefit from ongoing direct payments generated by completed projects for decades into the future, giving ODOE an additional financial incentive to see that projects move forward, regardless of compliance with laws to protect public health, public welfare, or Oregon's environmental assets.

Over the past decade, the energy industry has repeatedly been involved in scandals involving the use of illicit means to obtain undue influence and control over regulatory decisions related to the industry.<sup>24</sup>

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<sup>24</sup> See, Dave Anderson, *FirstEnergy attributed Ohio Utility regulator's actions to \$4.3 million payment*, March 3, 2021, <https://energynews.us/2022/02/15/former-ohio-regulator-linked-to-4m-payoff-directed-agency-to-limit-response-to-firstenergy-corruption>; Jaxon Van Derbeken, *PG&E to Pay \$86.5 Million for Backdoor Lobbying of*

Where a state's siting process openly invites undue influence, and a billion-dollar corporation stands to reap hundreds of millions of dollars in profits from an energy project, there is no reason to assume that a corporation would not attempt to exert similar influence over energy regulators in Oregon.

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*Regulators*, March 18, 2017, <https://www.nbcbayarea.com/news/local/pge-to-pay-865-million-for-backdoor-lobbying-of-regulators/48759/>; Andy Balaskovitz, *Former Ohio Regulator Shaped Agency Response to Corruption Scandal*, February 15, 2022, <https://energynews.us/digests/former-ohio-regulator-shaped-agency-response-to-corruption-scandal/>; Dave Pomerantz, *Arizona Commissioner Justin Olson answered Questions About Arizona's Energy Policy by Copying Parts of an APS Memo Verbatim, Emails Show*, October 18, 2018, <https://www.energyandpolicy.org/justin-olson-arizona-aps-emails/>; Matt Kasper, *Electric Utility Industry Created Their Own Air Pollution Permits, Had Private Meetings with Texas Regulators*, May 27, 2015, <https://www.republicreport.org/2015/electric-utility-industry-created-their-own-air-pollution-permits/>; Jeremy Pelzer, *Texts shed additional light on how Sam Randazzo was named PUCO chair, worked to help FirstEnergy*, August 22, 2022, <https://www.msn.com/en-us/news/politics/texts-shed-additional-light-on-how-sam-randazzo-was-named-puco-chair-worked-to-help-firstenergy/ar-AA10WipX>; Daniel Tait, *Questionable Campaign Contributions Tick Back Up as Election Nears, Emails Show*, October 25, 2010, <https://www.energyandpolicy.org/questionable-campaign-contributions-tick-back-up-for-eaton-as-election-nears/>. See generally, Maryanne Demasi, *From FDA to MHRA: Are Drug Regulators for Hire?*, June 29, 2022, <https://www.bmj.com/content/377/bmj.o1538.full>; Rauf Fattakh, *Corruption in the Energy Industry: 10 Serious Consequences*, Nov 16, 2020, <https://energycentral.com/c/ec/corruption-energy-industry-10-serious-consequences>.

D. Oregon law provides the perfect means for ODOE to control the siting process because of the Department's influence over EFSC.

*1. ODOE is perfectly situated to influence the EFSC regarding siting decisions because of the makeup of the EFSC.*

The EFSC consists of seven part-time, **unpaid volunteers** who determine whether a proposed energy facility meets multiple exceeding complex legal and technical siting standards.<sup>25</sup> In addition to their side

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<sup>25</sup> The EFSC regulates numerous kinds of facilities, including electric power plants, solar generating facilities, transmission lines, underground natural gas storage facilities, liquified natural gas storage facilities, intrastate natural gas pipelines, and radioactive waste disposal sites and nuclear installations. ORS 469.300(11).

And ORS 469.501(1) lists the many disciplines in which councilors must make decisions. They include:

- an applicant's expertise regarding constructing and operating a proposed facility;
- seismic hazards;
- federal and state protected areas;
- the applicant's financial ability and qualifications;
- the facility's effects on fish and wildlife, including threatened and endangered fish, wildlife or plant species;
- the facility's impacts on historic, cultural or archaeological resources;
- the protection of public health and safety;
- the storage, transportation and disposal of nuclear waste;
- the facility's impacts on recreation, scenic and aesthetic values;
- the ability of local communities to provide sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection;
- the need for additional nongenerating facilities, consistent with Oregon's energy policies; and
- compliance with statewide planning goals adopted by the Land Conservation and Development Commission.

activity of making billion-dollar siting decisions on behalf of the state of Oregon, most councilors hold demanding professional positions, or are engaged in significant other civic and volunteer activities. See,

<https://www.oregon.gov/energy/facilities-safety/facilities/Documents/General/EFSC-members.pdf>.

Although each of the complex standards which the councilors are required to address involves a discrete discipline, most councilors have limited to no expertise regarding the areas in which they are asked to make determinations. Three of the individuals who made the million-dollar B2H siting decisions on behalf of the state of Oregon have land use backgrounds and one is a tribal cultural resource specialist. *Id.* The combined council possesses professional expertise in just two of the many hyper-technical areas in which the councilors are expected to make determinations. Consequently, the council is extraordinarily dependent upon the advice and recommendations of ODOE staff and industry-paid consultants to guide their decisions.

*2. ODOE is perfectly situated to influence EFSC decision-making because EFSC relies on ODOE for everything up to and including legal advice.*

EFSC is housed within the Department of Energy, and relies on ODOE for research, analysis, and legal advice, ORS 469.040(1)(b), as well as for staff and clerical support. ORS 469.450(6). Further, in a facility siting proceeding, ODOE again plays conflicting roles: ODOE

advises the industry applicant regarding the siting of a facility (and is paid by the applicant to do so); ODOE is an automatic, mandatory party to any contested case, (OAR 345-015-0080(2)), and ODOE then advises EFSC whether to approve or overrule ODOE's earlier actions and decisions as a party. ODOE and EFSC are in fact so closely connected that an officer or employee of ODOE may appear in a contested case on behalf of EFSC. OAR 345-001-0060(1). Similarly, the EFSC may appoint a Council member, an ODOE employee, or other person to serve as hearing officer for the contested case. OAR 345-15-0023(1).

It is a cardinal principle of legal ethics that an attorney is prohibited from representing a client if the representation involves a conflict wherein the representation of one client will be directly adverse to another client. ORPC 1.7(a)(1). It is another indication of how deeply intertwined the relationship between ODOE and the EFSC is that from the inception of the B2H project until a petitioner objected,<sup>26,27</sup> a single

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<sup>26</sup> Irene Gilbert's Exceptions to Procedures Used During B2H Contested Case and Process and Request for Exception to Summary Determinations FW-4, LU-5, NC-5, M-2, FW-9, FW-10, FW-11, at 5-6.

<sup>27</sup> ODOE has made a partial record of this case available on its website; however, in *amicus*' experience, the website has malfunctioned repeatedly and has been inaccessible as often as not. Further, *amicus* understands that ODOE filed the tens of thousands of pages comprising the record of this case with the Supreme Court only days ago, and

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attorney, Patrick Rowe, advocated on behalf of ODOE while also advising the EFSC in the B2H siting process.<sup>28</sup> The intimate relationship between the two entities – as if the two were but a single client, or as if there is no conflict between the role of representing a party to a proceeding while also providing “objective” advice to the decision maker – is indicated by the fact that Rowe’s dual representation apparently raised no ethical concerns regarding a possible conflict of interest for ODOE/EFSC counsel Rowe, or for the Department of Justice, or for administrators within ODOE.

Still, the EFSC is presented as somehow being an independent decision-making body.

*3. The EFSC’s makeup also raises ethical concerns.*

Additionally, the Council’s makeup raises concerns regarding the ethics of individual members. Hanley Jenkins, who served for 30 years as a county planning director, chaired the majority of the B2H

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because *amicus* is not a party to this case, she has not even been able to access the late-filed record. Therefore, *amicus* is only able to reference documents by title.

<sup>28</sup> See *also*, March 1, 2021 letter from EFSC Chair Marcy Grail (discussing EFSC’s role as the sole decision maker regarding extremely complex large infrastructure projects, EFSC’s reliance on and very warm relationship with ODOE staff, and requesting legislative funding on behalf of ODOE. Morrison Decl., Ex. 3.

proceedings.<sup>29</sup> As planning director, Jenkins became embroiled in controversy when he advocated fiercely to develop a wind farm within the county, then deleted his emails with the developer in their entirety following a public records request. Bill Rautenstrauch, *County reprimands planning director*, The [La Grande] Observer, May 5, 2011; Staff report, *E-mail probe doesn't pass smell test*, The [La Grande] Observer, May 11, 2011; Editorial, *County Probes Accusation that Planning Chief Deleted e-mails re: Wind Farm*, The [La Grande] Observer, September 11, 2011.<sup>30</sup> Concerns that the B2H siting process has been overseen by someone with a history of ethically questionable ties to a developer are amplified because Jenkins sat on the EFSC for almost the entirety of the B2H siting process, from 2012 through 2022, serving his last two years in violation of ORS 469.450(2)(providing that

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<sup>29</sup> The actual EFSC Chair, Marcy Grail, recused herself on all B2H issues: "Chair Grail stated as she has previously recused herself on all Boardman to Hemingway action items and handed over the running of the meeting for Agenda Items B and to Vice-Chair Howe." 2021-08-27 EFSC-Meeting Minutes-APPROVED. pdf, p. 4 of 15. <https://www.oregon.gov/energy/facilities-safety/facilities/Council%20Meetings/2021-08-27-EFSC-Meeting-Minutes-APPROVED.pdf>.

<sup>30</sup> The Observer does not have hyperlinks to these articles, but if one types in the title in a search engine, the article appears.

no councilor shall serve more than two four-year terms).

<sup>31,32</sup>

<https://www.oregon.gov/energy/facilities->

[safety/facilities/Documents/General/EFSC-members.pdf](https://www.oregon.gov/energy/facilities-safety/facilities/Documents/General/EFSC-members.pdf). As chair of the

B2H siting process, Jenkins has played a particularly active role in

swaying the Council to make decisions that favor Idaho Power. As an

example, ORS 469.370(13) requires that when a proposed facility has

been reviewed by a federal agency under NEPA, the EFSC is required

by statute to coordinate its review with the NEPA review. Jenkins,

however, referenced his experience to advise the Council to disregard

the statutory requirement: "We can only use the route and alternatives

that are submitted to us by Idaho Power." November 19-20, 2020, EFSC

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<sup>31</sup> Jenkins remained on the EFSC after the expiration of his second term, purportedly because he was needed so that the EFSC could have a quorum. This argument never made sense, because in December 2021, EFSC changed its rules to allow for a smaller quorum of just four members, yet Jenkins did not resign.

<https://www.oregon.gov/energy/About-Us/Documents/2021-01-07-HB-2064-One-Pager.pdf>; and <https://www.oregon.gov/energy/Get-Involved/rulemakingdocs/2021-12-17-R218-EFSC-2-2021-Tracked-Changes.pdf>

<sup>32</sup> Jenkins no longer serves on the EFSC. Having served for nearly the full duration of the B2H siting process, he resigned in early December 2022, almost immediately after the EFSC approved the B2H application. [https://www.oregoncapitalinsider.com/news/oregon-insiders-whos-who-in-and-around-state-government/article\\_3a042794-7727-11ed-b2f5-b354446f7689.html](https://www.oregoncapitalinsider.com/news/oregon-insiders-whos-who-in-and-around-state-government/article_3a042794-7727-11ed-b2f5-b354446f7689.html)



Council meeting day 2, Audio 2 at 2:32:00 Greg Larkin/49

<https://soundcloud.com/odoe/sets/november-19-20-2020-efsc-meeting> .

**IV. ODOE HAS RECEIVED MORE THAN \$4 MILLION FROM IDAHO POWER FOR WORK RELATING TO B2H, CREATING AN ACTUAL CONFLICT OF INTEREST WITHIN THE DEPARTMENT OF ENERGY.**

ODOE has in fact received substantial funding directly from Idaho Power Company to fund ODOE's work on the B2H line. Idaho Power has paid ODOE more than \$4,000,000 for salaries and other expenses directly related to ODOE's work on B2H. *Declaration of Fuji Kreider, Ex. 4.* The millions of dollars ODOE has received directly from Idaho Power for expenses relating to the development of Idaho Power's own project has transformed ODOE's conflict of interest from a potential or theoretical conflict into an actual conflict. The fact that the Department receives such a substantial income from industry applicants and project operators gives administrators and employees a tangible and compelling financial reason to choose the industry applicant's interests when weighing the Department's responsibility to assist in siting a facility against the Department's responsibility to protect the public interest by ensuring that Oregon's policies regarding public health and welfare, and environmental protection are enforced.

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**V. ODOE HAS REPRESENTED THE INTERESTS OF IDAHO POWER BY USING THE SUBSTANTIAL RESOURCES AVAILABLE TO ODOE TO ELIMINATE EVERY CHALLENGE TO SITING THE B2H LINE.**

As a state agency, ODOE has substantial resources at its disposal. ODOE has highly trained, experienced employees assigned to the B2H project. ODOE Response to McAllister Disc. Requests at 3.<sup>33</sup> ODOE also has untold clerical and support staff available to work on the B2H project, *id.*, and ODOE has the resources and ability to retain additional expert assistance and/or witnesses from outside the agency. *Id.* Additionally, through Oregon's Department of Justice, ODOE has legal resources at its disposal to assist and represent the Department in the siting process.

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<sup>33</sup> ODOE's Response discloses the credentials of several of its employees assigned to siting the Idaho Power project:

"K. Tardaewether: Education - B.A. International Studies, B.S. Environmental Science, M.A. International Environmental Policy in Energy Analysis; Years of Professional Experience – 15; Years at ODOE – 4.5;

S. Esterson: Education - B.S. Public Affairs and Environmental Management; M.P.A; Years of Professional Experience – 15; Years at ODOE – 6

M. Woods: Education – B.A. Environment, Economics, and Politics; B.A. History; M.S. Environmental Science; Years of Experience – 15; Years at ODOE – 7."

ODOE noted that each of these employees "has collectively evaluated dozens of ASC and Requests for Amendments." *Id.* An additional employee, Wally Adams, assisted ODOE at the January 2022 cross-examination hearings. Proposed Contested Case Order at 15-16.

The Department's resources to advance B2H are virtually infinite, given that ODOE's expenses are reimbursed by Idaho Power. The fact that ODOE has expended more than \$4,000,000 of Idaho Power's money to site the B2H line indicates that ODOE has not hesitated to use Idaho Power's substantial resources to advance the project that Idaho Power has paid ODOE to work on, and to do so on the terms that Idaho Power desires.

A. ODOE has advised EFSC to adopt siting standards which represent the interest of developers and do not protect the public.

The EFSC is responsible for adopting the standards which govern the siting of energy facilities in Oregon.<sup>34</sup> Because the EFSC's small group of volunteers lack technical expertise in the complex issues involved in siting an energy facility, EFSC is heavily reliant on ODOE for advice regarding adoption of siting standards, and EFSC has adopted

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<sup>34</sup> ORS 469.501(1) states,

“The Energy Facility Siting Council shall adopt standards for the siting, construction, operation and retirement of facilities. \* \* \*.” Additionally, ORS 469.470(2) provides in pertinent part that EFSC shall “ \* \* \* adopt standards and rules to perform the functions vested by law in the council including the adoption of standards and rules for the siting of energy facilities pursuant to ORS 469.501.”

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standards, and delayed the adoption of other standards,<sup>35</sup> that benefit applicants at the expense of the public.

The standard regarding retirement of facilities and financial assurance, OAR 345-22-0050(2), provides one example. That standard requires merely that the Council find that an applicant has *a reasonable likelihood* of obtaining a bond or letter of credit to cover the cost of retiring an energy project, (emphasis added) – not that the applicant actually *post* a bond. The same standard requires only that a bond be in an undefined, subjective amount “*satisfactory to the Council* to restore the site to a useful, non-hazardous condition.” (Emphasis added). At a time when multiple billion-dollar energy projects have failed nationwide,<sup>36</sup> the EFSC’s standard imposes no actual requirement that would protect the Oregon public. ODOE has represented the interests

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<sup>35</sup> One example of these delayed standards includes the protracted rulemaking process over updating the outdated rules/standards on “Protected, Scenic and Recreational Areas,” OAR chapter 345, division 22. The Protected Areas and Scenic Resources Standards were last amended in 2007. The Recreation standard was last amended in 2002. The process for updating these rules began in 2018.

<https://www.oregon.gov/energy/facilities-safety/facilities/Council%20Meetings/2022-12-16-Item-G-Protected-Areas-Rulemaking-Staff-Report.pdf>

<sup>36</sup> See, Gillis, Klas, Nehamas *supra*; Chacin *supra*; Klas *supra*; Nehamas *supra*; Garcia *supra*; Gillispe, Smyth, *supra*; Diaz *supra*; Monroe *supra*; Pischea *supra*; Tobias, *supra*; Amy, *supra*; Long, *supra*.

of industry applicants generally by advising EFSC to adopt siting “standards” which provide no protection to the public whatsoever.

B. ODOE has advocated on behalf of Idaho Power and against the public interest by treating the public as an adversary throughout these siting proceedings.

*1. ODOE has represented the interests of Idaho Power by disregarding public input when siting the B2H project.*

Oregon law requires ODOE to consider public comments when siting an energy facility. Nearly 700 public comments were received by ODOE in the summer of 2019,<sup>37</sup> and 52 individuals petitioned to be parties to the contested case in August 2020, raising 71 issues.

(ODOE’s Response to Petitions for Party Status and Limited Party Status, 2020-09-11, p. 1 and Table 1.)

Acting in its capacity as a state agency, ODOE argued against full party status for every public petitioner, and against nearly every issue the petitioners raised. See, ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020, at 5, Table 1, and Attachment 1, Amended ODOE Evaluation of Petitions. ODOE has argued to eliminate issues raised by petitioners appearing on behalf of

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<sup>37</sup> ODOE - B2HAPPD0c2-1 Proposed Order on ASC w Hyperlink Attachments 2019-07-02, Attachment 2: DPO Comment Index and DPO Comments.  
(<https://onedrive.live.com/?authkey=%21AEBE%2Dm62XANUTiQ&cid=026041F18E096594&id=26041F18E096594%215420&parId=26041F18E096594%215419&o=OneUp>)

public entities such as Eastern Oregon University, Oregon-California Trails Association, the Stop B2H Coalition, QWest Corp/CenturyLink, and the Baker County Fire Defense Board. Amended Order on Party Status Authorized Representatives, and Properly Raised issue for the Contested Case at 2-4.

ODOE's most obvious example of disregarding public input occurred in Union County, where Idaho Power disregarded the Bureau of Land Management's "least impactful" NEPA route, and instead proposed two routes which cross on the periphery of the city of La Grande and just 125 feet from a beloved, undeveloped local recreation area and wetlands. ODOE disregarded the groundswell of public comments it received, as well as the obligations imposed on Idaho Power by the NEPA process, and repeatedly advised EFSC that the Council was permitted to assess only the routes that had been proposed by Idaho Power.<sup>38</sup> According to ODOE, the EFSC – and by implication,

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<sup>38</sup> See, e.g., ODOE's Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020 at 68 (denying EFSC jurisdiction in regard to Geer issue 3), and at 98 (regarding McAllister issue 1). See also, Final Order at 47-48 (discussing that the standards adopted by the EFSC:

“do not require the applicant to compare alternative corridors. Nor do they allow the Council to evaluate or consider alternative routes not proposed in the application for site certificate.\* \* \* Therefore, in the application, an applicant may propose any route, and alternative routes for Council's review, regardless of a federal

the state – has neither authority nor jurisdiction, or even the authority to make suggestions, when determining the route of a 300-mile long high-voltage line as it crosses through the state.

*2. ODOE argued that petitioners should be denied standing.*

In total, 52 individuals petitioned for party status. Order on Petitions for Party Status, Authorized Representatives and Issues for Contested Case at 2-3. As a state agency and party to the contested cases, ODOE argued that a number of citizen petitioners asserting concerns about the B2H project should be denied standing. See, ODOE's Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020. ODOE asserted that three petitioners failed to timely file petitions, *id.* at 8, 112-114. ODOE also argued for denial of standing based upon one petitioner's failure to recognize the need to timely file an appeal of the ALJ's denial of limited party status. ODOE Objection to G. Carbiner Request for Party Status for Issue HCA-5. Additionally, ODOE argued that three petitioners had failed to identify an applicable standard, ODOE's Second Amended Response to Petitions

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agency's selected route in the ROD for the NEPA review process. Further, the Council may not recommend an alternative route that is not proposed in the application."

for Party/Limited Party Status at 32, 33, 112; and that 45 petitioners failed to show a personal interest or a public interest. *Id.* at 21-121.<sup>39</sup>

3. *ODOE unilaterally rephrased petitioners' issues so as to eliminate or narrowly define the issues petitioners had raised.*

ODOE filed repeated responses to the petitions for party status.<sup>40</sup>

In those responses, ODOE unilaterally rephrased, reconstrued, and significantly restricted the issues raised by the petitioners to this case. The case of Susan Geer provides one example.

Geer is a trained botanist and ecologist and an expert in her field, employed by the Wallowa Whitman National Forest, who has lived in eastern Oregon for over 20 years and is intimately familiar with the ecology of the region. Geer submitted two written comments with concerns about native and imperiled plant communities along the proposed B2H route. Declaration of Anne Morrison, Ex. 1 and 2. She questioned the “Noxious Weed Plan” in Idaho Power’s site application;

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<sup>39</sup> ODOE asserted 26 times that a petitioner failed to show a personal interest, *id.* at 21, 24, 26, 35, 36, 44, 50, 54, 73, 74, 75, 83, 89, 90, 92, 93, 94, 96, 102, 103, 105, 107, 109, 111, 114, 115.

ODOE asserted 19 times that a petitioner failed to show a public interest. *Id.* at 29, 32, 33, 41, 48, 56, 57, 58, 76, 78, 88, 89, 111(x2), 113, 116, 119, 120, 121.

<sup>40</sup> ODOE Response to Petitions for Party/Limited Party Status, September 22, 2020; ODOE Amended Response to Petitions for Party/Limited Party Status, September 28, 2020, and ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020.



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Geer noted that Idaho Power's "weed plan" disregarded concerns expressed by county weed management professionals from Morrow, Union, and Umatilla counties; that the plan proposed only annual weed treatments, which in Geer's experience would be inadequate and ineffectual; that while Oregon law imposes on landowners and managers the responsibility to control specified weeds on their property, Idaho Power's plan would exclude Idaho Power from responsibility for controlling entire classes of weeds, including those most aggressive and devastating to native habitat; and would allow the company to request a release from weed management obligations from ODOE at any time; additionally, if Idaho Power's weed control proved unsuccessful after five years, the plan would allow Idaho Power to request a waiver from ODOE regarding further weed control obligations. Morrison Decl., Ex. 1. In her second letter, Geer detailed concerns that Idaho Power's plan ignored Oregon's environmental protection laws by failing to consider Oregon's Climate Plan or the Oregon State Conservation Strategy, or to take into account the state's designated natural areas. Morrison Decl., Ex. 2. Geer also noted that Idaho Power's proposed Morgan Lake route did not comply with statutory requirements to consider the BLM's NEPA route.

*Id.*

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ODOE recast Geer's concerns as: Greg Larkin/58

"Applicant's Noxious Weed Plan does not comply with ORS Chapter 569 because it does not identify responsibility of applicant for control of most weed species and only requires annual control."

ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020, at 61; and as:

"Applicant fails to comply with Threatened and Endangered species standard because it did not evaluate current State-listed T&E plant species (Lists 1 and 2 Climate Vulnerable plants.)"

*Id.* at 62; and as:

"The Draft Noxious Weed Plan (attachment P1-5) is not sufficient because it appears to relieve applicant of weed monitoring and weed control responsibilities after 5 years, which is not reasonable given that weed control is an issue into perpetuity, and improperly allows for compensatory mitigation if weed control is unsuccessful."

*Id.* at 63.

As with every other petitioner, ODOE's reframing of Geer's original statements precluded discussion of multiple statutes, administrative rules, and EFSC standards, as well as the multiple state agencies and state environmental protection policies, plans and programs implicated by Geer's original statement. And as with every other petitioner, ODOE's rephrasing of Geer's statements excluded multiple significant issues from being addressed in the contested case, while also successfully constraining the reach of the issues that remained.

Subsequently, ODOE and Idaho Power filed simultaneous motions for summary determination against Geer's issues as restated by ODOE. See, ODOE Motion for Summary Determination of Contested Case Issue TE-1, May 28, 2021; Idaho Power's Motion for Summary Determination of Contested Case Issue TE-1, May 28, 2021. Because Geer's issues had been redefined, Geer's own proposed amended conditions were rejected, (*id.* at 121) and ODOE instead proposed minimal changes to the application conditions. ODOE Rebuttal to Direct Testimony, Evidence, and Response to Proposed Site Certificate Conditions, November 12, 2021, at 27-28, 31-32.

*4. ODOE argued that all petitioners should be denied full party status.*

ODOE addressed the issue of party status in a manner that further restricted the ability of the public to raise issues of public concern in the siting proceedings. At a time when it appeared to be an unsettled issue, (ODOE Response to Petitions Regarding Limited Party vs. Party Status at 1, FN 1), ODOE argued that all petitioners should be granted limited party status. As with every other petitioner to the contested case, ODOE argued that Geer should be granted limited party status – in Geer's case, preventing her from using information regarding any one of her complex and closely related issues (as restated) in regard to the

other two issues (as restated). ODOE Second Amended Response to  
 Petitions for Party/Limited Party Status, October 6, 2020, at 6-8.

*5. ODOE argued that petitioners failed to raise valid issues.*

ODOE spared no effort to eliminate issues from the contested case by arguing that petitioners had not raised valid issues. ODOE argued 74 times that petitioners' issues were not within EFSC jurisdiction. ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020.<sup>41</sup> ODOE argued 43 times that petitioners' issues had not been raised on the record of the Draft Proposed Order.<sup>42</sup> And the Department argued 73 times that petitioners failed to raise issues with sufficient specificity.<sup>43</sup>

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<sup>41</sup> ODOE asserted that petitioners' issues were not within EFSC jurisdiction, *id.* at 21, 22, 24, 25, 28, 32(x2), 33(x2), 34(x3), 35, 39, 40, 41, 46, 48, 51, 53, 54, 55, 59, 61, 62, 64, 66, 67, 68, 70, 71, 75, 76, 77(x4), 78(x2), 79(x2), 80, 81, 84, 85(x2), 86, 87(x3), 88, 89(x2), 91(x2), 93, 95, 99, 100(x3), 101, 102, 105, 108, 112, 113(x2), 116(x2), 118, and 122.

<sup>42</sup> *Id.* at 21, 22, 26, 29, 30, 31, 37(x2), 39, 45, 50, 54, 55, 58, 61, 62, 63, 76, 77 (x4), 78, 79(x2), 85(x2), 86, 87(x2), 91, 93, 95, 97(x2), 101, 102, 103, 105, 108, 109, 118.

<sup>43</sup> *Id.* at 21, 22, 24, 25, 28, 32(x2), 33(x2), 34 (x3), 35, 39, 40, 41, 46, 48, 51, 53, 54, 55, 59, 61, 62, 64, 66, 67, 68, 70, 71, 75, 76, 77(x4), 78(x2), 79(x2), 80, 81, 84, 85(x2), 86, 87(x3), 88, 89(x2), 91(x2), 93, 95, 99, 100(x3), 101, 102, 105, 108, 112, 113(x2), 116(x2), 118, 122.

6. *ODOE blocked petitioners' attempts to obtain discovery in the contested case.*

After thirty-six petitioners filed requests for discovery orders in the contested case following the informal discovery period, per OAR 137-003-0025(3), (Proposed Contested Case Order at 3), ODOE exerted its power and resources as a state agency to argue for denial of petitioners' requests for discovery. ODOE's response to Petitioner McAllister's motion for discovery from ODOE is demonstrative.

McAllister's motion included 31 questions and was supplemented with an additional request. Petitioner McAllister's Motion for Discovery Order for ODOE, Issues FW-13, R-2, SP-2, Dated February 19, 2021. McAllister requested such prosaic information as copies of ODOE's communications with landowners near Morgan Lake Park, (*id.* at 3); the documentation relied on by ODOE to determine that the Morgan Lake Alternative complied with EFSC standards, (*id.* at 20); or production of a map which clearly specified, by name, how ODOE identified the three different routes under discussion. (*Id.* at 8, 28). ODOE's 22-page response demonstrates the way in which ODOE has used its Idaho Power-funded legal firepower to muddle and obfuscate, to confuse issues, to prevaricate, and to avoid straightforward responses. In its response to McAllister's request alone, ODOE objected to the petitioner's prosaic discovery requests by denying 20 times that the

petitioner's requested information was relevant, (ODOE Response to Michael McAllister Informal Discovery Request, February 2021 at 4, 5, 6, 7, 8(x2), 9(x2), 10 (x2), 11 (x2), 13, 16, 17(x2), 18, 19(x2), and 21); or by asserting 6 times that the requested information requested had previously been provided somewhere in a list of documents in the voluminous record of the case, (*id.* at 3, 14, 16, 20, 21, 23); or by asserting 7 times that the requested information was or "may be" outside EFSC jurisdiction, (*id.* at 5, 7, 8, 10, 11, 13, 19). It is hardly surprising that ODOE's legal counsel has been able to run circles around untrained, self- represented citizens. The more significant fact is that legally unsavvy and outgunned citizens have been forced to represent public concerns on their own, against a state agency, because the agency charged with protecting those interests has utterly abdicated its obligation to do so.

*7. ODOE moved for summary determination against petitioners, and supported/did not oppose Idaho Power's own motions for summary determination.*

ODOE continued to work *in tandem* with Idaho Power when the Department filed eight motions for summary determination, to accompany Idaho Power's 34 motions for summary determination on contested case issues. Proposed Contested Case Order at 5, 19. On June 25, 2021, ODOE filed a 41-page response to Idaho Power's

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motions for summary determination; ODOE's response formally supported or made no objection in regard to each of Idaho Power's motions. See, ODOE Response to Applicant's Motions for Summary Determination of Limited Party Issues.

*8. ODOE argued against petitioners' cases on the merits.*

Together, ODOE and Idaho Power litigated petitioners' remaining claims on the merits:

a). On October 1, 2021, Idaho Power and ODOE each filed individual Objections to the Limited Parties' Direct Testimony and Exhibits.

b). On November 12, 2021, the Department filed the 125-page ODOE Response to Direct Testimony, Evidence, and Response to Proposed Site Certificate Conditions. One would fully expect Idaho Power to be able to produce expert witnesses and consulting firms as needed to counter petitioners' remaining claims, and the billion-dollar corporation did so. See, e.g., Idaho Power – Rebuttal Testimony of Chris James - Issue FW-7, with supporting exhibits A-H, November 12, 2021. But so too did ODOE produce witnesses to rebut petitioners' arguments and to advance Idaho Power's application. See, e.g., Written Rebuttal Testimony of Tim Butler, Oregon Department of Agriculture, on Behalf of the Oregon Department of Energy, November 10, 2021; Written Rebuttal

Testimony of Sarah Reif on Behalf of the Oregon Department of Energy for Issue-FW-7, November 12, 2021; ODOE Written Rebuttal Testimony of Greg Apke, on Behalf of the Oregon Department of Energy For Issue FW-7.

c). On December 3, 2021, petitioners filed multiple motions to cross-examine the expert witnesses of Idaho Power/ODOE; ODOE responded, requesting that at least one of those requests be denied. See, ODOE Objection to Marches' Request for Cross Examination, December 10, 2021.

d.) On February 28, 2022 – having spent the previous 12 years, working to preclude public participation in the siting process, denying the applicability of pertinent statutes and standards to Idaho Power's application, obfuscating information vital to assessing Idaho Power's application, and eliminating the multitude of public concerns about the B2H project, the Department filed ODOE's Closing Brief. That brief duly asserts, "the Department believes the preponderance of evidence supports a conclusion the proposed facility, subject to the recommended site certificate conditions, complies with the requirements of the EFSC's standards and other applicable laws and rules." ODOE Closing Brief at 222-223.



e). On March 30, 2022, ODOE submitted its Response to Closing Arguments Brief.<sup>44</sup> One last time, ODOE argued against petitioners' issues, raised pursuant to the very policies that the Department is mandated to implement.

*9. In addition to litigating against public petitioners in its capacity as a party to the siting proceedings, ODOE used its position as an advisor to the EFSC to advise EFSC to uphold every one of the ALJ's decisions which were favorable to ODOE/Idaho Power as parties.*

a). Thus, on October 6, 2020, ODOE advised the EFSC to uphold the ALJ's rulings denying party status, which were favorable to ODOE/Idaho Power. ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020, at 8. ODOE also advised the EFSC to uphold the ALJ's rulings regarding limited party status, and the validity of issues identified by petitioners, all of which were uniformly favorable to ODOE/Idaho Power as parties. *Id.* at 5-6, Attachment at 21-123.

b.) On June 25, 2021, ODOE responded fawningly to Idaho Power's multiple motions for summary determination of petitioners' claims, recommending hand-in-hand with Idaho Power that the EFSC uphold each of the ALJ's rulings on summary determinations. ODOE's

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<sup>44</sup> B2HAPP Contested Case ODOE Response to Closing Arguments 2022-03-30.

Response to Applicant Motions For Summary Determinations of Party Limited Party Status Issues at 1-41.

c.) On November 12, 2021, ODOE advised EFSC to uphold the ALJ's rulings against petitioners' remaining cases on the merits, (ODOE Rebuttals to Direct Testimony and Evidence and Response to Site Certificate Conditions at 16-125) – all of which were uniformly favorable to ODOE/Idaho Power as parties.

d.) On February 28, 2022, ODOE reiterated those arguments in its 222-page Closing Brief.

e.) On July 15, 2020, ODOE recommended in a 31-page filing that the Council find that there were no procedural errors that occurred in the contested case proceeding, and that “the Hearing Officer successfully conducted her duties under OAR 345-015-0023.” ODOE Responses to Procedural and Process Objections.

f). And on August 24, 2022, ODOE advised that EFSC should deny petitioners additional time to argue their exceptions before the Council, (ODOE Response to Stop B2H Request for Additional and Equal Time at 1-2); that EFSC should deny petitioners the opportunity to respond to site certificate conditions newly proposed by the ALJ to which petitioners had never had the opportunity to respond, (*id.* at 2-4); and that EFSC should deny petitioners time for oral arguments on

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exceptions relating to procedural matters to uphold the ALJ's rulings regarding petitioners' procedural exceptions. (*Id.* at 5-8).

ODOE advised EFSC to reject every petitioner's appeal of every decision in the contested case. Throughout the entire siting process, ODOE advocated solely for EFSC to uphold decisions favorable to Idaho Power.

*10. ODOE has represented the interests of Idaho Power by failing to object to improper conduct by Idaho Power.*

a. ODOE did not object to Idaho Power's *ex parte* contacts

In April, 2021, Idaho Power submitted an extensive and detailed letter directly to EFSC, discussing proposed rulemaking revisions. Notice of *Ex Parte* Communication Pursuant to OAR 137-003-0055(2). ODOE made no protest against Idaho Power's *ex parte* communication with EFSC, despite the fact that those communications stood to affect the pending

b. ODOE refused to address Idaho Power's misrepresentations to landowners.

On March 24, 2020, Idaho Power sent a letter to landowners along the Mill Creek route, one of Idaho Power's two proposed routes along the perimeter of La Grande city limits; B2H contested case; that letter informed the recipients that they no longer needed to remain involved in the siting process because Idaho Power was no longer pursuing the Mill Creek route. Kreider Dec., Ex. 5.

At the same time, Idaho Power continued to designate Mill Creek as its primary route, see, Kreider Dec., Ex. 6.; final Order at 47, line 5-9. In fact, the Mill Creek route is one of two routes ultimately approved in the site certificate. See, Final Order at 47, FN 34. Far from objecting to Idaho Power's duplicity, deceit, and misrepresentations, ODOE deferred to Idaho Power's actions, repeatedly advising that Idaho Power's actions and deceptions were a matter over which EFSC/ODOE had no jurisdiction. Kreider Dec., Ex. 6, Ex. 7.

C. ODOE's abrogation of its mandate to protect the public interest has resulted in EFSC decisions that are, on their face, stunning in their betrayal of the public interest and public trust.

Whether because of corruption, financial mismanagement, unanticipated weather catastrophes, or wildfire, multiple U.S. electric utilities have bankrupted in recent years, often leaving taxpayers liable, sometimes for billions of dollars in resulting costs.<sup>45</sup> Despite Idaho

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<sup>45</sup> See. e.g., Taylor Telford, Steven Mufson, *PG&E, The Nation's Biggest Utility Company, Files for Bankruptcy after California Wildfires*, January 29, 2019, <https://www.washingtonpost.com/business/2019/01/29/pge-nations-biggest-utility-company-files-bankruptcy-after-california-wildfires/>; Theodore J. Kury, *Many Electric Utilities are Struggling - Will More Go Bankrupt?*, May 3, 2019, <https://theconversation.com/many-electric-utilities-are-struggling-will-more-go-bankrupt-113458>; Andrew Topf, *The 10 Biggest Energy Company Bankruptcies*, Oct 10, 2014, <https://www.businesstimes.com.sg/opinion-features/columns/10-biggest-energy-company-bankruptcies>; Steven Church, *Municipal Electricity Provider in California Files Bankruptcy*, May 25, 2021,

Power's many assurances to the contrary, (See, Final Order at 327-28) Idaho Power is not immune from the same issues or acts of nature confronting other billion-dollar utilities.

Oregon law recognizes the possibility that an energy facility or its developer or operator could fail: OAR 345-022-0050(2) requires that before issuing a site certificate, EFSC must find that an applicant has a reasonable likelihood of obtaining a bond or letter of credit, in a form and amount satisfactory to the Council, to restore the site to a useful, non-hazardous condition.

Here, EFSC accepted Idaho Power's estimate that it would cost \$140,790,000 to restore the B2H site. Final Order on the ASC for the Boardman to Hemingway Transmission Line at 333.<sup>46</sup> Against this backdrop, ODOE betrayed all pretense of protecting the public welfare when it advised EFSC to accept a \$1.00 (!) bond against the estimated \$140,790,000 cost of retiring the facility, for the period between B2H's in-service date through its 50th year in service.<sup>47</sup> ODOE's incredible

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<https://ampvideo.bnnbloomberg.ca/municipal-utility-in-california-files-bankruptcy-1.1608384>; Energy News, *Liberty Power Bankruptcy - What Now?* April 20, 2021, <https://electricityplans.com/liberty-power>.

<sup>46</sup> It appears from the Final Order that EFSC determined the cost to retire the site based solely on information provided by Idaho Power. *Id.* at 330-332.

<sup>47</sup> It is indicative of the extraordinary hold that Idaho Power has had over ODOE and this siting process that Idaho Power *even protested*

recommendation shows how far the Department will go to serve the interests of Idaho Power, even while leaving Oregon taxpayers, ratepayers, and the state itself exposed to extreme financial risk.

Hundreds of everyday Oregon citizens have been pitted against the combined might of a billion-dollar corporation and the agency which has done its bidding. Idaho Power has infinite resources with which to purchase the services of witnesses, consultants, and the largest law firms to battle common citizens who have strived to protect the land where they have chosen to work, play, and live their lives.

Throughout the B2H siting process, ODOE has advocated only on Idaho Power's behalf. ODOE has interacted frequently and freely with the employees of Idaho Power, has strived to accomplish Idaho Power's

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*the \$1.00 bond as too onerous.* The billion-dollar utility actually requested

“that ODOE consider providing an additional option for the form of assurance required. That is, Idaho Power requests that it be allowed to provide a deposit for that same amount, because there are administrative costs associated with obtaining bonds and letters of credit which would far exceed the actual value of the bond and letters of credit.”

“Idaho Power's Comment,” Final Order, Attach. 4, DPO Comment/ Applicant Response, Department Response in Proposed Order Crosswalk Tables at 26. (referencing Recommended Retirement and Financial Assurance Condition 1).

goal of siting this transmission line, and received substantial compensation from Idaho Power for its efforts. The record documents ODOE's relentless efforts to benefit Idaho Power by seeing that the project that Idaho Power desires is constructed, according to the terms Idaho Power desires; ODOE has used a process designed to block public input, while making no true attempt to address the damage the transmission line will cause ODOE has acted without regard for the people whose lives the B2H project will affect, and with an obvious contempt for the laws enacted to protect Oregon's natural resources and its residents. *If* ODOE had sited B2H with the interests of Oregonians in mind, this state agency would not have needed to manipulate every stage of the process to preclude public input and concern about the B2H project. ODOE has betrayed the public trust at every turn.

*Amicus* believes that petitioners' claim can only be accurately assessed when viewed against the context in which the B2H site certificate was approved.

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## **VI. CONCLUSION**

This Court should reverse the EFSC Final Order and remand this case to EFSC for further proceedings consistent with the court's Opinion.

Respectfully submitted,

s/ Anne Morrison

Anne Morrison, OSB #891510

for *Amicus Curiae* Anne Morrison



**Certificate of Compliance with ORAP 5.05(2)**

## Brief length

I certify that this petition complies with the 14,000 word-count limitation in ORAP 5.05(1)(b)(i)(B) and that the word count of this brief, as described in ORAP 5.05(2)(a), is 10,164 words.

## Type size

I further certify that the size of the type in this brief is not smaller than 14 point for both the text of the brief and footnotes as required by ORAP 5.05(4)(f).

DATED: December 20, 2022

*s/ Anne Morrison*  
Anne Morrison

### **Certificate of Filing and Service**

I hereby certify that on December 20, 2022, I filed the foregoing Application to Appear as *Amicus Curiae* with the Appellate Court Administrator by electronic filing, using the court's eFiling system.

I further hereby certify that on December 20, 2022, I served the foregoing Application to Appear as *Amicus Curiae* upon

Karl Anuta,  
Mike Sargetakis  
Attorneys for Petitioner Stop B2H Coalition

Jesse A. Buss  
Attorney for Petitioner Michael McAllister

Lisa F. Rackner  
Sara Kobak  
Andrew J. Lee,  
Attorneys for respondent Idaho Power Company

Denise G. Fjordbeck,  
Patty Rincon  
Jordan R. Silk,  
Attorneys for Oregon Department of Energy and Energy Facility  
Siting Council

I additionally certify that on December 20, 2022 I served a true and correct copy of this Application to Appear as *Amicus Curiae* upon Jocelyn Claire Pease, attorney for respondent Idaho Power Company, by mailing such in an envelope with prepaid first-class postage addressed to:

Jocelyn Claire Pease  
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Attorney for Petitioner Michael McAllister

DATED: December 20, 2022.

s/ Anne Morrison

Anne Morrison

IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	DECLARATION OF ANNE
	)	MORRISON, <i>AMICUS CURIAE</i> ,
v.	)	IN SUPPORT OF
	)	PETITIONER'S PETITION FOR
OREGON DEP'T OF	)	EXPEDITED REVIEW
ENERGY, OREGON	)	
ENERGY FACILITY	)	
SITING COUNCIL, and	)	
IDAHO POWER	)	
COMPANY	)	
<i>Respondents</i>	)	
	)	

1. I am an attorney and the *amicus* herein. I have personal knowledge of the matters set forth in this declaration.

2. Exhibit 1 is the August 22, 2019 letter/comment on the Draft Proposal Order, written by botanist Susan Geer to ODOE Senior Siting Analyst Kellen Tardaewether and discussing Geer's concerns regarding Idaho Power Company's "Noxious Weed Plan," (DPO Attachment 1-5). Ms. Geer has provided this comment to me as submitted in the record of the case; however, because I do not have access to the record I am unable to provide the record citation.

1 – DECLARATION OF ANNE MORRISON, AMICUS CURIAE, IN SUPPORT OF PETITIONER'S PETITION FOR REVIEW

3. Exhibit 2 is the August 22, 2019 letter/comment on the Draft Proposal Order, written by botanist Susan Geer to ODOE Senior Siting Analyst Kellen Tardaewether and discussing Geer's concerns regarding Idaho Power's Amended application for Site Certificate and failure to comply with legal requirements pertaining to the protection and preservation of rare and native plants. Ms. Geer has provided this comment to me as submitted in the record of the case; however, because I do not have access to the record I am unable to provide the record citation.

4. Exhibit 3 is a March 1, 2021 letter from EFSC Chair Marcy Grail to Oregon's Joint Committee on Ways and Means and the Subcommittee on Natural Resources, discussing EFSC's role as sole decision maker regarding energy facilities, EFSC's warm relationship with and reliance on ODOE staff, and requesting legislative funding on behalf of ODOE. This document is available on the Oregon Legislature's website at

<https://olis.oregonlegislature.gov/liz/2021R1/Downloads/PublicTestimonyDocument/9946>.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 17th day of December 2022 in La Grande, Oregon.

s/ Anne Morrison  
Anne Morrison

Greg Larkin/1101

Greg Larkin/78

August 22, 2019

Energy Facilities Siting Council  
c/o Kellen Tardaewether, Senior Siting Analyst  
Oregon Department of Energy  
Via email [B2H.DPOComments@Oregon.gov](mailto:B2H.DPOComments@Oregon.gov)

**Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019**

**Dear Chair Beyeler and Members of the Council;**

I am a Botanist/Ecologist who has worked in eastern Oregon for over 20 years; although employed by Wallowa Whitman National Forest, I write to you today as a Union County citizen and landowner. I have reviewed Idaho Power Company's (IPC's) amended Application and offer the following comments for the consideration by the council in their decision on the pending Application for Site Certificate.

With regards to Exhibit P, IPC's "Noxious Weed Plan" (DPO Attachment P 1-5) is vastly inadequate and presents a threat to Oregon's native plant communities/wildlife habitat, promotes risk from wildfire, and presents a public menace. Oregon statute 569.180 (Noxious weeds as public nuisance policy) states, "In recognition of the imminent and continuous threat to natural resources...noxious weeds are declared to be a public nuisance and shall be detected, controlled and, where feasible, eradicated on all lands in this state." Chapter 569 of Oregon law covers weed control [https://www.oregonlegislature.gov/bills\\_laws/ors/ors569.html](https://www.oregonlegislature.gov/bills_laws/ors/ors569.html) including obligation of land occupant:

***569.390 Owner or occupant to eradicate weeds.*** *Each person, firm or corporation owning or occupying land within the district shall destroy or prevent the seeding on such land of any noxious weed within the meaning of ORS 569.360 to 569.495 in accordance with the declaration of the county court and by the use of the best means at hand and within a time declared reasonable and set by the court, except that no weed declared noxious shall be permitted to produce seed.*

Excellent comments were provided in "B2H Noxious Weed Plan Comments" by a large group of weed professionals, submitted by Brian Clapp of Union County. The document states, "The County Weed Supervisors of Morrow, Umatilla, and Union counties met with the Oregon Dept. of Ag and Tri-County CWMA on August 22, 2017 to go over the B2H Attachment P1-5 Noxious Weed Plan. In conjunction with comments from previous meetings with Malheur and Baker county weed supervisors, the following list of concerns was developed..." IPC's Noxious Weed Plan of 2018 (Attachment P1-5) does NOT include the suggestions made by the weed managers.

The foremost finding by weed managers in 2017 was that IPC illegally excludes themselves from responsibility for the FULL list of weeds. In 2018, IPC's Weed Plan still only obligates IPC to control weeds in Class A and Class T lists. It is widely recognized that these weed "Classes" are determined according to agricultural priorities, not according to which weeds are the biggest threats to natural areas. Treating only Class A and T, a shorter list of weeds which are not very common, is especially devastating for natural areas, i.e. the vast majority of the proposed B2H routes. Any invasive plant can devastate an area- regardless of which "list" it is on. In fact, Class B and C weeds are generally the worst weeds and tend to be those which are spreading most aggressively and to more areas, thus threatening and ultimately devastating the most native habitat. The Weed Managers state, "Every landowner and

land manager is responsible for the control of ALL state and county listed noxious weeds on their property/ ROW. Whether the weeds have been here for 50 years or don't show up till the 20<sup>th</sup> year of Operation, IPC will be held responsible for the control of noxious weeds in the areas they manage-the same as everyone else." IPC has offered nothing in response.

As an example of serious weeds that would be excluded according to IPC, two of the worst weeds which occur in Union County, *Leucanthemum vulgare* (ox eye daisy) and *Rosa rubiginosa* (sweet briar rose) are NOT included in Table 1 of the Weed Plan "Designated Noxious Weeds". These species are listed in Union County Class B <http://union-county.org/wp-content/uploads/2017/04/Union-County-Weed-List-2019-and-cost-share-Ad.pdf>. Other "Class B" list weeds include sulphur cinquefoil, whitetop, diffuse and spotted knapweed – all among the very worst noxious weeds, present in the proposed areas of disturbance and certain to spread to currently intact native plant communities, should B2H construction proceed. These weeds, which are even now devastating thousands of acres of native plant communities, would not be treated under IPC's Weed Plan – and neither would any of the other dozens of species on Class B and C lists, not to mention new invasives, which take some time to be added to a list. Union County Class "B" list alone includes 24 noxious weeds. Other landowners are required to follow County and State laws and control ALL noxious weeds. Why should Idaho Power be exempt?

Weed Surveys provided in Exhibit P-1 part 2a and b are misleading; many species which would NOT be controlled by IPC under their "Weed Plan" were included in the surveys. Surveys were done between 3-8 years ago, a very long time in terms of weed spread! Surveys done so long ago using an outdated list and in such an artificially limited area are not acceptable.

In addition to exempting themselves from the full list of weeds, IPC's Post Construction treatments is otherwise ridiculously limited and unacceptable. In fact I could not believe the State Weed Program would sign off on it. Perhaps they did not. No comments were provided in DPO Attachment 3, "Reviewing Agency Comments". Here is an excerpt from the IPC Plan (Monitoring 6.1):

*As stated above, noxious weed monitoring and control will occur during the first 5-year period. When it is determined that an area of the Project has successfully controlled noxious weeds at any point during the first 5 years of control and monitoring, IPC will request concurrence from ODOE. If ODOE concurs, IPC will conclude that it has no further obligation to monitor and control noxious weeds in that area of the Project. If control of noxious weeds is deemed unsuccessful after 5 years of monitoring and noxious weed control actions, IPC will coordinate with ODOE regarding appropriate steps forward. At this point, IPC may suggest additional noxious weed control techniques or strategies, or may request a waiver from further noxious weed obligations at these sites.*

Anyone who has tried to control weeds will realize that by treating weeds only once per year, many will be missed and weeds will spread. Further, noxious weeds cannot be "successfully controlled" in 5 years. My observations of disturbed areas on both public and private lands show that weed treatment and monitoring must continue in *perpetuity* to keep those areas weed free. An Alberta study by Cole et. al. in 2007 concluded, "Eradication attempts usually involve mechanical removal to prevent seed spread, followed by a systemic, residual herbicide treatment well beyond the infestation site. The key to the extirpation of these invasive plants is the on-going locating, marking, monitoring and managing by the municipalities, agricultural field men and land owners..." The treatment that IPC proposes fail in all ways; they are neither "on-going" nor do they extend "well beyond the infestation site". If there is any marking, monitoring and managing, IPC will be long gone and leaving that burden to residents and

County and State. It seems ludicrous that IPC be allowed to appeal to ODOE after 5 years to claim areas of the "Project" had "successfully controlled weeds"- and then be exempted from further responsibility-- while invasives return as soon as herbicide treatments cease.

In the same unreasonable vein, the Plan further states, "if control of noxious weeds is deemed unsuccessful...IPC will coordinate with ODOE regarding appropriate steps forward," including "request a waiver from further noxious weed obligations". Essentially IPC comes by once per year for 5 years at most, inevitably fails in weed control, and is ultimately not responsible. Landowners and County are burdened with more weed control, and our ever-shrinking valuable native plant communities are compromised or eliminated, leaving native animals without habitat.

IPC's Plan further states they are not responsible for "areas outside of the right of way (ROW)". Weed sites immediately outside areas of potential disturbance are nearly certain to but would not be recorded or treated! Noxious weeds spread quickly, often exploding exponentially in a single season. IPC is proposing a HUGE area of disturbance; their responsibility should not be limited to the ROW.

As IPC has proposed only annual treatments, one can surmise they would use primarily residual herbicides. Residual herbicides may seem like the answer to the dilemma of weeds constantly in seed production. Herbicides such as aminopyralid and imazapic have become the herbicides of choice for many species. I have been using these herbicides for years now and have found they prevent germination for up to 3 years following application in eastern Oregon. This means germination of native plants as well as weeds. Bare spots are created where weeds once were. Revegetation by anything at all is prevented. After 2-3 years when the soil born chemical is reduced, weeds pioneer the site. In addition, native plants next to the weeds can die as a result of root uptake of the herbicide even though they were not sprayed directly. When using aminopyralid, willows, aspen, conifers (especially larch) and desirable native forbs in certain families are often killed in this way. Successful revegetation very unlikely. Since IPC is proposing to treat weeds for only 5 years, it is very likely a couple of treatments using residual herbicides would suppress weeds for that time, only to explode on the - now bare-areas once occupied by valuable native plants.

In summary, IPC's Noxious Weed Plan does not comply with Chapter 569 of Oregon law. IPC denies responsibility for control of most weed species, denies responsibility for weed control after 5 years, controls weeds only annually, and even allows them a waiver when control has failed. EFSC should reject the Weed Plan and Application. As a condition of re-applying, IPC should be required to post a bond to secure weed management for the lifetime of the project, which they claim is 45 years. Much is at stake, and there is no going back when thousands of acres of native plant communities are lost to invasives.

**Sincerely,**

**Susan Geer**  
**906 Penn Ave.**  
**La Grande OR 97850**  
**[susanmgeer@gmail.com](mailto:susanmgeer@gmail.com)**  
**541-963-0477**



Greg Larkin/1101

Greg Larkin/81

August 22, 2019

Energy Facilities Siting Council  
C/o Kellen Tardaewether, Senior Siting Analyst  
Oregon Department of Energy  
[B2H.DPOComments@Oregon.gov](mailto:B2H.DPOComments@Oregon.gov)

**Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019**

**Dear Chair Beyeler and Members of the Council;**

In my previous letter I wrote to you outlining problems with Idaho Power's Noxious Weed Plan, part of their amended Application for Site Certificate. Here I offer comments on the implications for rare plants and State-listed priority unprotected plant communities, should IPC's Amended Application be accepted.

First of all, I was dismayed to learn that Oregon Department of Agriculture Rare Plant program did not provide comments (DPO Attachment 3, Reviewing Agency Comments). Upon contacting Oregon's Rare Plant Co-coordinator, I learned that no funding was provided to him for that task! It is a tremendous oversight and disservice to Oregon's rare plants, to have no State involvement in an application with such HUGE potential impacts to Oregon's rare plants and habitats.

The Threatened and Endangered Species Standard at Oregon Administrative Rule (OAR) 345-022-0070 provides:

*To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:*

*(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under [Oregon Revised Statute (ORS)] 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:*

*(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or*

*(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species*

Furthermore, Site Certificate applicant requirements OAR 345-021-0010(1)(q) requires Exhibit Q include the following:

*(A) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2), ORS 564.105(2) that may be affected by the proposed facility.*

*(B) For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it.*

*(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.*

*(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).*

*(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

*(F) concerns only animals*

*(G) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.*

1

To say that IPC meets these requirements is a stretch of the imagination!

First of all, an incomplete and outdated plant list was used in surveys. Exhibit P, Attachment P1-2 Revised Final Biological Survey Workplan, 3.2.1 "Agency Survey Requirements" states that ODA "requires that state-listed threatened and endangered species, which appear on ORNHIC List 1 and have the potential to occur in the project area, be considered for survey...Regardless of land ownership, suitable habitat for sensitive plants will be identified during the pre-survey vegetation mapping phase and refined during the species-specific surveys. Appendix C-2 provides information on sensitive species with the potential to occur within the project area."

In fact, the State entity which maintains the state list is ORBIC, not ORNHIC. Appendix C-2 is undated and contains only 8 of the 64 State T & E plants listed by ODA in 2019 (<https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks>). The likely conclusion is that most current State T & E plant species were not included in surveys. Also, strangely, neither OR/WA BLM, nor USFS Region 6, which jointly participate in ISSSP (Interagency special status/sensitive species program <https://www.fs.fed.us/r6/sfpnw/issssp/agency-policy/>) are mentioned at all! Instead, Idaho State BLM program plant are listed in Attachment P1-2, Appendix C-2. ISSSP list was updated in 2015 and again in 2018; apparently none of those revisions were acknowledged by IPC in their surveys.

Exhibit Q part 3.4.2.3 "Summary of Potential Adverse Effects to Plants" finally mentions using 2016 **agency data** "BLM (2016), ORBIC (2016a), IDFG (2016), and USFS (2016) databases, along with field survey data results (see Exhibit P1, Attachment P1-7A, Biological Surveys Summary Report), were combined in GIS to generate species occurrence information". These references to 2016 lists appear to have only been added **post-survey** and hardly make up for the fact that IPC sponsored surveys themselves did not use proper or updated plant lists.

While I realize this a review of State mandates, not federal ones, all agencies purport to co-operate with each other in the effort to manage rare species to avoid further listing. Failing to use updated plant lists reflects negatively on IPC, and failure to survey for ISSSP species reflects negatively on both IPC and the State of Oregon. It is incredible to me that the BLM and USFS have signed off on this (2018 Record of Decision). I believe this is a gross oversight. **It is imperative EFSC halt this faulty process immediately and require ODA Rare Plant Program involvement and comments and surveys for ISSSP list plants!**

Secondly, in contrast to the wording in (OAR) 345-022-0070, **no** State listed plants have a conservation program in place. Undoubtedly, this is because the State has not yet developed the programs. IPC does not propose any either. In addition, no critical habitat is named for any of the species. The State has apparently not found time or funding for ODA to address this; IPC does the bare minimum and does not provide any conservation program or critical habitat either. To add insult to injury, IPC does not propose **any** monitoring programs (as suggested) for impacts to T&E species!

Even with inadequate plant lists and little access to private lands, 5 State listed T&E plant species (DPO Exhibit Q) were found in surveys of the B2H "analysis area". IPC claims "only" two of these rare species (Mulford's milkvetch and Snake River goldenweed) will suffer "direct impacts", by blading with heavy equipment. IPC claims that, "Avoidance and minimization measures ...described in Section 3.5.4" will "mitigate" impacts. Upon reading 3.5.4 we find that this consists of "minimum buffer of 33 feet

Greg Larkion/83

between the disturbance and the edge of the T&E occurrence". Habitat for these plants will be completely fragmented and a buffer of 33 – or even a few hundred--feet will not stop invasion by noxious weeds. OAR 345-022-0070 says *the design, construction and operation of the proposed facility*, - following their "Noxious Weed Plan" IPC stops treating weeds after 5 years, leaving T&E plants to be overwhelmed! T&E species will suffer irreparable damage under B2H. The Oregon Conservation Strategy rightly recognizes, "Invasive species are the second-largest contributing factor causing native species to become at-risk of extinction in the United States."

To delve further into rare plants slated for damage by B2H, *Trifolium douglasii* is a USFWS "Species of Concern" <https://www.fws.gov/oregonfwo/Documents/OregonSpeciesStateList.pdf> yet not even considered in IPC's 3.5 "Avoidance to Minimize Impacts". Although List 1 under ORBIC's latest ranking <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> it is not shown as State listed Threatened or Endangered, so is ignored by IPC. Species of Concern are "Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed." Douglas clover has a global rank of G2 "*Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences*". DPO Exhibit P Part 2b Appendix 3A and 3B Figure 9 of 23 shows Douglas clover directly on the Morgan Lake alternative! This is not even taking into account private lands where access was not granted for survey, contains additional occurrences of Douglas clover. The Morgan Lake/ Glass Hill area is THE main place where this rare plant grows in Oregon, and B2H is set to permanently alter and compromise its main habitat with weeds!

State List 1 and 2 species NOT specifically included on the Threatened and Endangered list were not required by OARs and thus were not addressed at all by IPC. It seems wrong to completely exclude species which are only a step away from listing at the highest level. In fact, in these times, any rare species which shows a Moderate or higher "Climate Vulnerability" as determined by ORBIC <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> should absolutely be considered in any Application. The fact that it was not runs counter to the Oregon Climate Plan. Speaking of Oregon and State Goals, IPC's Application made no mention at all of the Oregon Conservation Strategy! Both of these omissions are critical and unacceptable!

Even more disturbing was the exclusion of the State Natural Areas Plan

<https://inr.oregonstate.edu/orbic/natural-areas-program>.

A look at the list of unprotected plant associations according to the Natural Areas Plan reveals that many are located in the B2H "analysis area". Since I am most familiar with the Glass Hill area, I can point to Ponderosa pine/bluebunch wheatgrass, Ponderosa pine/Idaho fescue, Douglas fir/oceanspray, Mountain alder-snowberry riparian, and Western larch – mixed conifer forest as being plant communities slated for destruction under B2H in the Blue Mountains Ecoregion which are currently listed as "unprotected" by the Natural Areas program, and thus listed as top-priority in the Natural Areas Plan.

In conclusion, the ODA Rare Plant program was excluded from comments, and is apparently so underfunded they have not been able to provide essential conservation plans, critical habitat, or monitoring plans. Idaho Power surveys are outdated and used an incomplete list. ISSSSP lists were not included. Mitigation measures provided by IPC for State T&E species are pathetic. A Federal Species of Concern was not even considered in the Application. State List 1 and 2 species and Climate Vulnerable species were not considered. The Oregon Climate Plan and Oregon Conservation Strategy were ignored

Greg Larkin/1101

Greg Larkin/84

and completely excluded. The State Natural Areas Plan and unprotected plant community types was not even discussed.

**Considering all of these crucial exclusions and problems meeting Oregon laws, plans, and goals, EFSC must deny IPC's Application.**

Sincerely,

Susan Geer  
906 Penn Ave.  
La Grande OR 97850  
[susanmgeer@gmail.com](mailto:susanmgeer@gmail.com)



# ENERGY FACILITY SITING COUNCIL

■ Marcy Grail, Chair ■ Kent Howe Vice-Chair ■ Hanley Jenkins II ■ Mary Winters ■ Cindy Condon ■ Jordan Truitt

March 1, 2021

Co-Chair Kathleen Taylor

Co-Chair Jeff Reardon

Members of the Joint Committee on Ways and Means Subcommittee on Natural Resources

900 Court St. NE

Salem, OR 97301

## **RE: Department of Energy Budget**

Dear Co-Chair Reardon, Co-Chair Taylor and Members of the Committee:

My name is Marcy Grail, and I am an Assistant Business Manager for the Internal Brotherhood of Electrical Workers (IBEW) Local 125. IBEW Local 125 has approximately 3,300 members who work in the Pacific Northwest's electric utility industry. We represent members working in the utility, outside construction, and line clearance tree trimming sectors of the electric utility industry. I have also served as one of seven members of the governor appointed and senate confirmed Energy Facility Siting Council (EFSC) since 2016 and am currently the chair.

EFSC is charged with the review and decision making on large-scale energy projects that are key to the generation and transmission of energy to Oregonians, such as solar PV, wind, and high voltage transmission lines. Because these are large infrastructure projects, they can be extremely complex which often generates significant support and opposition. While EFSC is the sole decisionmaker on these projects, we are volunteers and therefore necessarily rely on the staff at the Oregon Department of Energy (ODOE). Staff completes the needed work with applicants, state agencies, local governments, tribal governments and members of the public to provide us the information and support necessary to be an independent decision-making body.

During the time that I have been on EFSC, I have witnessed an ODOE staff dedicated to a timely, fair, inclusive, and transparent review process. They proactively engage all interested stakeholders to ensure all relevant information is included in the record so they can be confident in their recommendations to us whether each proposed project meets all applicable standards and any impacts are minimized or mitigated. Despite the controversial nature of some of these projects and the charged positions of the different stakeholders that can result, ODOE staff ensures that all comments and positions are equally evaluated and presented to EFSC.

The work of EFSC is critical to Oregonians. It would be beyond challenging for EFSC members to fulfill their duties without the same level of continued and thorough support which has been provided by ODOE staff. In my role as chair, I have an even better view of staff's contribution to the successful execution of our duties. In summary, I respectfully request that you join me in support the ODOE budget and encourage your approval of it. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Marcy Grail". The signature is fluid and cursive, with the first name "Marcy" and the last name "Grail" clearly distinguishable.

Marcy Grail

Chair

Oregon Energy Facilities Siting Council

IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	DECLARATION OF FUJI
	)	KREIDER IN SUPPORT OF
v.	)	AMICUS CURIAE BRIEF IN
	)	SUPPORT OF PETITIONER'S
OREGON DEP'T OF	)	PETITION FOR EXPEDITED
ENERGY, OREGON	)	REVIEW
ENERGY FACILITY	)	
SITING COUNCIL, and	)	
IDAHO POWER	)	
COMPANY	)	
<i>Respondents</i>	)	

1. My name is Carol Fuji Kreider (Fuji Kreider). I have knowledge of the matters set forth in this declaration.

2. I am the Secretary/Treasurer of Petitioner Stop B2H Coalition. I manage the records and finances of the board of directors for the organization, incorporated in the State of Oregon in Aug 28, 2017 and designated by the IRS as a 501(c)(3) as a public benefit nonprofit on September 19, 2017. We are a 100% volunteer organization, with contracted attorneys to help us with this case. In my role I serve not only an administrative function but also as leadership: providing guidance and

1 – DECLARATION OF FUJI KREIDER IN SUPPORT OF AMICUS CURIAE BRIEF IN SUPPORT OF PETITIONER'S PETITION FOR REVIEW

assistance to all of our members as they navigated and participated in the Oregon Department of Energy/Energy Facilities Siting Council decision making processes in the matter of the Boardman to Hemingway transmission project. Hence, this required me to engage in email exchanges with ODOE staff and other actors involved in the process to gather information as the board or other volunteers needed.

3. Attached as Exhibit 4 is an email exchange dated August 4, 2022 between ODOE Senior Siting Analyst Kellen Tardaewether and me, discussing the \$4.14 million in reimbursement funds paid by Idaho Power Company to ODOE for work related to siting the B2H transmission line between 2013 and August 2022.

4. Attached as Exhibit 5 is a March 24, 2020 letter from Idaho Power Company to landowners, including me, along IPC's proposed Mill Creek Route, (name redacted) stating that because Idaho Power would be pursuing the Morgan Lake Route in place of the Mill Creek Route, property owners near the Mill Creek Route "don't need to take any further action."

5. Attached as Exhibit 6 is an August 4, 2020 email exchange between ODOE Senior Siting Analyst Kellen Tardaewether and Jim and Fuji Kreider in which Tardaewether acknowledges IPC's March 24 letter



Greg Larkin/89

and states, "IPC may publicly announce what it likes about which route it intends to construct and operate," while clarifying that IPC had never removed the Mill Creek Route from its application.

6. Attached as Exhibit 7 is a November 3, 2020 email exchange between Tardeawether and Fuji and Jim Kreider in which Tardeawether affirms that "Idaho Power has not removed any routes" from the application, "so all of them continue to be under review," and that "Idaho Power may represent their preferences for routes to the public and as a company and that does not impact the EFSC review."

7. Attached as Exhibit 8 is a February 24, 2022 email exchange between ODOE Assistant Director for Siting Todd Cornett and Jim Kreider, cc:ed to me, in which Kreider complains that IPC is obtaining court orders to enter private property despite the fact that the IPC application has not been approved, and Cornett responds that IPC is not acting under EFSC authority to enter onto private land, therefore, IPC's actions are "outside EFSC's authority."

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 17th day of Dec. 2022 in La Grande, Oregon.

s/Fuji Kreider  
Fuji Kreider

**Fuji Kreider**

---

**From:** TARDAEWETHER Kellen \* ODOE [Kellen.TARDAEWETHER@energy.oregon.gov]  
**Sent:** Thursday, August 4, 2022 2:37 PM  
**To:** Fuji Kreider  
**Subject:** RE: Some questions-- again!

Hi Fuji!

- It sounds like Jesse is going to send an email to the parties and limited parties next week with some logistical info for the upcoming EFSC meeting to review the proposed order, PCCO, and exceptions. Any formal direction should come from Jesse, I'm just trying to help convey items that I believe will happen to help you but if there is any deviation from what this says and what Jesse says, his directions will be maintained. The meeting will have in-person, call-in and webinar connection abilities, same with all EFSC meetings and this information will be included in the Agenda for the meeting. There will be an opportunity for limited parties to submit recordings if they cannot attend and his email should have more info about how to do that. It also looks like parties and limited parties will have an opportunity to provide oral testimony for each issue where an exception was properly filed and Jesse's email may have more info on that as well.
- The Department executes a Cost Reimbursement Agreement (CRA) with every applicant who submits an application for site certificate and that CRA is what we bill towards for staff and DOJ work reviewing an application, drafting orders, attending meetings, etc. If we have a consultant assist us with reviewing the application, their time is billed toward the CRA, same with reviewing agencies who spend time reviewing and submit invoices may also be reimbursed under the CRA. The CRA executed with IPC has been amended (added to) several times over the years (since 2013) because the duration and complexity of the ASC review and when it was "on pause" during the NEPA review. The total CRA value since 2013 is \$4.14 million. If you want a more detailed distribution of costs, I'll need to know more specifically what you're looking for. Since the EFSC process is *process* driven, there are always upswings in work and therefore billing as well as periods where there is less billing because there is less work.
- I've passed your comments about signage and parking along to those doing logistics for the meeting. It sounds like there will be parking info provided via email and links to the map below, I believe.

Hope this all helps and let me know what other questions you have!

Kellen



**Kellen Tardaewether**  
 Senior Siting Analyst  
 550 Capitol St. NE Salem, OR 97301  
 C: 503-586-6551  
 P (In Oregon): 800-221-8035



Stay connected!

**From:** Fuji Kreider <fkreider@campblackdog.org>  
**Sent:** Monday, August 1, 2022 6:05 PM  
**To:** 'Fuji Kreider' <fkreider@campblackdog.org>; TARDAEWETHER Kellen \* ODOE  
 <Kellen.TARDAEWETHER@energy.oregon.gov>  
**Subject:** RE: Some questions-- again!

Ooops, one more: And, if a petitioner can't zoom-in (e.g.: Matt Cooper has a family gig for ashes to be spread ... the whole week on the coast in an RV park).... What to do? He is thinking about video-taping his testimony (depending on what Jesse says is the procedure, time, etc.) and sending it to be played (as if he was present on the webex/zoom).

Sorry I spaced-out that question below.... -Fuji

---

**From:** Fuji Kreider [<mailto:fkreider@campblackdog.org>]  
**Sent:** Monday, August 1, 2022 6:01 PM  
**To:** 'TARDAEWETHER Kellen \* ODOE'  
**Cc:** Fuji Kreider-CBD  
**Subject:** Some questions-- again!

Hi Kellen,

Hope you are keeping cool—albeit, it seems that the heat wave is over—this one anyway. I have two or three questions for you:

1. I remember you or maybe it was Max or Todd, telling us that IPC pays ODOE around \$40K per month for the work on processing the ASC, etc... Is this correct; and/or can you tell me how much (doesn't have to be exact)? Please let me know if I need a public records request for this info. If so, I'll do one—please tell me how quickly this can be processed and format/forms or link? Thanks. In the past the number/amount was shared, but I can't find that. We're a bit curious as to how much of their \$200 million permitting costs have been for ODOE vs, OPUC/IRP, NEPA case, etc. You get the idea. I don't expect you to know all of that—just the ODOE costs are enough. Thanks!
2. The EFSC special hearing for exceptions in the contested case is on EOU campus. Parking is \$2 per day unless folks park at the stadium (a bit of a walk for some). Anyway, I just wanted to give you guys a heads up – and also request/hope that there will be signage or something, for folks to follow how to get to the meeting/hearing. The Gilbert Center is fairly new (formerly Ackerman School Auditorium) and many in the community do not know where it is. Probably you could ask EOU (as part of your rental fees) to allow parking at the Gilbert parking lot for free? And/or ask them to put up the signage for you guys (& community).

We're looking forward to getting more information from Jesse Ratcliff—ASAP--on the procedures and what to prepare and expect. There isn't much time – and for some they are already telling us that they won't be in town, so, we'll need zoom (or webex) protocols, etc. for those that will need to zoom in.... If there is anyone else that we should be asking about things like this, please advise. Thanks Kellen!

Take care,  
Fuji

Greg Larkin/1101

Greg Larkin/93



March 24, 2020

### Route Update: Boardman to Hemingway Transmission Line



I'm writing to update you on the Boardman to Hemingway transmission line. Until now, we have considered two routes for the line in Union County: the Mill Creek Route and the Morgan Lake Alternative. We're now focused on building the Morgan Lake Alternative. Please see the back side of this letter for a map of both routes.

As you may recall, in 2016, a committee of Union County residents asked the U.S. Bureau of Land Management to consider a route that parallels the existing transmission line along the hillside west of La Grande. That led to the Mill Creek Route, which would be visible from town.

With help from local landowners, Idaho Power developed the Morgan Lake Alternative. This route would run behind the ridge southwest of Morgan Lake Park, out of the city's view. To further reduce visibility near the park, strategic sections would use shorter, H-frame structures instead of lattice towers.

We've also committed to helping improve recreation at Morgan Lake Park. The community can choose the improvements. Idaho Power and our fellow project participants will help pay for them.

Over the past two years, the community has shown a preference for the Morgan Lake Alternative. That's why we are pursuing it instead of the Mill Creek Route.

Since your property is near the Mill Creek Route, you don't need to take any further action. If you have any questions, please contact me at 208-388-2483 or [mstokes@idahopower.com](mailto:mstokes@idahopower.com).

Sincerely,

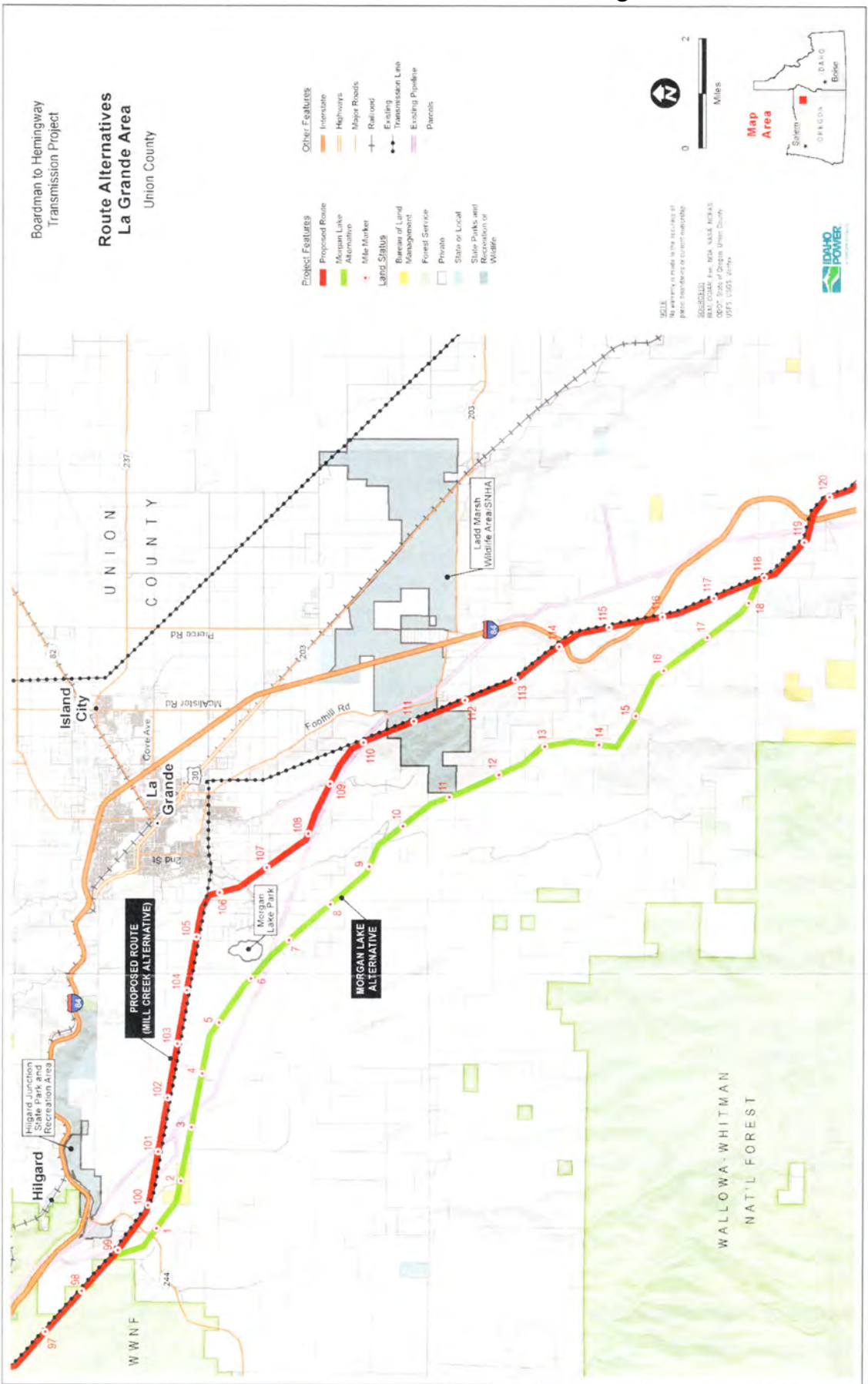
M. Mark Stokes, P.E.

Idaho Power Engineering Project Leader  
[mstokes@idahopower.com](mailto:mstokes@idahopower.com)

208-388-2323, or  
1-800-488-6151  
(outside the Treasure Valley)

1221 W. Idaho St. (83702)  
P.O. Box 70  
Boise, ID 83707





**From:** TARDAEWETHER Kellen \* ODOE  
[Kellen.Tardaewether@oregon.gov]  
**Sent:** Tuesday, August 4, 2020 8:10 AM  
**To:** jim kreider  
**Cc:** Fuji Kreider  
**Subject:** RE: Question about primary and secondary routes in Union county  
in the PO

Good morning Jim and Fuji!

Greg Larkin/'1101

Greg Larkin/95

Sorry I missed the call. I'm not getting my voicemails forwarded for some reason and have tried having folks in the office help, obviously it isn't working so thank you for pointing it out and I'll try something different.

I know that most folks are familiar with the routes named from the NEPA review done by the BLM. Indeed, even IPC in its letter you attached is using a name of the route from the NEPA review and one from the EFSC review...which is confusing. The routes in the application under review by EFSC in the vicinity of La Grande in Union County are the proposed route and the Morgan Lake alternative. Regardless of the naming of the routes (proposed vs alternative- in your email you refer to it as preferred and secondary), EFSC reviews both routes the same against the applicable Council standards, etc. If Council approves both routes then the applicant would select which routes it prefers and comply with any conditions of approval for the selected route. I believe the proposed route (EFSC review) is the same as the Mill Creek Route (NEPA review).

I understand that IPC has sent out these letters. IPC may publicly announce what it likes about which route it intends to construct and operate. However, IPC has left both routes in the application under review, therefore the proposed order continues to review, and recommends approval (with conditions) of both routes. If the B2H proposed facility is approved by EFSC and IPC wishes to modify any routes, they would need to go through the EFSC amendment process or submit an amendment determination request (ADR). However, that does not appear to be what's happening. It appears that IPC is publicly announcing which route it would select if approved by EFSC, the Morgan Lake alternative and not the proposed route. Regardless, and as

Greg Larkin/1101

Greg Larkin/95

mentioned, both routes will be reviewed by EFSC and if approved, IPC may select either route. Hope this helps!

Kellen

**Kellen Tardaewether**  
Senior Siting Analyst  
550 Capitol St. NE Salem,  
OR 97301  
P: 503-373-0214

C: 503-586-6551  
P (In Oregon): 800-221-  
8035

**From:** jim kreider <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>  
**Sent:** Monday, August 3, 2020 3:31 PM  
**To:** TARDAEWETHER Kellen \* ODOE <[Kellen.Tardaewether@oregon.gov](mailto:Kellen.Tardaewether@oregon.gov)>  
**Cc:** Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Subject:** Question about primary and secondary routes in Union county in the PO

Kellen -- FYI - just tried to call you at the office and mobile numbers your mailbox is full ;-(

In reality I was tired of typing stuff and just wanted to talk about what's in this email and to ramble a bit - lucky you were out and the mailbox was full ;-)

Since you are primary keeper of all things related to this project I have a question that I would like clarification on. In my and others looking through the PO it appears that the Mill Creek route is the preferred route and Morgan Lake is the secondary. Is that a fact?

The reason I ask is we've had several people so far tell us that they didn't need to participate in the contested case process because they got a letter from Idaho Power saying they are pursuing the Morgan Lake Route instead of the Mill Creek Route. The first paragraph says ...



Greg Larkin/1101

Greg Larkin/97

I'm writing to update you on the Boardman to Hemingway transmission line. Until now, we have considered two routes for the line in Union County: the Mill Creek Route and the Morgan Lake Alternative. We're now focused on building the Morgan Lake Alternative. Please see the back side of this letter for a map of both routes.

and the 2nd to last paragraph ...

Over the past two years, the community has shown a preference for the Morgan Lake Alternative. That's why we are pursuing it instead of the Mill Creek Route.

If there is no mention, suggestion, or hint of the route change in the PO as described in the attached letter what would one call the action of sending such a letter by Idaho Power to a landowner on the Mill Creek Route? Before I write to IPC I felt I needed to check with you to do diligence by checking the facts I think are true to be sure they are true. True confessions -- I'll never read every page of every document and attachment but think I know someone who might have.

Thanks -- jim

**From:** TARDAEWETHER Kellen \* ODOE  
[Kellen.Tardaewether@oregon.gov]  
**Sent:** Tuesday, November 3, 2020 11:00 AM  
**To:** Fuji Kreider  
**Cc:** 'Jim Kreider'  
**Subject:** RE: quick question...

I think it's best when discussing the state EFSC review, to use the terms for the routes proposed in the application for site certificate (ASC). So, in Union County, there is the proposed route and Morgan Lake alternative. That said, as you are aware, EFSC will review all routes and if all routes meet the applicable EFSC standards, the route(s) will be approved and Idaho Power will have the option to select which routes they want to construct and operate subject to the applicable site certificate conditions. The routes not selected will simply not be constructed therefore there will not be applicable site certificate conditions. The applicant does not need to amend it's site certificate to "remove" routes not constructed...again, if approved. Hope this helps,

Kellen



**Kellen Tardaewether**  
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8035



Stay connected!

**From:** Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Sent:** Tuesday, November 3, 2020 9:57 AM  
**To:** TARDAEWETHER Kellen \* ODOE <[Kellen.Tardaewether@oregon.gov](mailto:Kellen.Tardaewether@oregon.gov)>  
**Cc:** 'Jim Kreider' <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>; 'Fuji Kreider' <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Subject:** RE: quick question...

Hi again—"quick fingers"! ;-)

So basically, in Union County, the ASC route IS what we call the Mill Creek route; and the Morgan Lake is considered an "alternative." And, at this point, they are both in play. If they chose to remove or withdraw the Mill Creek route and go with the alternative, what would that do to the application and the process? It wouldn't be an amendment, right? An "amendment" would only come *after* a cite certificate was already issued, right?

Happy to know that Kaplan is already walking! Wow, time flies... I don't know about you, but during these days of covid, some things seem to be flying bye... and other things seem to be taking forever!

Fuji

**From:** TARDAEWETHER Kellen \* ODOE [<mailto:Kellen.Tardaewether@oregon.gov>]  
**Sent:** Tuesday, November 3, 2020 9:50 AM  
**To:** Fuji Kreider  
**Cc:** 'Jim Kreider'  
**Subject:** RE: quick question...

Hi Fuji and Jim!

Kaplan is doing amazing and started walking and will start talking soon too. It's all very exciting!

As we have discussed and I've provided a written explanation before, the routes as proposed in the application for site certificate (ASC) are what EFSC is reviewing. The proposed route and alternative routes, including the Morgan Lake alternative are proposed in the application for site certificate so all are being reviewed by EFSC. Please note that there is not a Mill Creek Route proposed in the ASC and that is a term derived from the NEPA review. Idaho Power has not removed any routes from the ASC, so all of them continue to be under review. Idaho Power may represent their preferences for routes to the public and as a company and that does not impact the EFSC review. As I understand the letter they previously sent, it was to inform interested persons of their intended route, so people that have concerns about either or both routes have advance notice of their intended route selection, if approved by EFSC. Hope this helps,

Kellen



**Kellen Tardaewether**  
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C: 503-586-6551  
P (In Oregon): 800-221-  
8035



Stay connected!

**From:** Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Sent:** Tuesday, November 3, 2020 9:29 AM  
**To:** TARDAEWETHER Kellen \* ODOE <[Kellen.Tardaewether@oregon.gov](mailto:Kellen.Tardaewether@oregon.gov)>  
**Cc:** 'Fuji Kreider' <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>; 'Jim Kreider' <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>  
**Subject:** quick question...

Hi Kellen,

Greg Larkin/1101

Greg Larkin/101

Hope you and Kaplan are well and hangin' in there during these crazy times... ;-)

I think we've asked you this before, but my memory?...

Idaho Power is still saying that they are not pursuing the Mill Creek route in Union County. Is this true? I think we told you about the letter that Mark Stokes sent to folks along the Mill Creek route that we "don't need to take any further action." Can you clarify what the status of the Mill Creek route is, because to our understanding it is still being considered in the EFSC process—and it's even the preferred route in Union County. Thanks a lot, Kellen.

Hope the day – and week – brings all of us some much needed joy/relief?!

All the best,

Fuji

**Subject:**Re: Precondemnation circuit court proceedings that I'd like to bring to the council's attention

**Date:**Thu, 24 Feb 2022 12:42:28 -0800

**From:**jim kreider <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>

**To:**CORNETT Todd \* ODOE <[Todd.CORNETT@energy.oregon.gov](mailto:Todd.CORNETT@energy.oregon.gov)>

**CC:**Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>

Thanks Todd - I'm not sure you can understand my frustration. It has been amplified by ODOE/EFSC hiding behind rules to avoid a dialog on IPC's actions rather than dealing with the issue in front of them.

When I worked for the state as a director it was my job to make the rules work to get a job done and the human element was front and center. Rules could often be adapted to the situation to allow for timely resolution.

EFSC has sure bent, aka interpreted, rules to get the answers they wanted as demonstrated by the recent supreme court rulings against ODOE. Now they don't want to know about the reality, pain, and suffering they have created. This is the kind of government we all love to hate.

Could you please show me the ORS's and OAR's you are using to say ODOE/EFSC does not have any authority over IPC's actions for what they are doing. Having condemnation authority is not an issue in this situation since that is not occurring.

Page 47 lines 31-35 of the Proposed Order state the council can impose conditions on the applicant. Those lines read, "The Council can impose conditions requiring the applicant to conduct the necessary surveys prior to construction (pre-construction surveys) and submit survey results to applicable reviewing agencies and the Department for review and approval." Request that the council tell IPC that the "over the fence" methodology as provided is how they are to proceed and all court cases need to be dropped if they wish to proceed.

Thank you -- jim

On 2/22/2022 7:55 AM, CORNETT Todd \* ODOE wrote:

Hi Jim,

I can appreciate the frustration of this situation because of how this issue is generally connected to Idaho Power's site certificate application with EFSC. As you point out, the Project Order articulates a way that Idaho Power can conduct literature surveys, desk top surveys and over the fence surveys in some circumstances in order for their application to be complete and reviewed by ODOE and EFSC. For those circumstances ODOE and EFSC are not requiring physical access to properties. It is important to note that the reason ODOE and EFSC are not requiring physical access to properties is because EFSC does not have any authority to force a landowner to allow Idaho Power or any other applicant on their property. Therefore, whatever statutes, rules or authority Idaho Power is using in their precondemnation efforts does not come from EFSC. And as such, EFSC simply does not have any authority to step in on this matter.

In your last sentence you indicate that you are willing to explain this in greater detail at the next Council meeting. The agenda is already set for this Friday's meeting so there will not be an opportunity to add it to that agenda. If you wish to request this issue be added to a future Council meeting per the rule below, please provide me with the following:

- Description of the agenda item
- Who will be presenting
- Anticipated amount of time of your presentation

**345-011-0035: Requests to Place Items on the Agenda**

*(1) Any person may request formal Council action on a particular subject (an "action item") by submitting a written request to the Department of Energy. With the concurrence of the chair, the Council Secretary shall place the requested matter on the agenda for discussion at the next meeting occurring at least 14 days after the request is received by the Department. The Council shall treat the matter as an information item at that meeting and may take final action on the matter if a majority of the members present agree that the request is so substantial and of such immediate concern that the Council should not defer action until a future meeting. Normally, however, the Council will defer action on the matter until a future meeting.*

*(2) Any person may request Council discussion of an information item by submitting a written request to the Department. With the concurrence of the chair, the Council Secretary shall place the requested matter on the agenda for discussion at the next meeting occurring at least 14 days after the request is received by the Department.*

*(3) The provisions of section (1) do not apply to petitions requesting the Council to initiate a rulemaking proceeding, as described in OAR 137-001-0070, or petitions requesting the Council to issue a declaratory ruling, as described in OAR 137-002-0010.*

Regards,

Todd



**Todd Cornett**

Assistant Director for Siting  
550 Capitol St. NE | Salem,  
OR 97301

P: 503-378-8328

P (In Oregon):

800-221-8035

[todd.cornett@energy.oregon.gov](mailto:todd.cornett@energy.oregon.gov)



Stay connected!

---

**From:** jim kreider <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>

**Sent:** Thursday, February 17, 2022 5:04 PM

**To:** CORNETT Todd \* ODOE <[Todd.CORNETT@energy.oregon.gov](mailto:Todd.CORNETT@energy.oregon.gov)>

Cc: Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>

Greg Larkin/104

Subject: Precondemnation circuit court proceedings that I'd like to bring to the council's attention

Greetings Todd,

As I mentioned at the last EFSC meeting I wanted to bring Idaho Powers Precondemnation proceeding to the council's attention. I would appreciate your forwarding this information to them.

Idaho Power has begun serving precondemnation circuit court papers on landowners that refuse IPC entry to their property to conduct surveys. In an email to Senator Findley from Christy Splitt, ODOE Government Relations Coordinator, it says, "While pre-construction surveys associated *with an approved site certificate* are under EFSC's jurisdiction, for the Boardman to Hemingway project pre-construction surveys are not required to occur now since the project is currently under review and a final decision has not yet been made." If pre-construction surveys are not required to occur now how is Idaho Power able to bully landowners by doing this. They do not have permission to build it – period.

This is especially aggravating because in the proposed order ODOE lays out an "over the fence" process to survey land when refused permission from the landowner. Additionally the email from Christy Splitt says, "... the Energy Facility Siting Council do not have authority to step in." It is further stated, "The pre-condemnation proceedings that are described in the email and attached letter are not within EFSC's jurisdiction since EFSC does not have any eminent domain authority. Therefore, ODOE/EFSC has no authority to order Idaho Power to cease these activities as requested in the attached letter."

EFSC does not need eminent domain authority. This was anticipated! EFSC has the proposed order with a thoughtful "over the fence" process laid out. Please explain to us why EFSC does not have authority over its own process?

I hope after reading the attached materials you will understand why the public does not understand why EFSC is throwing landowners under the Idaho Power bus and creating additional financial and psychological challenges. Idaho Power can wait and do the surveys when to time period to do them opens.

I am more than happy to visit with you at your next meeting to explain this in greater details if needed.

Thank you for your consideration,

Jim Kreider





STATE OF OREGON  
Office of the Governor  
**KATE BROWN**

---

## Private Forest Accord SB 1501, SB 1502, and HB 4055

**FOR ADDITIONAL INFORMATION:**

Jenn Baker, Legislative Director,  
[Jennifer.Baker@oregon.gov](mailto:Jennifer.Baker@oregon.gov)

Morgan Gratz-Weiser, Deputy Natural Resources Policy Advisor  
[Morgan.Gratz-Weiser@oregon.gov](mailto:Morgan.Gratz-Weiser@oregon.gov)

Senate Bill 1602, from the First Special Session of 2020, commissioned a multi-year negotiation between environmental advocates and forest industry representatives facilitated by representatives of Governor Brown's office. Those negotiations have led to three bills, for consideration during the 2022 legislative session, that update the Forest Practices Act, create a small woodland owners tax credit and, through Rep. Nathanson's HB 4055, update the forest harvest tax. The updates to the Forest Practices Act are anticipated to gain approval of a Habitat Conservation Plan by the federal wildlife services and a subsequent Incidental Take Permit under the Endangered Species Act, thereby providing greater ongoing certainty for Oregon's forest laws.

### Private Forest Accord Policy – SB 1501

This bill (SB 1501) updates multiple aspects of the Forest Practices Act, which governs logging activity on private forestlands.

#### Key Sections

- Stream buffers: Updated stream buffers are 10% to 100% larger based on stream type and geography. Includes new protections for non-fish bearing streams.
- Forest roads: New standards for road design, inventory, maintenance, management, and culvert design. Funding for culvert replacement for qualifying small forestland owners.
- Unstable slopes: Retains trees in key areas to reduce landslide risk, and help protect streams and aquatic habitat from sediment.
- Aquatic resource habitat protected: Expanded riparian buffers provide additional habitat for a variety of riparian-dependent species, including salmon, steelhead, bull trout, and the amphibians that were the focus of the negotiations. Includes additional reporting requirements for managing beaver activity.
- Compliance monitoring: Expands monitoring programs to evaluate whether the new rules are implemented as intended.

- Mitigation costs: Requires state and private investment in mitigating otherwise unavoidable impacts of compliant logging practices, including a new committee under the Oregon Department of Fish & Wildlife to manage these investments.
- Adaptive Management Program: Creates a new stakeholder committee that will work with an Independent Research and Science Team to advise the Board of Forestry on recommendations for ongoing rule changes to ensure the goals of the Habitat Conservation Plan are met.
- Implementation costs: Includes general fund appropriation for agencies to conduct rulemaking, update maps and databases, and monitor new forest practices.
- Expedited rule-making: Allows for efficient implementation of the Private Forest Accord.

## Small Forestland Owners Tax Credit (SB 1502)

- Small forestland owners own many productive riparian forests bordering important salmon, steelhead, and bull trout streams. Their participation in the Private Forest Accord is critical, but the economic and management factors they confront are different from larger forest companies.
- To accommodate the participation of small forestland owners in the Accord, SB 1502 creates a tax credit to compensate small forestland owners (those with less than 5,000 acres and less than 2 million board-feet produced annually, calculated on a rolling average over the last three years) who will have reduced harvest under this policy in exchange for a 50-year deed restriction on harvest of trees in the retention area. This is a personal or corporate excise tax credit.
- The value of this credit is the value of timber left on the landscape above the minimum option, minus the logging cost. If a small forestland owner participates in the tax credit program, the benefits of retaining those trees are protected by a 50-year restriction on harvesting. This habitat protection is the benefit to the state and public resources garnered from the tax credit.
- This tax credit is important to support the protection of public values while respecting the importance of small forestland owners and a diversity of the size of ownerships across Oregon.

## Harvest Tax (HB 4055)

Led by Rep. Nathanson, HB 4055 continues the current structure of the harvest tax and sets the stage for more robust discussion in the future. The bill:

- Establishes rates for the remainder of the biennium commensurate with the structure from the 2019-21 rate.
- Directs the Legislative Revenue Office to prepare a report on the process and structure of the tax, for review in 2023.
- Creates a new component of the tax, to align with the Accord, for the Mitigation Fund, with rates calculated per the agreement. The Mitigation Fund is created to enable investment in habitat improvements for aquatic species. Mitigation funds are often part of Habitat Conservation Plans and complement land management prescriptions with additional funding to improve habitat conditions. Funding is provided through both the state General Fund and through this change to the harvest tax.

The Private Forest Accord has been presented to all tribal chairs of Oregon's federally recognized Tribes, and consultation will continue as requested.

***PFA signed by:***

Forest Industry Coalition:

Campbell Global  
Greenwood Resources  
Hampton Lumber  
Lone Rock Resources  
Manulife Timberland & Agriculture (formerly  
Hancock)  
Oregon Small Woodlands Association  
Port Blakely  
Rayonier  
Roseburg Forest Products  
Seneca Sawmill Co  
Starker Forests  
Weyerhaeuser

Environmental / Fish Coalition:

Audubon Society  
Beyond Toxics  
Cascadia Wildlands  
Klamath Siskiyou Wildlands Center  
Northwest Guides and Anglers  
Oregon League of Conservation Voters  
Oregon Stream Protection Coalition  
Oregon Wild  
Pacific Coast Fed of Fishermen's Associations  
Rogue Riverkeepers  
Trout Unlimited  
Umpqua Watersheds  
Wild Salmon Center

# Stream Buffers

All distances measured using slope distance  
Measurements begin from the outside edge of the  
stream or channel migration zone where one exists

# Western Oregon stream buffers

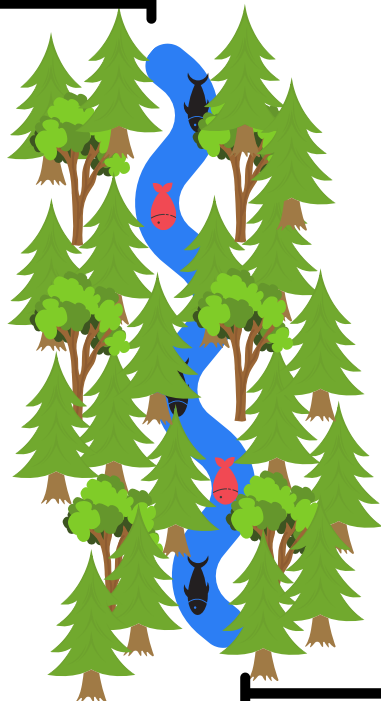
- Buffers are no-harvest

Greg :arkin/1002

Greg Larkin/5

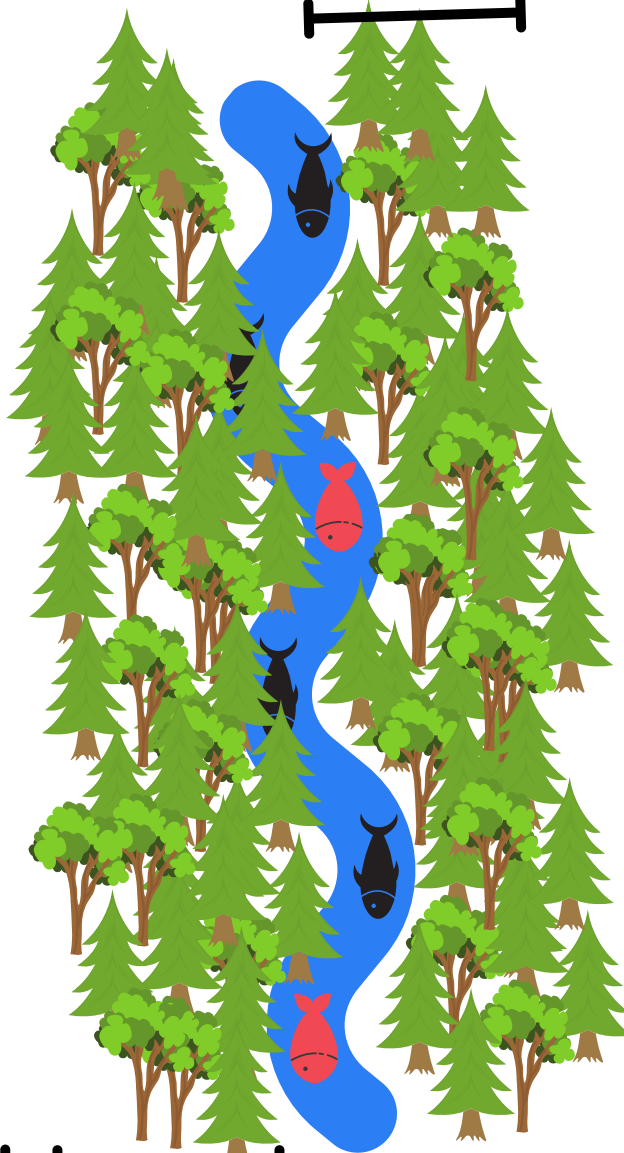


100 ft



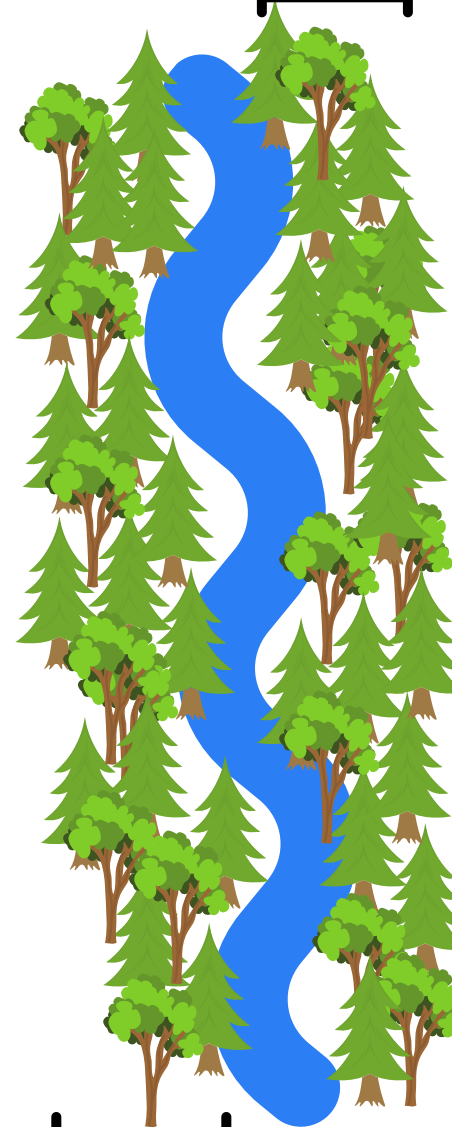
Small fish

110 ft



Large and medium  
fish

75 ft

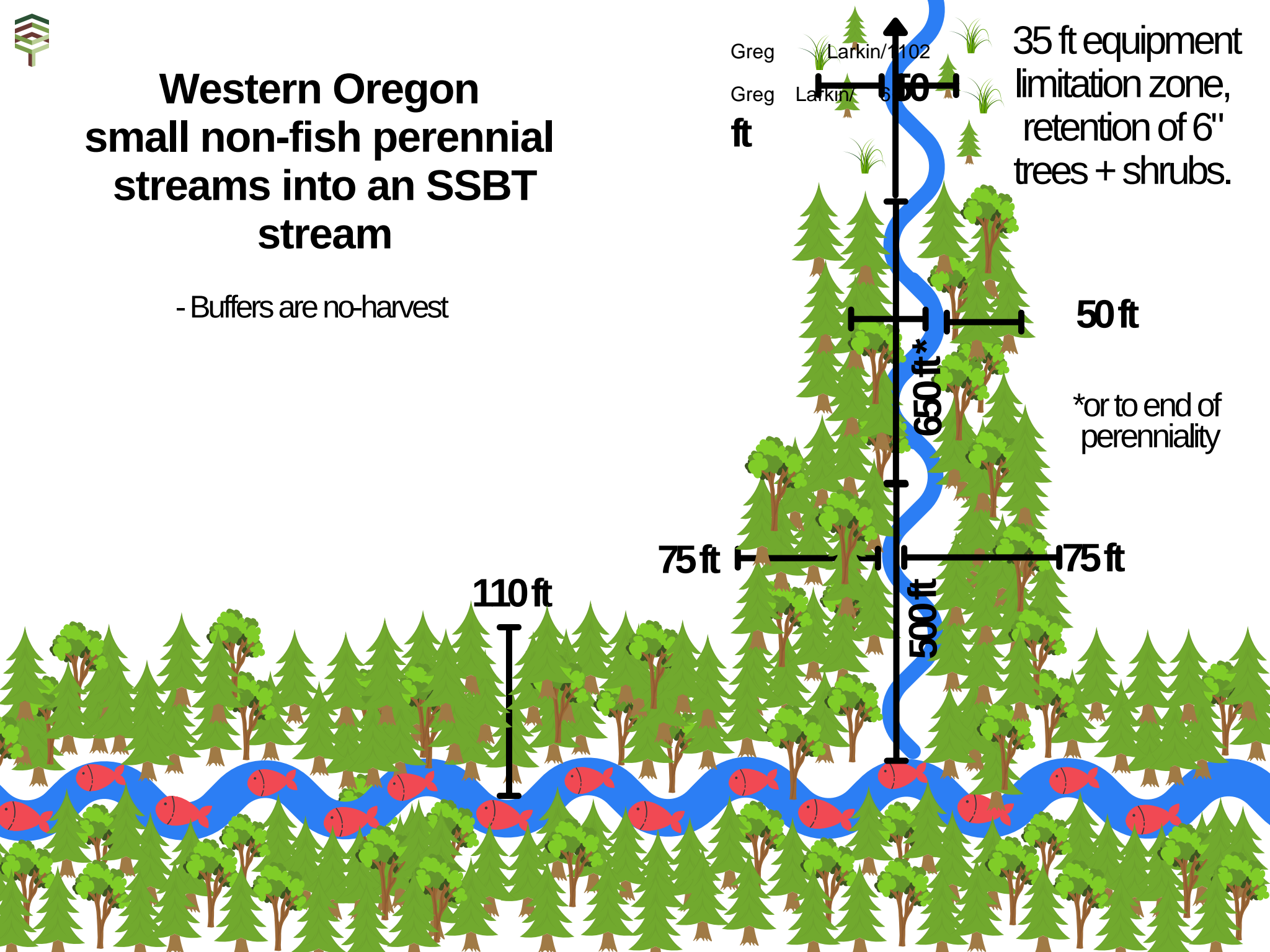


75 ft  
Large and medium  
non-fish



# Western Oregon small non-fish perennial streams into an SSBT stream

- Buffers are no-harvest







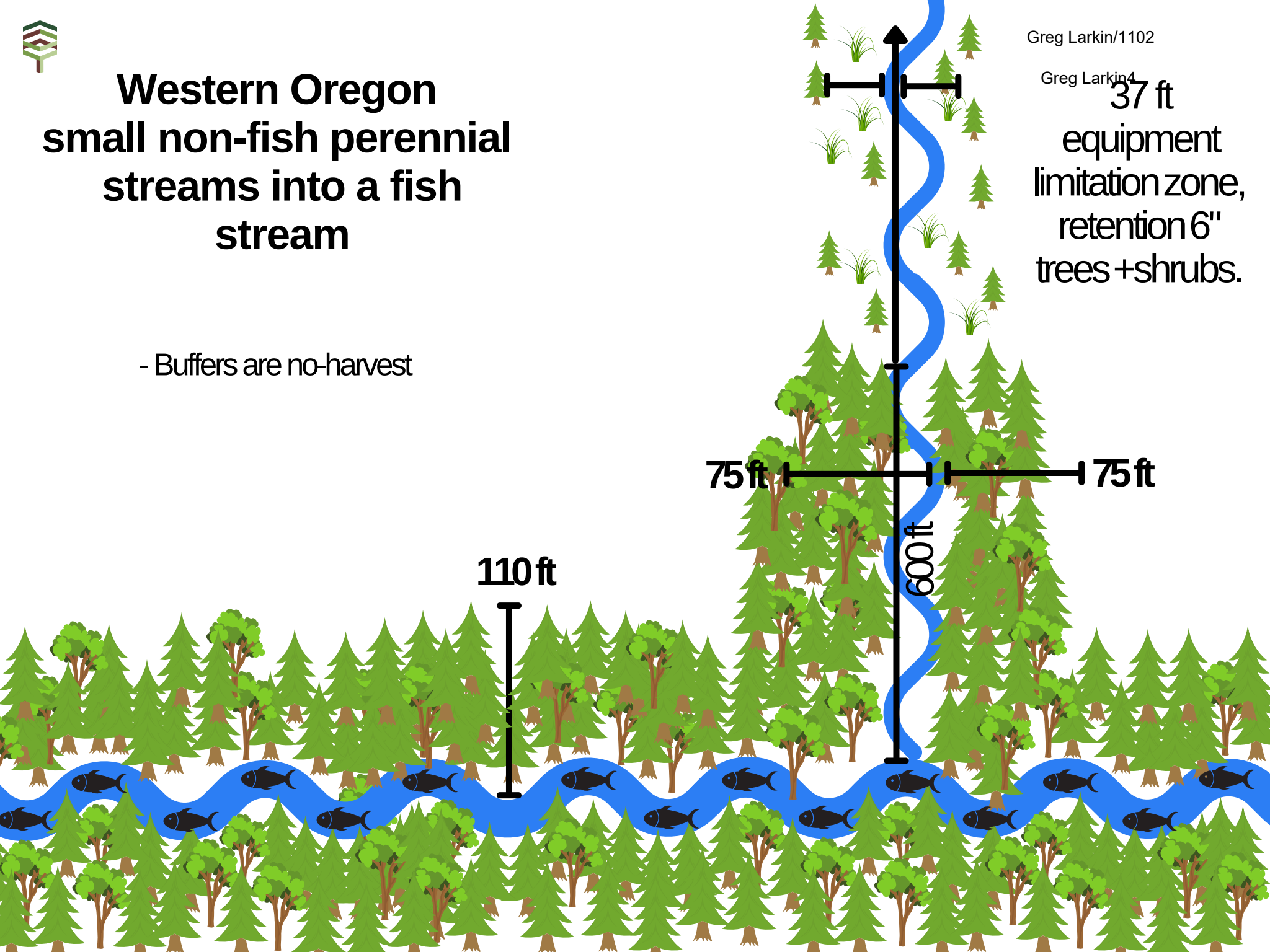
# Western Oregon small non-fish perennial streams into a fish stream

- Buffers are no-harvest

Greg Larkin/1102

Greg Larkin4

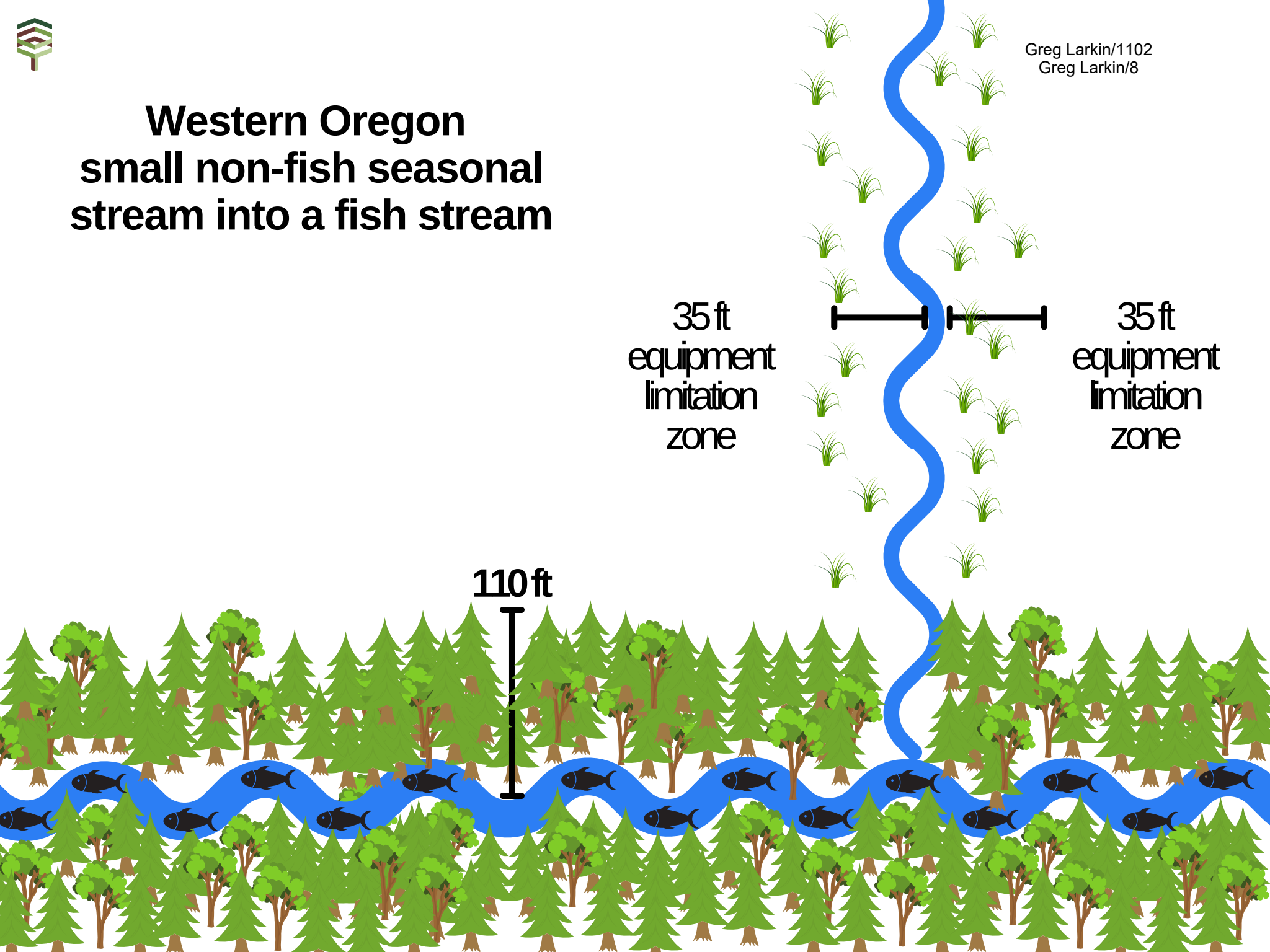
37 ft  
equipment  
limitation zone,  
retention 6"  
trees + shrubs.





# Western Oregon small non-fish seasonal stream into a fish stream

Greg Larkin/1102  
Greg Larkin/8

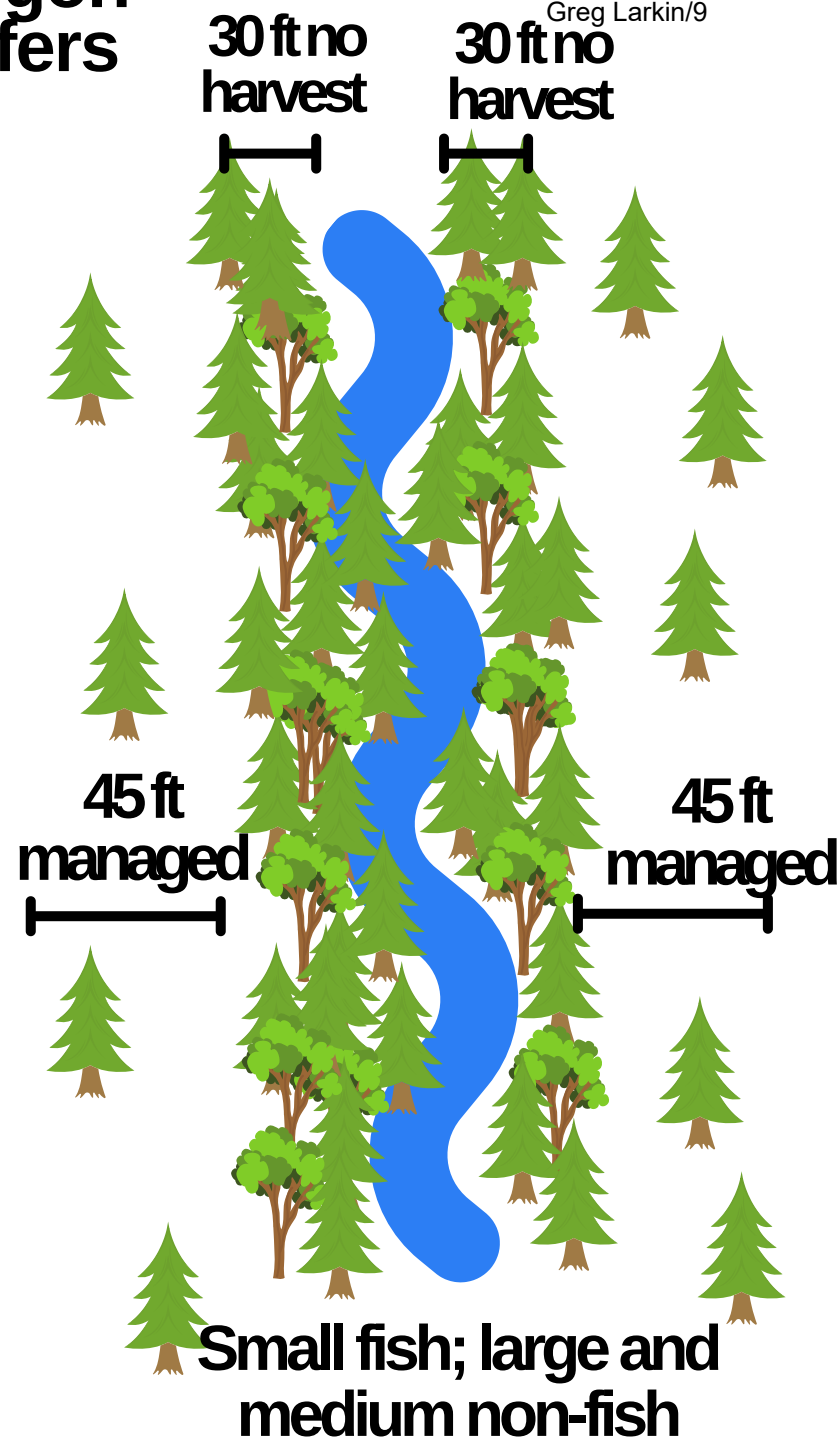
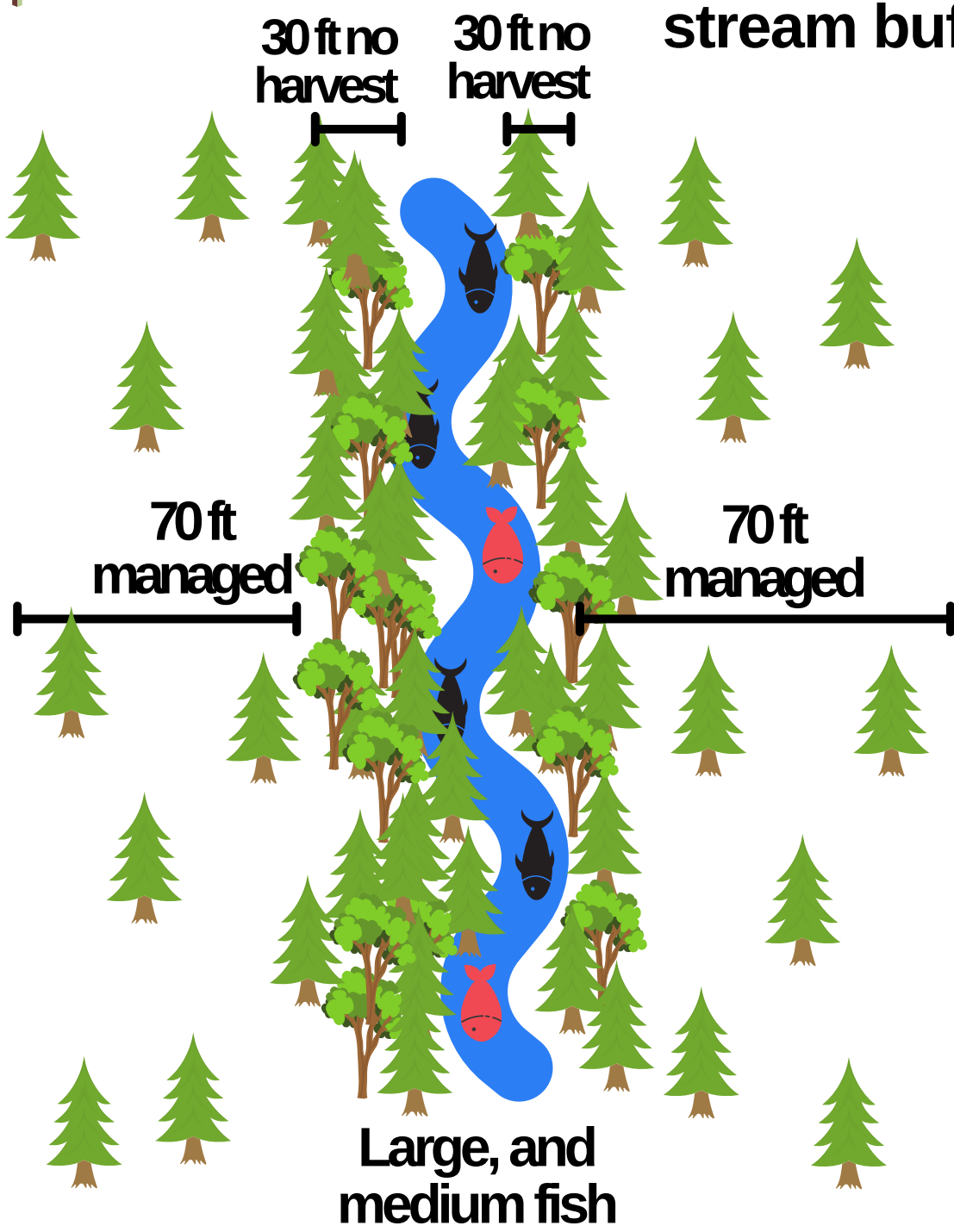






# Eastern Oregon stream buffers

Greg Larkin/1102  
Greg Larkin/9





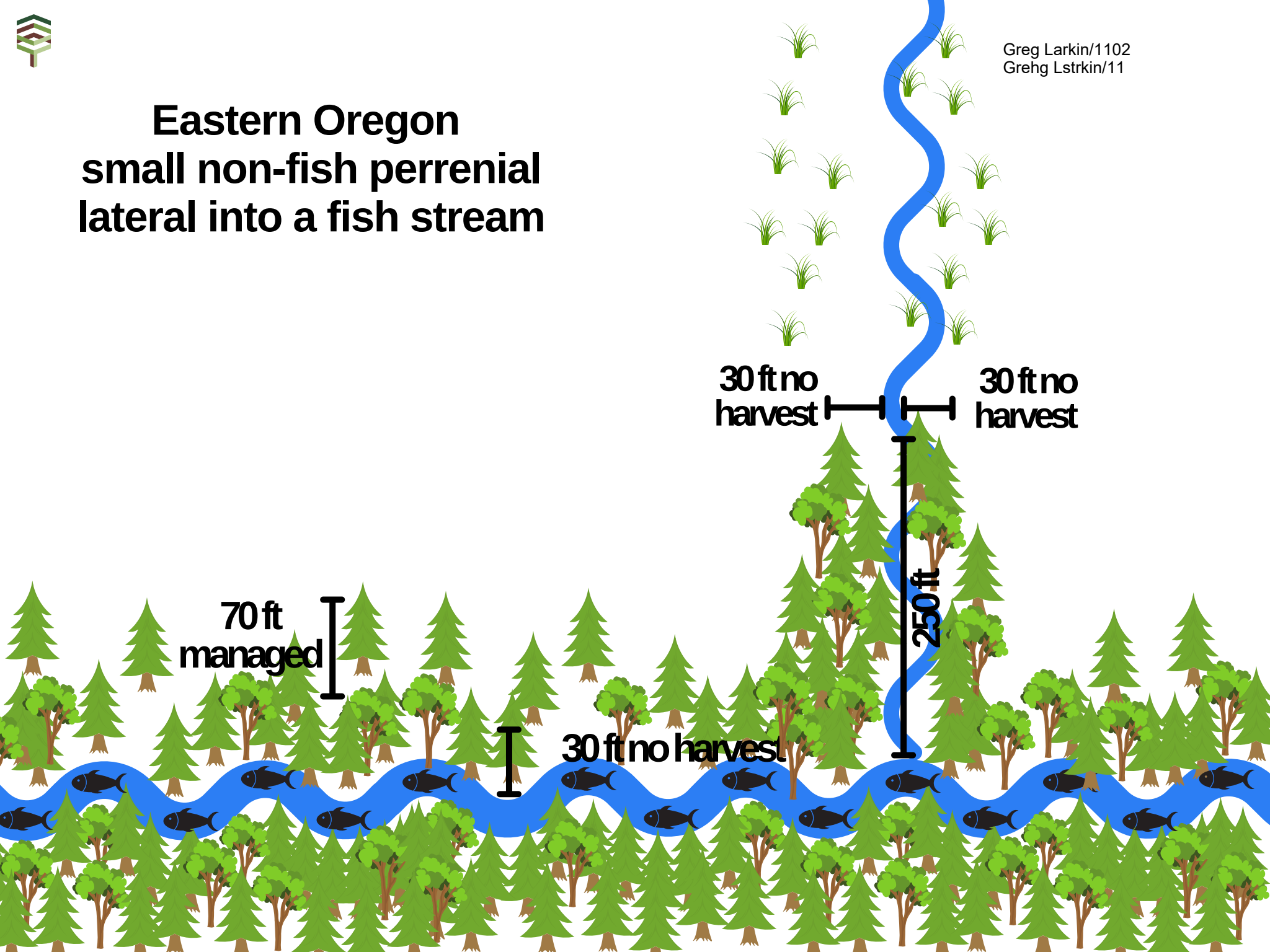
# Eastern Oregon small non-fish perennial terminal into a fish stream





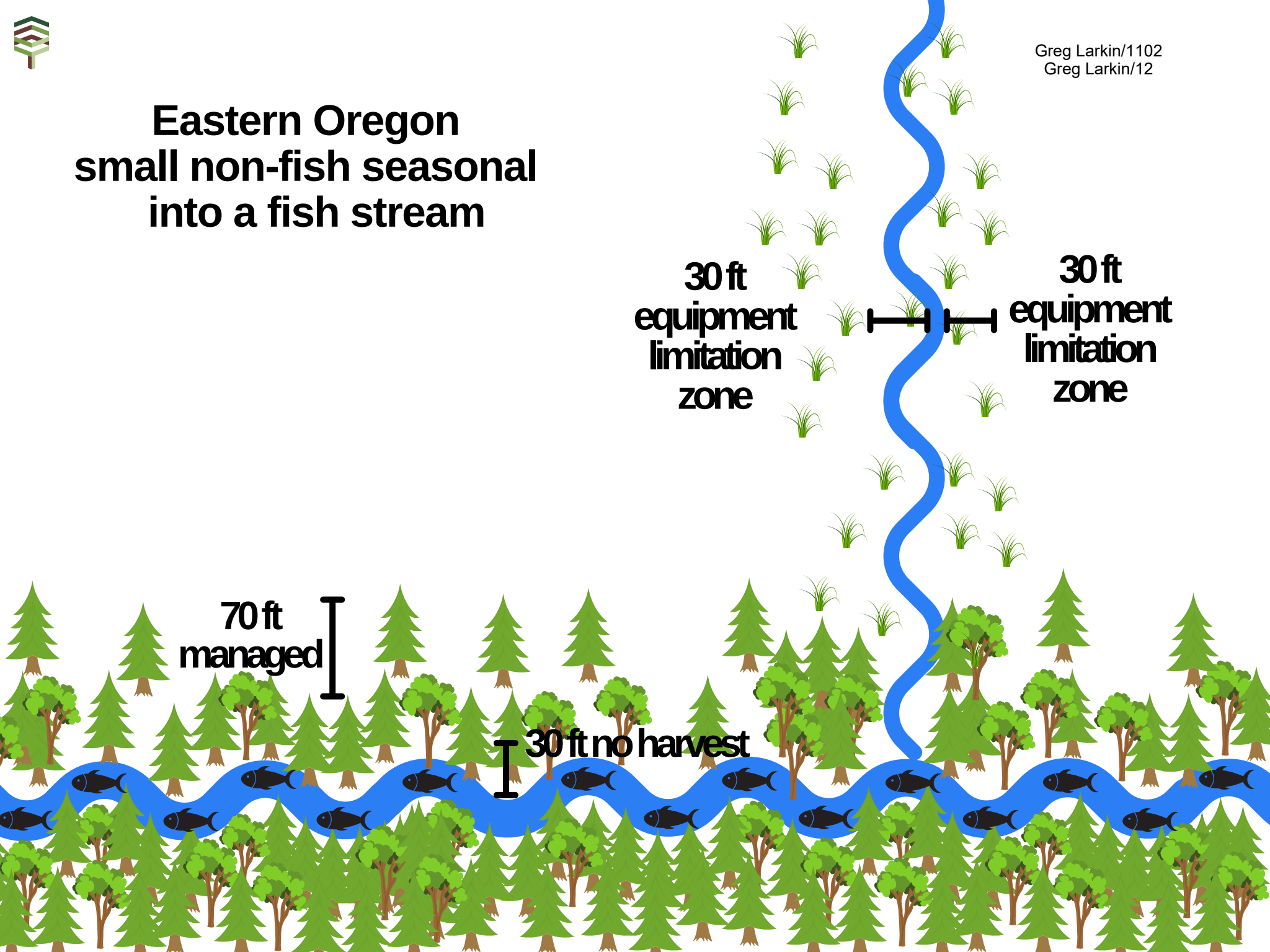
Greg Larkin/1102  
Grehg Lstrkin/11

# Eastern Oregon small non-fish perennial lateral into a fish stream





# Eastern Oregon small non-fish seasonal into a fish stream



OFFICE OF THE SECRETARY OF STATE  
BEV CLARNO  
SECRETARY OF STATE  
  
JEFF MORGAN  
INTERIM DEPUTY SECRETARY OF STATE



ARCHIVES DIVISION  
STEPHANIE CLARK  
DIRECTOR  
  
800 SUMMER STREET NE  
SALEM, OR 97310  
503-373-0701

## PERMANENT ADMINISTRATIVE ORDER

**DOF 3-2020**  
CHAPTER 629  
DEPARTMENT OF FORESTRY

**FILED**

11/19/2020 4:11 PM  
ARCHIVES DIVISION  
SECRETARY OF STATE  
& LEGISLATIVE COUNSEL

FILING CAPTION: Expanding water rules on small and medium salmon, steelhead and bull trout Siskiyou Georegion streams.

EFFECTIVE DATE: 01/01/2021

AGENCY APPROVED DATE: 11/04/2020

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Filed By:  
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### RULES:

629-642-0105, 629-642-0110

AMEND: 629-642-0105

RULE TITLE: General Vegetation Retention Prescriptions for Type SSBT Streams

NOTICE FILED DATE: 08/18/2020

RULE SUMMARY: The rule amendment adds the Siskiyou Georegion to the existing OAR 629-642-0105(2) that provides for streamside shade buffers with Salmon, Steelhead or Bull Trout streams, and to the Geographic Regions included in Table five.

### RULE TEXT:

- (1) The purpose for the vegetation retention prescriptions in this section is to ensure that, to the maximum extent practicable, forest operations will not impair the achievement and maintenance of the protecting cold water criterion described in OAR 340-041-0028(11).
- (2) The vegetation retention requirements for Type SSBT streams apply to harvest type 2 or harvest type 3 units in the following Geographic Regions as described in OAR 629-635-0220: Coast Range, South Coast, Interior, Western Cascades, and Siskiyou. Use rules in OAR 629-642-0100 for Type 1 harvests along SSBT streams.
- (3) Operators shall apply the vegetation retention requirements described in this rule to the riparian management area of the following streams:
  - (a) Type SSBT streams.
  - (b) The main stem of any Type F stream upstream of the mapped end of SSBT use to the higher of:
    - (A) The upstream boundary of the harvest unit containing SSBT, or
    - (B) The upstream boundary of any adjacent upstream harvest unit commenced within a year of completing harvest of the unit containing SSBT.
  - (c) For the purpose of this rule, "main stem" means the stream with the largest annual average flow at a confluence of two or more streams. The State Forester shall determine average annual flow by indexing average annual flow to the upstream drainage area and average annual precipitation as described in Forest Practices Technical Note 1 dated April 11, 1994. The State Forester may substitute field evaluations of average annual flow for the calculated flows described

in the technical note.

(4) Segments of Type SSBT streams that are different sizes within an operation shall not be combined or averaged together when applying the vegetation retention requirements.

(5) Trees left to meet the vegetation retention requirements for one stream type shall not count towards the requirements of another stream type.

(6) Operators shall retain:

(a) All understory vegetation within 10 feet of the high water level;

(b) All trees within 20 feet of the high water level; and

(c) All trees leaning over the channel.

(7) Operators shall retain all downed wood and snags that are not safety or fire hazards within riparian management areas and streams. Snags felled for safety or fire hazard reasons shall be retained where they are felled unless used for stream improvement projects.

(8) Notwithstanding the requirements of section (6) of this rule, vegetation, snags and trees within the riparian management area of the stream may be felled, moved or harvested as allowed in other rules for road construction, yarding corridors, temporary stream crossings, or for stream improvement while maintaining required basal area and live conifer tree count.

(9) When harvesting in the riparian management area of a Type SSBT stream, an operator shall apply one of the following prescriptions, except as noted for Type SSBT Prescription 3 in section (12).

(a) Operators may apply Type SSBT Prescription 1 on any Type SSBT riparian management area as described in section (10) of this rule.

(b) If the basal area of trees six inches or greater DBH within the riparian management area but more than 20 feet from the high water level of the Type SSBT stream exceeds the total basal area target shown in Table 5, the operator may apply Type SSBT Prescription 2, described in section (11) of this rule.

(c) If a Type SSBT stream segment at least 200 feet in length meets the standards in Type SSBT Prescription 3, the operator may apply that prescription on the north side of the stream segment, as described in section (12) of this rule.

(d) If live conifer basal area within the riparian management area of a Type SSBT stream is less than half the standard target for a small or medium Type F stream in Table 2, the operator may apply the appropriate Alternative Prescription described in OAR 629-642-0600.

(e) For the riparian management area of any Type SSBT stream, the operator may propose a site-specific prescription in a plan for an alternate practice. Plans for alternate practices are subject to the review and approval of the State Forester. Site-specific prescriptions are described in OAR 629-642-0700.

(10) Type SSBT Prescription 1:

(a) Retain all trees within 60 feet of the high water level of a small stream.

(b) Retain all trees within 80 feet of the high water level of a medium stream.

(c) Where SSBT Prescription 1 is applied, operators may count as wildlife leave trees all trees that meet wildlife leave tree requirements:

(A) Within 20 feet of the high water level.

(B) In the remainder of the riparian management area, up to 50 percent of the basal area trees used to meet the basal area target in Table 5.

(C) Any trees within the area described in (B) in excess of the basal area target in Table 5.

(11) Type SSBT Prescription 2:

(a) Operators shall retain trees that are well-distributed by length and width of the riparian management area beyond 20 feet of the high water level of the stream, minimize the creation of large gaps, favor small openings in the canopy, and leave residual trees in a manner that promotes understory as well as diameter and crown growth. Operators shall satisfy these requirements by meeting the following minimum standards:

(A) For small Type SSBT streams, the riparian management area length will be measured in 500-foot segments. Within each 500-foot segment at least 25 percent of the required basal area target, rounded up to the nearest whole number,



and 50 percent of the required live conifer trees, rounded up to the nearest whole tree, shall be located between:

(i) 20 feet and 40 feet of the high water level, see Table 5; and

(ii) 40 feet and 60 feet of the high water level, see Table 5.

(B) For medium Type SSBT streams, the riparian management area length will be measured in 500-foot segments.

Within each 500-foot segment at least 25 percent of the required basal area target, rounded up to the nearest whole number, and 50 percent of the required live conifer trees, rounded up to the nearest whole tree, shall be located between:

(i) 20 feet and 50 feet of the high water level, see Table 5; and

(ii) 50 feet and 80 feet of the high water level, see Table 5.

(b) For stream segments that are less than 500 feet, the required basal area and live conifer trees are reduced proportionally.

(c) The operator shall provide a description in the written plan and map where the measurement for the 500-foot stream segments begin and end.

(d) Operators shall retain live conifer trees:

(A) For small Type SSBT streams, at least 8 live conifer trees per 500 feet along the stream, located between 20 feet and 60 feet from the high water level. Live conifer trees must be at least 8 inches DBH to count toward these requirements, see Table 5.

(B) For medium Type SSBT streams, at least 15 live conifer trees per 500 feet along the stream, located between 20 feet and 80 feet from the high water level. Live conifer trees must be at least 8 inches DBH to count toward these requirements, see Table 5.

(e) Operators shall retain hardwood and conifer trees and snags six inches or greater DBH to meet the following basal area requirements:

(A) For small Type SSBT streams, conifer and hardwood basal area target is shown in Table 5.

(B) For medium Type SSBT streams, conifer and hardwood basal area target is shown in Table 5.

(C) Up to 10 percent of the basal area requirements may be comprised of sound conifer snags at least 30 feet tall.

(f) Where Type SSBT Prescription 2 is applied, operators may count as wildlife leave trees all trees that meet wildlife leave tree requirements:

(A) Within 20 feet of the high water level.

(B) In the remainder of the riparian management area, up to 50 percent of the basal area trees retained to meet the basal area target in Table 5.

(C) Any trees within the area described in (B) in excess of the basal area target in Table 5.

(12) Type SSBT Prescription 3:

(a) This prescription applies to Type SSBT streams where the stream valley direction is between 60 and 120 degrees east and 240 and 300 degrees west on a compass bearing of 0 and 360 degrees as north. Operators shall:

(A) Retain all trees within 40 feet of the high water level on the north side of a Type SSBT stream where the stream valley direction criteria are met.

(B) The operator shall describe in a written plan and map where the alternative prescription is intended to be implemented.

(b) Where Type SSBT Prescription 3 is not applied, the operator shall apply either Type SSBT Prescription 1 or 2.

(c) The State Forester shall maintain a map showing stream valley direction for applying Type SSBT Prescription 3.

(d) The State Forester may substitute field evaluations of stream valley direction instead of the map.

(A) The field-based evaluation shall measure the stream valley direction with a minimum of 200-foot stream segments.

(B) The stream segment must meet the stream valley direction criteria listed above to apply SSBT Prescription 3.

(e) Where Type SSBT Prescription 3 is applied, operators may count all trees that meet the wildlife leave tree requirements retained within 40 feet of the high water level as wildlife leave trees.

(13) Notwithstanding the requirements indicated in this rule, operators may conduct pre-commercial thinning and other release activities to maintain the growth and survival of conifer reforestation within riparian management areas.

Such activities shall contribute to and be consistent with enhancing the stand's ability to meet the desired future condition.

(14) When determining the basal area of trees, the operator may use the average basal area for a tree's diameter class, as shown in Table 4, or determine an actual basal area for each tree. The method for determining basal area must be consistent throughout the riparian management area.

(15) When applying the vegetation retention requirements described in this rule to the riparian management areas, if an operator cannot achieve the required retention without leaving live trees on the upland side of a road that may be within the riparian management area and those trees pose a safety hazard to the road and will provide limited functional benefit to the stream, the State Forester may approve a plan for an alternate practice to modify the retention requirements on a site specific basis.

STATUTORY/OTHER AUTHORITY: ORS 527.710, 527.630(3), 527.714, 526.016(4)

STATUTES/OTHER IMPLEMENTED: ORS 527.630(5), 527.674, 527.714, 527.715, 527.765, 527.710, 527. 919(9)



**Table 5.** Type SSBT Prescription 2. Vegetation Prescription for Type SSBT Streams: Streamside Tree Retention for Harvest Type 2 or Type 3 Units (OAR 629-642-0105(11)).

	<b>BASAL AREA TARGET:</b> Square feet of basal area per each 500-foot stream segment, each side of the stream (any combination of conifers and hardwoods 6 inches or greater DBH)		<b>LIVE CONIFER TREES</b> (8 inches or greater DBH) per each 500-foot stream segment, each side of the stream	
<b>Geographic Region</b>	<b>Medium Type SSBT</b> RMA = 80 feet	<b>Small Type SSBT</b> RMA = 60 feet	<b>Medium Type SSBT</b> RMA = 80 feet	<b>Small Type SSBT</b> RMA = 60 feet
Coast Range, South Coast, Interior, Western Cascades, and Siskiyou	0 to 20 feet = Retain all trees. Trees in this area do not count toward meeting the basal area or live conifer tree requirements in this table.			
	20 to 50 feet: minimum 18 sq. ft.	20 to 40 feet: minimum 10 sq. ft.	20 to 50 feet: minimum 7 trees	20 to 40 feet: minimum 4 trees
	50 to 80 feet: minimum 18 sq. ft.	40 to 60 feet: minimum 10 sq. ft.	50 to 80 feet: minimum 7 trees	40 to 60 feet: minimum 4 trees
	RMA Total (20 to 80 feet) = 69 sq. ft.	RMA Total (20 to 60 feet) = 37 sq. ft.	RMA Total (20 to 80 feet) = 15 trees	RMA Total (20 to 60 feet) = 8 trees
<b>Notes for Table 5</b> 1. Distances are measured from the high water level of the Type SSBT stream. 2. Up to 10% of the basal area requirement may be comprised of sound conifer snags six inches or greater DBH and at least 30 feet tall.				

AMEND: 629-642-0110

RULE TITLE: Relief for General Vegetation Retention Prescriptions for Type SSBT Streams

NOTICE FILED DATE: 08/18/2020

RULE SUMMARY: The rule amendment adds the Siskiyou Georegion to the existing OAR 629-642-0110 Geographic Regions included in Table six.

RULE TEXT:

(1) Upon written request from a landowner, relief is available if the additional encumbered forested stream area due to Type SSBT classification is 8% or more of the forested portion of any parcel. The additional encumbered forested stream area is measured by the increase in acres of the Type SSBT vegetation prescription over the vegetation prescription for Type F streams. To determine the additional percentage forested stream area encumbered, the increase in acres is divided by the forested parcel acres.

(2) "Parcel" as described in this section means a contiguous single ownership recorded at the register of deeds within the county or counties where the property is located, including any parcel(s) touching along a boundary, but a railroad, road, stream, or utility-right-of-way may intersect the parcel. Single ownership is defined in ORS 527.620(14).

(3) If a landowner qualifies for relief, the landowner may utilize:

(a) Type SSBT Relief Prescription 1 which is Type SSBT Prescription 1, as described in OAR 629-642-0105(10), within a reduced riparian management area of 50 feet or 70 feet for small and medium Type SSBT streams, respectively; or

(b) Type SSBT Relief Prescription 2 which is Type SSBT Prescription 2, as described in OAR 629-642-0105(11), within a reduced riparian management area of 50 feet or 70 feet for small and medium Type SSBT streams, respectively. See Table 6 for reduced basal area targets and live conifer tree requirements.

(4) Type SSBT Relief Prescription 1:

(a) Retain all trees within 50 feet of the high water level of a small stream.

(b) Retain all trees within 70 feet of the high water level of a medium stream.

(c) Where Type SSBT Relief Prescription 1 is applied, operators may count as wildlife leave trees all trees that meet wildlife leave tree requirements:

(A) Within 20 feet of the high water level.

(B) In the remainder of the riparian management area, up to 50 percent of the basal area trees used to meet the basal area target in Table 6.

(C) Any trees within the area described in (B) in excess of the basal area target in Table 6.

(5) Type SSBT Relief Prescription 2:

(a) Operators shall retain trees that are well-distributed by length and width of the riparian management area beyond 20 feet of the high water level of the stream, minimize the creation of large gaps, favor small openings in the canopy, and leave residual trees in a manner that promotes understory as well as diameter and crown growth. Operators shall satisfy these requirements by meeting the following minimum standards:

(A) For small Type SSBT streams, the riparian management area length will be measured in 500-foot segments. Within each 500-foot segment at least 25 percent of the required basal area target, rounded up to the nearest whole number, and 50 percent of the required live conifer trees, rounded up to the nearest whole tree, shall be located between:

(i) 20 feet and 35 feet of the high water level, see Table 6; and

(ii) 35 feet and 50 feet of the high water level, see Table 6.

(B) For medium Type SSBT streams, the riparian management area length will be measured in 500-foot segments. Within each 500-foot segment at least 25 percent of the required basal area target, rounded up to the nearest whole number, and 50 percent of the required live conifer trees, rounded up to the nearest whole tree, shall be located between:

(i) 20 feet and 45 feet of the high water level, see Table 6; and

(ii) 45 feet and 70 feet of the high water level, see Table 6.

(b) For stream segments that are less than 500 feet, the required basal area and live conifer trees are reduced

proportionally.

(c) The operator shall provide a description in the written plan and map where the measurement for the 500-foot stream segments begin and end.

(d) Operators shall retain live conifer trees:

(A) For small Type SSBT streams, at least 6 live conifer trees per 500 feet along the stream, located between 20 feet and 50 feet from the high water level. Live conifer trees must be at least 8 inches DBH to count toward these requirements, see Table 6.

(B) For medium Type SSBT streams, at least 13 live conifer trees per 500 feet along the stream, located between 20 feet and 70 feet from the high water level. Live conifer trees must be at least 8 inches DBH to count toward these requirements, see Table 6.

(e) Operators shall retain hardwood and conifer trees and snags six inches or greater DBH to meet the following basal area requirements:

(A) For small Type SSBT streams, conifer and hardwood basal area target is shown in Table 6.

(B) For medium Type SSBT streams, conifer and hardwood basal area target is shown in Table 6.

(C) Up to 10 percent of the basal area requirements may be comprised of sound conifer snags at least 30 feet tall.

(f) Where Type SSBT Relief Prescription 2 is applied, operators may count as wildlife leave trees all trees that meet wildlife leave tree requirements:

(A) Within 20 feet of the high water level.

(B) In the remainder of the riparian management area, up to 50 percent of the basal area trees retained to meet the basal area target in Table 6.

(C) Any trees within the area described in (B) in excess of the basal area target in Table 6.

(6) The State Forester will identify those parcels that potentially qualify for relief.

(7) The State Forester will make the final determination on whether a parcel qualifies for relief.

STATUTORY/OTHER AUTHORITY: ORS 527.710, 527.630(3), 527.714, 526.016(4)

STATUTES/OTHER IMPLEMENTED: ORS 527.630(5), 527.674, 527.714, 527.715, 527.765, 527.710, 527.919(9)

**Table 6.** Type SSBT Relief Prescription 2. Vegetation Retention for Type SSBT Streams:  
Streamside Tree Retention for Harvest Type 2 or Type 3 Units (OAR 629-642-0110).

	<b>BASAL AREA TARGET:</b> Square feet of basal area per each 500-foot stream segment, each side of the stream (any combination of conifers and hardwoods 6 inches or greater DBH)		<b>LIVE CONIFER TREES</b> (8 inches or greater DBH) per each 500-foot stream segment, each side of the stream	
<b>Geographic Region</b>	<b>Medium Type SSBT</b> RMA = 70 feet	<b>Small Type SSBT</b> RMA = 50 feet	<b>Medium Type SSBT</b> RMA = 70 feet	<b>Small Type SSBT</b> RMA = 50 feet
Coast Range, South Coast, Interior, Western Cascades, and Siskiyou	0 to 20 feet = Retain all trees. Trees in this area do not count toward meeting the basal area or live conifer tree requirements in this table.			
	20 to 45 feet: minimum 15 sq. ft.	20 to 35 feet: minimum 7 sq. ft.	20 to 45 feet: minimum 6 trees	20 to 35 feet: minimum 3 trees
	45 to 70 feet: minimum 15 sq. ft.	35 to 50 feet: minimum 7 sq. ft.	45 to 70 feet: minimum 6 trees	35 to 50 feet: minimum 3 trees
	RMA Total (20 to 70 feet) = 58 sq. ft.	RMA Total (20 to 50 feet) = 28 sq. ft.	RMA Total (20 to 70 feet) = 13 trees	RMA Total (20 to 50 Feet) = 6 trees
<b>Notes for Table 6</b> 1. Distances are measured from the high water level of the Type SSBT stream. 2. Up to 10% of the basal area requirement may be comprised of sound conifer snags six inches or greater DBH and at least 30 feet tall.				

ENTERED Nov 03 2020

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

UF 4318

In the Matter of

PACIFICORP, dba PACIFIC POWER,

Application for Authority to Issue and Sell or  
Exchange Not More Than \$3,000,000,000 of  
Debt and Enter Into Credit Support  
Agreements.

ORDER

DISPOSITION: STAFF'S RECOMMENDATION ADOPTED

At its public meeting on November 3, 2020, the Public Utility Commission of Oregon adopted Staff's recommendation in this matter. The Staff Report with the recommendation is attached as Appendix A.

BY THE COMMISSION:



**Nolan Moser**  
Chief Administrative Law Judge



A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Circuit Court for Marion County in compliance with ORS 183.484.

## ITEM NO. CA5

PUBLIC UTILITY COMMISSION OF OREGON  
STAFF REPORT

PUBLIC MEETING DATE: November 3, 2020

REGULAR \_\_\_\_\_ CONSENT X EFFECTIVE DATE \_\_\_\_\_ Upon Commission Approval \_\_\_\_\_

DATE: October 23, 2020

TO: Public Utility Commission

FROM: Curtis Dlouhy

THROUGH: Bryan Conway, John Crider, and Matt Muldoon **SIGNED**

SUBJECT: PACIFIC POWER:  
(Docket No. UF 4318)  
Requests authority to issue up to \$3,000,000,000 of debt, and enter into credit support arrangements.

**STAFF RECOMMENDATION:**

Staff recommends the Commission approve PacifiCorp's, d/b/a Pacific Power (PAC or Company) application to issue and sell or exchange up to \$3 billion of debt securities and enter into credit support arrangements (hereinafter the "Application"), subject to nine conditions and reporting requirements listed in the Staff Memorandum.

**DISCUSSION:**Issue

Whether the Commission should approve PacifiCorp's request to sell or exchange up to \$3 billion of debt securities with maturities up to 40 years, with credit support and in international financial markets and cancel PacifiCorp's previously approved outstanding bond issuance authority, including that authorized in Order No. 18-452 in Docket No. UF 4304.<sup>1</sup>

Applicable Law

Under ORS 757.405, a utility must obtain Commission approval prior to issuing stocks and bonds, notes, and other evidences of indebtedness. The Commission may authorize an issuance if it is for one of the permissible purposes listed in

<sup>1</sup> Order No. 14-268 in Docket No. UF 4288 of Pacific Power entered July 22, 2018.

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ORS 757.415(1), satisfies the criteria of ORS 757.415(2)(b), and, except as permitted, the purpose of the issuance is not reasonably chargeable to operating expenses or income, ORS 757.415(2)(c). Permissible purposes for an issuance under ORS 757.415(1) include the acquisition of property, the construction, completion, extension or improvement of its facilities, the improvement or maintenance of its service, and the discharge or lawful refunding of its obligations.

Finally, OAR 860-027-0030 requires utilities to provide certain information when seeking authority to make an issuance under ORS 757.405-757.415.

### Analysis

#### *PacifiCorp's Application*

PacifiCorp seeks authority to issue securities between 1 and 40 years in length, in one or more series, in amounts not to exceed \$3 billion in the aggregate.<sup>2</sup> PacifiCorp proposes to use the proceeds of the issuance(s) to construct, extend, or improve utility facilities, improve or maintain service, or for the discharge or lawful refunding of obligations that were incurred for utility purposes permitted under ORS 757.415.<sup>3</sup>

PacifiCorp agrees that if the Commission approves PacifiCorp's Application, authorization to issue new bonds or notes under previous Commission orders will no longer be valid.

PacifiCorp asks that it be authorized to issue fixed-rate secured long-term debt in the form of First Mortgage Bonds (FMB) or fixed or floating rate Unsecured Notes, with a term of up to 40 years. PacifiCorp states that debt securities may or may not be registered. Unsecured Notes will likely be subordinated to the Company's FMBs with respect to the Company's First Mortgage lien.

The Company states that it anticipates issuances will be primarily fixed-rate First Mortgage Bonds, but is requesting authority for a variety of borrowing options in order to provide financial flexibility, to obtain lower all-in cost, to reduce risk, and to broaden access to investors. For example, Eurobonds are issued outside the jurisdiction of any single country to investors in various countries by an international syndicate. Eurobonds denominated in U.S. dollars are referred to as Eurodollar Bonds. Eurodollar bonds generally are priced at a spread over like maturity U.S. Treasuries (UST). Unsecured Eurodollar financing may require a supporting letter of credit.

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<sup>2</sup> UF 4318 Application of PacifiCorp at Cover and Page 1.

<sup>3</sup> UF 4318 Application of PacifiCorp at Pages 12-13.

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PacifiCorp also asks that it be authorized enter into U.S. credit support arrangements costing annually up to one percent of principal covered, and into international credit support arrangements costing annually up to three percent of principal covered.

PacifiCorp states that if its Application is approved, the coupon or interest rate for FMB or fixed-rate Notes issued under the Commission's order will be established at the time of issuance, unless the FMBs or Notes have the delayed settlement feature, in which case the fixed interest rate will be determined on the date PacifiCorp and purchaser enter into a binding purchase and sale agreement.

The Company proposes a matrix for the maximum interest and coupon rates for issuances under any order approving PacifiCorp's Application, but asks for authority to issue FMBs or Notes so long as the interest rate or coupon does not exceed **7.0** percent per annum.<sup>4</sup>

PacifiCorp asks that floating rate Notes issued under the Commission's order be authorized to have interest rates that would be reset monthly, quarterly, or every six months (established at time of sale), based on a fixed spread over the 1-month, 3-month or 6-month LIBOR rate source, with an expected issuance cost of no more than one percent of principal.<sup>5</sup> If, as expected, LIBOR would not be available in the near future, PacifiCorp asks that it be permitted to use a prevailing alternative acceptable to PacifiCorp, banks and other pertinent entities.

PacifiCorp notes that it is not filing its Application pursuant to ORS 757.495 concerning contracts with affiliated interests, and thus would not need to show that this Application if granted would result in outcomes that are fair, reasonable, and not contrary to the public interest.

PacifiCorp asks that the securities be permitted a sinking fund provision and a feature that allows for early redemption, which may require PacifiCorp to indemnify the holders of the securities from any loss or costs incurred as a result of the redemption. The agreement with purchasers of securities may contain a provision requiring PacifiCorp to pay a breakage fee in the event the securities are redeemed prior to maturity. The agreement with purchasers of securities may contain other market-required conditions including yield protection, capital adequacy requirements, and tax and funding indemnification.<sup>6</sup>

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<sup>4</sup> UF 4318 Application of PacifiCorp at Page 9.

<sup>5</sup> UF 4318 Application of PacifiCorp at Page 9.

<sup>6</sup> UF 4318 Application of PacifiCorp at Pages 7-9.



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PacifiCorp clarifies that its documentation may use the phrase, “Medium Term Notes” (MTN) which indicates debt with maturities between 9 months and 30 years.<sup>7</sup> That range of maturities would be a subset of the 1- to 40-year range of maturities requested. PacifiCorp further correctly clarifies that these debt issuances are not subject to competitive bidding requirements.<sup>8</sup> The Company also asks that the requested authority remain in effect so long as PacifiCorp senior secured debt has investment grade ratings from two nationally recognized rating agencies.<sup>9</sup>

#### Staff Analysis and Recommendations

In the following analysis, Staff addresses whether the proposed issuance complies with ORS 757.415(1) and satisfies the Commission’s no harm standard, specifically addressing PacifiCorp’s proposal with respect to: the \$3 billion amount; up to 40-year maturities; use of FMB; Green FMB and Unsecured Notes; fixed and floating rates for Unsecured Notes; interest rate hedges; the maximum spread over U.S. Treasuries Yields and alternate 7 percent hard cap within which PacifiCorp is authorized to do issuances; PacifiCorp’s credit rating; and recovery of fees and commissions associated with the issuance. In making this recommendation, Staff incorporates the Federal Reserve’s (FED) current projections that keep interest rates near zero. Staff also considers Berkshire Hathaway Company increasing presence in international markets.<sup>10</sup>

#### *Use of Proceeds*

PacifiCorp had \$8.449 billion of FMB and \$256.250 million of Pollution Control Revenue Bonds (PCRB) outstanding as of June 30, 2020.<sup>11</sup> Authorization as requested will allow PacifiCorp to address capital-spending needs and/or repay or replace maturing debt shown on page 5 of its application.

This \$3 billion debt would support usual utility purposes as described above, consistent with statutory requirements.<sup>12</sup> In general, ratepayers benefit to the extent that the Company can optimize timing and cost of financing cash flows to meet utility needs described above. In addition, the requested authority provides certainty that PacifiCorp can meet its trading and contractual obligations and that the Company has adequate resources to require counterparties to meet theirs.

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<sup>7</sup> UF 4318 Application of PacifiCorp at Pages 7-9.

<sup>8</sup> UF 4318 Application of PacifiCorp at Page 10.

<sup>9</sup> UF 4318 Application of PacifiCorp at Cover and Page 1.

<sup>10</sup> See “Minutes of the Federal Open Market Committee June 9-10, 2020” on [federalreserve.gov](https://www.federalreserve.gov).

<sup>11</sup> UF 4318 Application of PacifiCorp at Page 6.

<sup>12</sup> The Company’s intended uses mirror those authorized in ORS 757.415(1).

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### *\$3 Billion Debt*

Staff supplemented the information provided by the Company with its filings with the U.S. Securities and Exchange Commission (SEC), Wall Street Journal (WSJ) articles, investor presentations, compiled data, S&P investor resources, Moody's Analytics and Market Risk Projections, Value Line market snapshots, Bloomberg analysis, forward data, and trend curves.<sup>13</sup> Staff also reviewed recent bond issuance spreads and costs by credit rating of issuing energy utilities for each bank that also participated in a Commission authorized securities issuance in the last five years. Staff does not publish that aggregated confidential information herein.

### *FMB and Fixed and Floating Rate Unsecured Debt*

The Company's FMB place a lien on Company property under its Mortgage and Deed of Trust as amended and supplemented by various supplemental indentures since inception. The lien acts as collateral for bondholders, which in current market conditions results in a higher credit rating than the Company's unsecured rating, and decrease of the coupon rate at issuance, as compared with otherwise similar unsecured debt. Covenants for some FMBs may require that corporate cash flows be adequate to serve interest obligations before dividends may be paid to shareholders. Excepting pollution control revenue bonds (PCRB), all of PacifiCorp's long-term debt outstanding is FMBs. That reflects PacifiCorp's careful and considered financial management to date. PacifiCorp also benefits from very strong Berkshire Hathaway, Inc. (BRK) parent company liquidity.

Authority to issue unsecured debt provides PacifiCorp with additional flexibility, but imposes a burden on the Company to establish at subsequent general rate case that the cost of issuing unsecured debt was prudent and cost effective compared to the cost of issuing FMBs, given market conditions and any restrictions PacifiCorp operated under at time of issuance. Unsecured debt backed only by the full faith and credit of the issuing company typically requires higher interest rates than would collateral-backed FMBs. As shown in Attachment A, unsecured debt can bear higher cost than secured debt, so utilizing this flexibility merits greater scrutiny. Conversely, issuing FMBs requires both adequate interest coverage cash flows, and an adequate pool of qualified assets. FMBs generally are senior in rights to receive corporate proceeds than unsecured debt.

Authority to issue floating or variable rate debt also provides PacifiCorp with additional flexibility. Interest rates for floating rate notes may be periodically reset based on a fixed spread over 1-, 2-, 3-, or 6-month LIBOR. In no case will the fixed spread over pertinent LIBOR exceed 1.75 percent. In the event that LIBOR is not reported or is

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<sup>13</sup> As an example, Staff reviewed PacifiCorp current liquidity as captured by Bloomberg coverage of PacifiCorp revolving credit facilities and ratings of long-term debt issuances.

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unavailable, PacifiCorp and pertinent parties may use a rate from another recognized source or a rate agreed to by the parties intended to approximate LIBOR.<sup>14</sup>

Reaffirming the Federal Reserve's June meeting minutes, more recent financial news project interest rates to remain low for years to come.<sup>15</sup> Under Staff's proposed Condition 6, the Company's choice to issue floating rate Unsecured Notes would have to be explained within 30 days after the close of the transaction and at the next general rate case, the Company will have to establish that the variable rate debt was prudent and cost effective compared to alternatives the Company examined. Therein PacifiCorp will also need to establish that a variable rate was the best match to the nature and longevity of any capital spending on facilities supported by said issuance.

In reviewing debt carrying capacity, Staff considers carefully the covenants and provisions of each utility's indenture. The Company addresses certain covenants and restrictions in the issuance of FMBs. In general, in the event PacifiCorp was not able to pass the 'times interest earned' test under the indenture so as to issue FMBs, PacifiCorp could lean on its revolving credit facilities, BRK support, and short-term debt markets. PacifiCorp could also look at unsecured debt in reviewing its options.

Because a Commission jurisdictional energy utility may face unexpected contingencies, which temporarily impair cash flows – such as a generation forced outage, which causes the utility to incur unexpected cost for replacement market power purchases – it may need short-term cash flow options for interest coverage. Staff recommends PacifiCorp be authorized these flexibilities provided there is pressing need that would not otherwise permit issuance of FMBs and remedies, such as delayed draw in private placement.

These flexibilities assure credit rating agencies and investors that PacifiCorp will consistently be able to meet its utility obligations to provide reliable, resilient energy at reasonable rates. However, PacifiCorp must justify deviation from reliance on FMBs, which under most circumstances offer lowest all-in issuance cost of long-term debt for ratepayers.

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<sup>14</sup> UF 4318 Application of PacifiCorp at Page 8.

<sup>15</sup> See "Fed Sets Higher Hurdles for Rate Increase" by Nick Timiraos – WSJ – Sep. 17, 2020.

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*Credit Ratings Local vs. Foreign*<sup>16</sup>

PacifiCorp's **local** currency long-term debt ratings are currently rated as:

**Moody's:** A3

**S&P:** A

PacifiCorp's **foreign** currency long-term debt ratings are currently rated as:

**Moody's:** A3

**S&P:** A

In general, the interest rate or coupon is higher for unsecured debt if debt were not backed by any PacifiCorp assets and therefore bond-rating agencies set the unsecured ratings below secured ratings. In part due to affiliation with BRK, international issuances have the potential to be well rated and cost effective, depending on myriad factors. For this reason, Staff recommend that PacifiCorp and its marketing unit be authorized to proceed when costs and risks are favorable. A long-term secured debt has two components: a referent country benchmark and a spread there over. For example, a German issuance of long-term debt based on a spread over a much lower yield could (provided all credit and marketing support, and repatriation were not overly costly) be a lower all-in cost than a domestic issuance.

While the average foreign exchange trader loses their money and exits, those with a long-term and structured presence in international markets can achieve superior results to less-diversified efforts. Berkshire Hathaway has become one of the world's largest multinational companies by revenue and has successfully floated securities globally. To the extent that PacifiCorp draws on that experience within BRK it can at times, depending on relative market conditions, achieve lower all-in cost than were PacifiCorp not to look at international markets. However, the authorization herein is to execute debt securities offerings internationally only when they can be expected to be more cost effective at comparable risk than domestic U.S. alternatives.

Debt issued in the private placement market may also be advantageous versus a public offering, because it may provide flexibility of timing and size, and lower issuance costs. Private placements generally do not require rating by rating agencies,<sup>17</sup> but they can have implied ratings based on the Company's current ratings.

Under Staff's proposed Condition 8, the Company's authorization to issue FMB and Unsecured Notes granted by an order issued pursuant to the Application is terminated if either S&P's or Moody's credit rating for PacifiCorp long-term local secured debt falls below Investment Grade.<sup>18</sup>

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<sup>16</sup> Staff accessed Moody's Investors Service, Inc. (Moody's) and S&P Global (S&P) ratings on October 17, 2020.

<sup>17</sup> PacifiCorp indicates that debt in private placement may not be rated and registered on page 7 of its application.

<sup>18</sup> Investment grade long-term debt is rated BBB- or better by S&P, or Baa3 or better by Moody's. Staff does not foresee a loss of ratepayer perceived protection or value absent ratings by Fitch.

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### *Maturities up to 40 years*

The Company requests authority to issue FMB and Unsecured Notes with maturities of up to 40 years.<sup>19</sup> Confidential benchmarking by Staff indicates that up to 40-year issuances at reasonable costs may be available to PacifiCorp. Such longer maturities may lock in historically low coupon rates while reducing pressure on the Company's debt maturity profile. Staff finds such arrangements can help reduce debt maturity concentration while lowering aggregate cost of long-term debt to ratepayer benefit.

### *Hedging Authority*

To the extent PacifiCorp wishes to engage in interest rate hedging arrangements other than delayed start in private placement with *de minimis* incremental cost and risk with respect to issuances authorized under this order, Staff recommends that the Commission adopt Staff's Condition 4 requiring the Company to either conduct its own analysis or obtain an independent third-party analysis of any hedging transactions prior to execution of the transactions.<sup>20</sup>

### *Credit Support*

In the next general rate case, the Company must show that the all-in issuance cost of debt supported by a letter of credit (LC) or other credit support arrangement was cost competitive with other reasonable issuance alternatives available to the Company at the times of arrangement and issuance, including, but not limited to FMBs in private placement with delayed draw and FMBs in public offering, both absent credit support. Also in the next general rate case, PacifiCorp must again show that it investigated whether unsecured letters of credit provided adequate support at lower all-in cost than secured letter of credit alternatives.

### *International Financing*

Because Berkshire Hathaway, Inc. has an ongoing presence in and expertise with global financial markets, Staff recommends the Commission allow PacifiCorp to pursue international financing when the all-in issuance cost inclusive of credit support and LCs and agent and currency exchange costs are reasonably expected to be lower than alternatives like a U.S. issuance of FMBs in private placement. However, the Company must perform its own financial analysis or utilize Berkshire Hathaway internal resources to show that the all-in issuance cost of debt supported by a letter of credit or other credit support arrangement inclusive of letters of credit (LC) or other credit support was cost competitive with other reasonable issuance alternatives. Both the European Central Bank (ECB) and the U.S. Federal Reserve (Fed) are stimulating respective economies

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<sup>19</sup> See Application page 7.

<sup>20</sup> Such hedging transactions could include treasury interest rate locks, treasury interest rate caps, treasury interest rate collars, treasury options, forward starting interest rate swaps, and swap option combinations (swaptions).

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with historically low rates, buying of securities, and extremely accommodative monetary policies. This may create global financing opportunities for PacifiCorp and its ratepayers.

In general, PacifiCorp and the investment banks with which it does business are very well known within PacifiCorp's operating footprint. However, internationally, foreign companies are less well known even when a subdivision of a large multinational corporation. PacifiCorp has two business units: the first subordinate business unit, Pacific Power is a regulated electric utility with service territory throughout Oregon, northern California, and southeastern Washington. The second, Rocky Mountain Power, a regulated electric utility with service territory throughout Utah, Wyoming, and southeastern Idaho. To ensure that its international offerings are well received, the Company commits that it will work with entities internationally with equal or higher financial ratings to PacifiCorp to market its debt securities. Documentation may also show PacifiCorp rather than a subordinate business unit.

This approach sidesteps the challenge that PacifiCorp may not be well known and understood in a given international financial market. But it can be more costly, potentially as much as three percent vs. domestically in the U.S. one percent in fees and issuance expenses. For this reason, Staff recommends that the Commission require international issuances to be equal or lower all-in cost to usual issuances in the U.S. inclusive of all credit support, marketing partnership costs, currency exchange costs and activity to manage international positions. International fees that are equal or lower cost can add flexibility and diversity, provided PacifiCorp performs its own market and risk analysis or utilizes BRK's supporting resources.

PacifiCorp agrees with Staff's recommended Condition 4, as memorialized herein, that before entering into a financial hedging arrangement for the FMB or Unsecured Notes, and before issuing internationally, the Company will perform "its own" in-depth analysis of incremental risks and costs represented by hedging and any international issuance, or rely on independent third party analysis directly paid for by PacifiCorp. This avoids overreliance on indicative information and scenarios provided as marketing tools by international investment banks that illustrate how investment outcomes might look using optimized created data.

#### *Recommended Hedging Analysis*

Staff believes that a robust hedging analysis should:

- Be informed by, but should not solely rely on, investment bank provided materials;
- Place minimal weight on unverified indicative data and select range of years "snapshot" trend analysis;

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- Clearly identify material assumptions and answer the question, “Who wins and who loses and how much, if assumptions and correlations do not hold true?”;
- Capture contemporaneous cost quotes for hedging products, customized to allow the Company to avoid taking on incremental cost and risk in excess of the underlying volatility the Company strives to manage, inclusive of swaps with asymmetric distribution of outcome tails that trade some likelihood of surplus upside potential gain for elimination of downside risk should hedging assumptions and expected correlations not hold true;
- Disaggregate any vanilla swaps and standardized hedging product from bond and debt securities issuances, and compare the cost of those products sourced via investment banks against the cost of exchange traded derivatives; and
- Be benchmarked against alternatives inclusive of no hedge and delayed start in private placement, addressing outcomes under potential outlier events as well as most likely outcomes.

To the extent PacifiCorp obtains third-party quantitative cost and risk analysis, such analysis should be provided by a directly-retained independent third-party expert firm not associated with investment banks and not in the business of finding or acting as hedging counterparties.

The Company has represented to Staff that it will draw upon experience gained from previous hedging transactions to control the cost of like future hedging activity, in part to reduce the costs of customized hedging arrangements, including investment bank fees and legal costs of delayed starts in private placements.

PacifiCorp also represents that its hedging policy is a general outline and not an analytic evaluation tool that can be relied upon in lieu of the Company’s own case-by-case analysis of whether to enter into a hedge. In addition, the Company hedging policy allows for multiple accounting methods, and the Company represents that the hedging policy is not an after-the-fact evaluative tool that measures the cost vs. benefit of the hedge and determines the extent to which it managed underlying volatility. Thus, the Company represents here that it will: 1) Perform its own analysis prior to entering into any hedging; 2) Monitor active hedges for unfavorable developments; and 3) Carry out after-the-fact hedging evaluations from a rigorous and practical financial operations perspective, understanding that this perspective will not be the same as accounting tests of effectiveness. For all hedging activity, other than delayed start in private placement with *de minimis* incremental cost and risk, PacifiCorp will maintain its analysis in an MS Excel spreadsheet form that can be provided to Staff on request. PacifiCorp will maintain this analysis at least through the conclusion of its next general rate case in Oregon after each financial hedge is completed or unwound.

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### *Spreads over UST Yields*

Staff recommends using PacifiCorp's requested "Maximum Spreads over Benchmark Treasury Yields" in Attachment N of its Application, which are identical to the values shown in Attachment B to this memorandum. Staff's recommended values in Attachment B are based in part on Bloomberg data summarized by the graphs in Attachment D. Limits shown in Attachment B allow adequate headroom for the Company to issue FMB and debt securities under financial market conditions anticipated by the Board of Governors of the Federal Reserve System over the next several years.<sup>21</sup>

Further, Staff sees few, if any, recent U.S. utility bond issuances with 15-, 20-, or 25-year maturities. Note the high premium paid in spread over pertinent maturity U.S. Treasuries for a 20-year bond in comparison to that for a 30-year A rate utility bond as illustrated in Attachment D. When those less utilized maturities are removed from Attachment C, Staff's recommended spread over UST provides adequate headroom for the Company's likely 10-year or less, and 30- to 40-year FMB or Unsecured Note issuances.

### *Hard Cap Alternative*

Staff recommends that the Commission impose Staff's recommended condition that in the event all-in spreads exceed the relevant maximum spread over UST set forth in Attachment A, the Company may still issue FMB or Unsecured Notes without further Commission approval if the all-in rate does not exceed a "hard cap" of 7.0 percent, subject to additional reporting requirements outlined in Condition 6.<sup>22</sup> A 7.0 percent all-in rate "hard cap" allows adequate headroom to assure Company access to debt markets, while providing reasonable cost controls to protect ratepayers.<sup>23</sup> Staff notes that this level differs from that asked by the Company. The level is based on Staff's news feeds and both Staff and U.S. Federal Reserve analysis. This level is neither overly permissive nor excessively constricting. It represents analysis that is current, comprehensive, and reflective of best available information at this time.

### *Provision for New Bank Fees*

Additionally, the Company may incur a new prevailing fee(s), not to exceed an aggregate 10 basis points of affected principal. If relying on this provision, PacifiCorp's next reporting to the Commission should include materials to demonstrate that this cost was new and market-pervasive at time of issuance. This flexibility addresses the

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<sup>21</sup> Staff accessed the materials of the Board of Governors of the Federal Reserve System, statistical release of October 16, 2020.

<sup>22</sup> See the definition for "All-in Cost" by browsing to the lower right corner of the Commission's home webpage at: <http://www.puc.state.or.us/Pages/index.aspx>. Then, click the Quick Link: "Standard Data Requests for Energy Rate Cases" and scroll to page 32, "Terms."

<sup>23</sup> See page 9 of the Company's application.



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potential for additional fee(s) or charge(s) by investment banks, agents, organizers, or other parties that is not part of itemized bond issuance costs routinely encountered in October 2020 bond markets.

#### *Underwriter and Agent Fees*

Appendix A shows Staff's recommendation regarding the maximum range of allowed agent and underwriting commissions for issuances. Underwriters' commissions represent the maximum commission to be paid by the Company and vary depending on the maturity of the Debt Securities issued (e.g., 0.875 percent is estimated to be the fees for issuances with maturity dates of approximately 30 years). Shorter maturities typically require lower commissions than do longer maturities.

Staff's recommended limits on underwriting commissions are stated in basis points (bps) or percentages of aggregate issuance amounts. Under Staff's recommendations, underwriting commissions will not in any case exceed 0.875 percent of gross proceeds (approximately \$26.25 million in aggregate across the requested authorization).<sup>24</sup>

#### *Other Technical Expenses*

After netting-out issuance fees as illustrated in Attachment B,<sup>25</sup> the Company expects to achieve approximately \$2.97 billion in aggregate net proceeds, not including any Original Issue Discount (OID) determined at the time of issuance. Representative aggregate fees and charges in Attachment B are higher than for recent benchmark issuances.<sup>26</sup> The Company may issue multiple separate sets of FMB or Unsecured Notes spread out over time rather than a single set of coordinated issuances within the same quarter. However, PacifiCorp stands ready to show that issuance costs were consistent with component costs for like stand-alone issuances in future audits or general rate cases.

#### *Early Redemption Features*

PacifiCorp's request for authority includes the option to utilize an early redemption feature to provide financial flexibility. Staff agrees that the requested flexibility is reasonable. And, the Company will stand ready to demonstrate how any early redemption executed was cost effective based on prevailing market conditions at the time of execution.

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<sup>24</sup> See page 12 of the Company's application.

<sup>25</sup> Attachment B sets out PacifiCorp's Estimated Representative Issuance Expenses for the FMB and Unsecured Notes issuances.

<sup>26</sup> Staff captured 2020 debt issuance detail reported by the Wall Street Journal, Bloomberg and SNL Financial LC, for electric utilities that Value Line covers, including PacifiCorp.

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Allowing the early redemption feature is reasonable because shorter maturity debt may be more cost effective in the near term until PacifiCorp financial metrics allow for the issuance of additional FMB.

A make-whole redemption feature allows an issuer to call bonds at any time at a cost equal to the future debt service discounted back to the redemption date. Such provisions are usual and generally to ratepayers benefit. The discount rate for a make-whole provision within a call feature is likely be a rate based on the prevailing treasury yield to current maturity plus 50 basis points. This type of redemption does not typically require the issuer to pay a higher coupon or fee since the bondholder is effectively made whole.

The Company may also choose to implement other redemption features that would allow PacifiCorp an option to call FMB or Unsecured Notes in the future at a rate determined at the time of issue. The redemption rate can be set at par or at some premium and is dictated by market conditions at the time of sale. These types of call provisions usually require that the issuer pay a higher coupon or interest rate to compensate the bondholder for the risk that their bonds may be called prior to maturity. Such provisions may also require a breakage fee or indemnification for any loss or costs.

#### *Capital Structure*

PacifiCorp historically targeted and Staff has traditionally advocated for a 50/50 Debt/Equity capital structure over time. An order authorizing the Company to issue FMB and Unsecured Debt in the form and quantity requested would refresh PacifiCorp's authorization to issue long-term debt consistent with the Company's current utility obligations. Further, it would allow PacifiCorp to make strategic changes in capital structure as might be consistent with future finance strategy and regulatory context.

#### *Selection of Agents*

Selection of agents, underwriters, and external counsel may include entities associated with the Company's outstanding debt based in part on knowledge of the Company's business, and proven ability to place debt, and to provide cost effective services. The Company may select additional service providers for the issuance of the FMB and/or Unsecured Notes, as it deems appropriate.

#### *Continued Commission Reliance on S&P and Moody's Ratings*

Staff recommends the Commission require S&P and Moody's ratings where ratings are appropriate or required rather than alternatives that sound impressive but may substitute fluff for substance or be otherwise less reliable. The dual use of S&P and Moody's is not cheap but is exceedingly less expensive than omitting early warning indicators for the Commission. Were the Commission to merely accept reliance on "at

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least two nationally recognized rating agencies”, the Commission could receive Morningstar ratings and other sell-side market indicators that would continuously advise the Commission that the “Future is so bright, Commissions need to wear polarized sun shades.”<sup>27</sup> In contrast, sticking to S&P and Moody’s helps to ensure that the Commission becomes aware of jurisdictional energy utility challenges promptly allowing for a broader and more cost effective spectrum of timely remedies.

*Green FMB Program Startup Legal and Other Incremental Costs.*

FMB for the express purpose of constructing, upgrading, deploying, monitoring, controlling, and optimizing renewable electric generation, storage, smart or distributed energy resources, advanced electric and information technologies, supporting transmission, distribution and communication assets, more efficient electrical programs and solutions, in addition to refinancing or retirement of securities for like dedicated environmentally beneficial purposes may be aggregated into Green FMB Tranches. It is expected that issuance of Green FMB Tranches will incur incremental initial costs to coordinate agents and to create appropriate legal documentation. However, over time it is expected that routine issuance of Green FMB Tranches will enjoy falling costs due to reuse of legal templates and regular interactions with ongoing agents and facilitating entities.

Incremental initial arrangement and issuance cost of Green FMB are authorized, including program setup legal costs, over limits and controls herein. However, PacifiCorp must stand ready in a future rate case or other Commission proceeding to demonstrate that costs recorded were actual costs incurred and that the Company took effective measures to reduce costs in recurring Green FMB issuances over time. The Company must also be ready to show that green certification costs were those actually incurred and that PacifiCorp controlled costs to the extent practicable and considered alternatives including requesting Commission documentation changes in Orders for Finance Applications, Integrated Resource Planning, and General Rate Cases.

Conclusion

Staff review of this application indicates that the FMB issuance with maturities equal to or less than 40 years as requested will do no harm and can be expected to benefit ratepayers. The Company wants the flexibility to engage in other activities that may not be demonstrated to be necessary or cost effective at this time, but that may be cost effective in the future. PacifiCorp agrees to Staff Condition 4 that the Company perform its own case-by-case, in-house analysis or retain its own independent third-party experts to ensure that ratepayers bear no unnecessary incremental cost or risk from

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<sup>27</sup> See “The Morningstar Mirage” by Kirsten Grind, Tom McGinty and Sarah Krouse of the Wall Street Journal (WSJ) published in the print edition of October 25, 2017.

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activities beyond vanilla FMB or Unsecured Note issuance with delayed start in private placement. In addition, PacifiCorp agrees that the Company will include the cost of unwinding swaps, caps or foreign currency positions so as to make decisions based on comparable all-in-costs.

Staff concludes that, subject to Staff's recommended conditions, the proposed issuance facilitates flexibility for executing Commission orders in pending and future rate cases and satisfies the Commission's statutory criteria. Accordingly, Staff recommends that the Commission approve the Application, subject to the following Conditions:

1. Authorization Limit

Total aggregate bonds and notes issued, sold, or exchanged under this authority shall not exceed \$3 billion and shall have maturities not exceeding 40 years.

Note: If the bonds and notes are issued at an Original Issue Discount (OID) not to exceed one percent, such greater amount shall result in an aggregate offering price of not more than \$3 billion.

2. Withdrawal of Prior Authorization

All prior Commission First Mortgage Bonds (FMB) and debt securities outstanding unused issuance authorizations will expire 60 calendar days after the Commission's order is entered in this docket, UF 4318, approving PacifiCorp's Application to issue FMB and Debt Securities up to the limits shown in Condition 1.

3. Cost Requirements

Subsequent to an authorizing Commission order pursuant to this Application, the Company may issue FMB and Unsecured Notes without further Commission approval provided that proceeds are used for lawful utility purposes, and provided either:

A. All-in rate spread(s) over yield(s) on like maturity U.S. Treasury (UST) do not exceed the limits set forth in Attachment A. Interest rates on the Unsecured Notes may be periodically reset based on a fixed spread over 1-, 2-, 3-, or 6-month London Interbank Offering Rates (LIBOR) as reported on Bloomberg, Reuters, or other customary LIBOR sources. In no case for Unsecured Notes will the fixed spread over pertinent LIBOR exceed 1.75 percent. In the event that LIBOR is not reported or is unavailable, the parties may use a rate from another recognized source or a rate agreed to by the parties intended to approximate or replace LIBOR; or

B. The all-in rate does not exceed a **7.0** percent "hard cap." However, the agreements related to FMBs and Unsecured Notes may contain customary or market terms and conditions required by lenders or holders, including without

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Greg Larkin/1104  
Greg Larkin/17

limitation, yield protection, capital adequacy requirements, and tax indemnification, which will not be included in the hard cap.

Both “A” and “B” above incorporate the restriction that all costs of any hedging associated with any issuance under the authority requested must be accomplished within the all-in spreads or rate specified above.

The Company may also incur a new prevailing fee(s) (Unanticipated Fee Allowance), not to exceed an aggregate 10 basis points of affected principal. Such Unanticipated Fee Allowance is in addition to the hard caps described above. The Company should include materials in its next reporting to the Commission demonstrating that this cost was new and market pervasive at issuance.

4. Hedging Limitations

Authorization to enter into Interest Rate Hedging Arrangements and international financing are predicated upon the Company’s completion of the Company’s own affirmative comprehensive analysis or use of independent third-party or Berkshire Hathaway or Berkshire Hathaway Energy analysis. Regardless of any prevailing hedging and accounting policies, and regardless of the presence of associated materials generated by investment banks or hedge counterparties, prior to executing any hedging or international finance or financial derivative agreement, other than a delayed issuance arrangement of up to one year under a private placement at *de minimis* incremental cost and at no incremental risk, the Company will perform its own comprehensive analysis<sup>28</sup> regarding hedging costs, international benefits costs and risks, or will obtain expert advice from an entity not associated with investment banks and not offering hedging contracts. The Company will stand ready to present its hedging and international financing analysis to the Commission upon request and will maintain its analysis as described in the body of this report.

5. Cost Competitive

Agent and underwriting commissions for the issuance of FMB will not exceed the fees as shown in Attachment A, and will not in any case exceed 0.875 percent of gross proceeds. The Company shall demonstrate for all debt issuances and associated activities that the Company achieved all-in rates that contemporaneously were both competitive and cost effective.

6. Timely Reporting

A. The Company will promptly provide a written summary notice through the PUC filing center and through email directly to PUC Staff named on the service list

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<sup>28</sup> See “Recommended Hedging Analysis” on page 12 of this report.

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for this docket of any issuance or execution of a bond purchase and sale agreement with a delayed issuance feature occurring under an Order pursuant to this application. A summary notice need only show series name, maturity, coupon rate, principal, and agreement date.

- B. The Company will also provide the Commission with the customary Report of Securities Issued and Disposition of Net Proceeds statements (Reports) no later than 30 calendar days after any transaction has been closed and funded. Reporting denominated in U.S. dollars will include, but not be limited to: total value of the issuance; total and per unit fees and expenses (including external legal costs); interest costs; credit ratings; and an explanation of the Company's choice and cost of placement. To the extent that fees, expenses, and invoices are not available within the 30-day period, they will be provided to the Commission in final Reports within 120 days after the transaction has been closed and funded.
  - C. For each securities issuance under condition 3-B, the Company shall report to the Commission within 30 calendar days after any transaction is closed and funded regarding the prevailing market conditions and if applicable, the causes for all-in spreads exceeding the relevant spreads specified in Attachment B over the UST benchmark yields.
  - D. PacifiCorp Finance Group will annually recap provisions of the covenants and restrictions for issuing First Mortgage Bonds and provide Staff with a copy of the Company's annual certificate of compliance when this is sent to the trustee on the Company's mortgage.
7. Termination of Authority  
The Company's authorization to issue FMB and Unsecured Notes granted by an order issued pursuant to this application is terminated if either S&P's or Moody's credit rating for PacifiCorp secured debt falls below Investment Grade.<sup>29</sup>
8. Authorization End Date(s)  
Provided all conditions and reporting requirements are fulfilled, authorization under an order issued pursuant to this application will remain in effect until superseded or exhausted. Hedging authority and international issuance authority end when securities issuance authority ends.

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<sup>29</sup> Investment grade long-term debt is rated BBB- or better by S&P, or Baa3 or better by Moody's. Staff does not foresee a loss of ratepayer perceived protection or value absent ratings by Fitch.

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9. Green First Mortgage Bonds (Green FMB)

Incremental initial arrangement and issuance cost of Green FMB are authorized, including program setup legal costs, over limits and controls herein. However, PacifiCorp must stand ready in a future rate case or other Commission proceeding to demonstrate that costs recorded were actual costs incurred and that the Company took effective measures to reduce costs in recurring Green FMB issuances over time.

FMB, Green FMB, and Unsecured Notes may be issued under this new authority in any proportion and in any combination of differently sized public offerings, which may be issued pursuant to a shelf registration filed with the SEC, or private placements, provided that the combined aggregate total of these offerings does not exceed \$3 billion, inclusive of any OID.

The Company has reviewed and agrees with this memo including the Staff proposed conditions and reporting requirements.

**PROPOSED COMMISSION MOTION:**

Approve the Company's application for authority to issue and sell or exchange up to \$3 billion of debt, and enter into credit support arrangements subject to 9 conditions and reporting requirements set forth in the Staff Memorandum.

See Attachments A through D.

PAC UF 4318 \$3 Billion Debt and Credit Support Arrangements

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## Attachment A

Greg Larkin/1104  
Greg Larkin/20

Maximum Allowable  
Agent and Underwriter Commissions  
for FMB and Unsecured Notes  
in Normal Market Conditions

Maturity		Maximum Underwriter Commission
At Least	But Less Than	
Years		Basis Points (bps)
1	1.5	15
1.5	2	20
2	3	25
3	4	35
4	5	45
5	7	60
7	10	62.5
<b>10</b>	<b>12</b>	<b>65</b>
12	15	67.5
15	20	70
20	25	75
<b>25</b>	<b>41</b>	<b>87.5</b>



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## Attachment B

Maturity		Maximum Annual All-In Spread Over Benchmark U.S. Treasury (UST) Yields	
Years		Basis Points (bps)	
Over	Not More Than	FMB	Unsecured Debt
1	2	100	125
2	3	125	150
3	5	150	175
5	7	175	200
7	10	200	225
10	20	225	250
20	30	250	275
30	40	275	300

**Note:** Comparing Bloomberg data<sup>30</sup> for like rated utility bonds, Staff finds that the above limitations provide access to capital with reasonable headroom for likely combinations of issuances in public, and private placement with delayed start at no or minimal incremental cost that could be beneficial to ratepayers, over at least the next two years.

<sup>30</sup> Staff referenced Bloomberg FMB and Unsecured USD indexed data on October 16, 2020. One Basis Point (bp) is defined as one-one hundredth of a percentage point. i.e., 100 bps equals one percent.

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October 23, 2020  
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## Attachment C

### PacifiCorp Estimated Representative Issuance Expenses

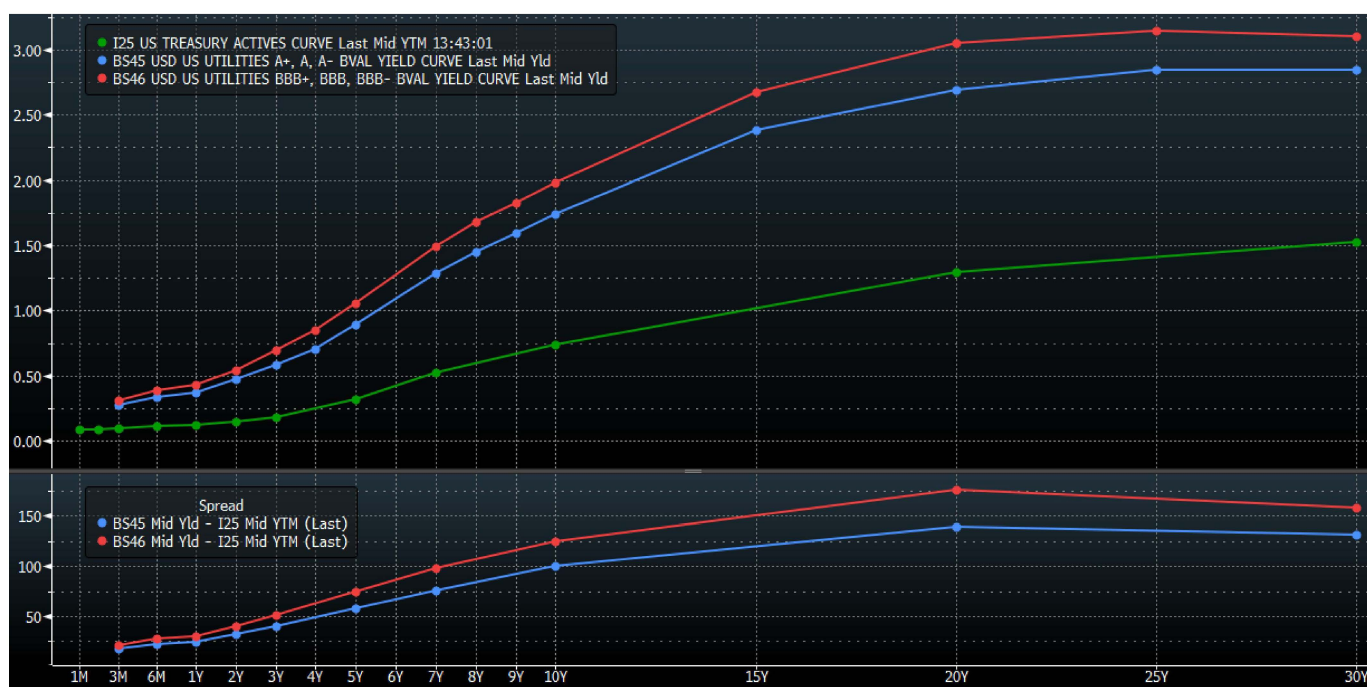
Item	Debt Securities	
	\$	Per \$100
Principal Amount (Face Value)	\$3,000,000,000	\$100
Plus Premium or Less Discount	(Not Applicable)	
Gross Proceeds	<b>\$3,000,000,000</b>	\$100
Underwriter Spread & Commissions	26,250,000	\$ 0.875
Regulatory Agency Fees	1,000	
SEC Fees	327,300	
Printing & Engraving	80,000	
Trustee / Indenture Fees	220,000	
Accounting	240,000	
Rating Agency Fees	2,250,000	
Company Counsel Fees	560,000	
Miscellaneous Expenses	71,700	
<b>Total Deductions</b>	30,000,000	\$ 1.000
<b>Estimated Realized Net Amount</b>	<b>\$2,970,000,000</b>	<b>\$ 99.000</b>

The above example is representative for issuances with 30-year maturities.

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## Attachment D

### Bloomberg Current Investment Grade Utility Spreads Over UST Bloomberg CRVF Function Plot Accessed by Staff on October 16, 2020



#### Referent Points of Interest:

**10 Year** Maturity Range from **A rated 101 bps** to B rated 127 bps,  
**30 Year** Maturity Range from **A rated 132 bps** to B rated 158 bps.

Updated March 1, 2023

## Wildfire Statistics

Wildfires are unplanned fires, including lightning-caused fires, unauthorized human-caused fires, and escaped fires from prescribed burn projects. States are responsible for responding to wildfires that begin on nonfederal (state, local, and private) lands, except for lands protected by federal agencies under cooperative agreements. The federal government is responsible for responding to wildfires that begin on federal lands. The Forest Service (FS)—within the U.S. Department of Agriculture—carries out wildfire management and response across the 193 million acres of the National Forest System (NFS). The Department of the Interior (DOI) manages wildfire response for more than 400 million acres of national parks, wildlife refuges and preserves, other public lands, and Indian reservations.

Wildfire statistics help illustrate past U.S. wildfire activity. Nationwide data compiled by the National Interagency Coordination Center (NICC) indicate that the number of annual wildfires is variable but has decreased slightly over the last 30 years. The number of acres affected annually, while also variable, generally has increased (see **Figure 1**). Since 2000, an annual average of 70,025 wildfires have burned an annual average of 7.0 million acres. The acreage figure is more than double the average annual acreage burned in the 1990s (3.3 million acres), although a greater number of fires occurred annually in the 1990s on average (78,600).

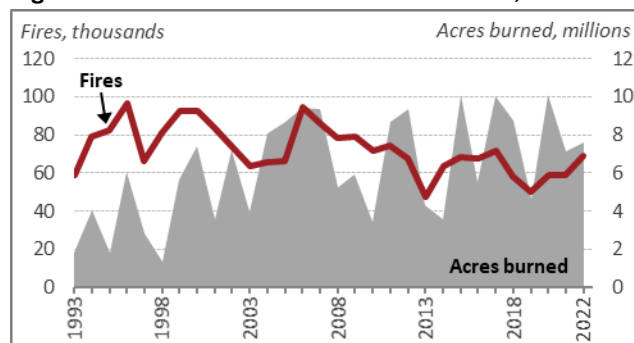
**Table 1. Annual Wildfires and Acres Burned**

	2018	2019	2020	2021	2022
<b>Number of Fires (thousands)</b>					
Federal	12.5	10.9	14.4	14.0	11.7
FS	5.6	5.3	6.7	6.2	5.9
DOI	7.0	5.3	7.6	7.6	5.8
Other	0.1	0.2	<0.1	0.2	0.1
Nonfederal	45.6	39.6	44.6	45.0	57.2
<b>Total</b>	<b>58.1</b>	<b>50.5</b>	<b>59.0</b>	<b>59.0</b>	<b>69.0</b>
<b>Acres Burned (millions)</b>					
Federal	4.6	3.1	7.1	5.2	4.0
FS	2.3	0.6	4.8	4.1	1.9
DOI	2.3	2.3	2.3	1.0	2.1
Other	<0.1	<0.1	<0.1	<0.1	<0.1
Nonfederal	4.1	1.6	3.1	1.9	3.6
<b>Total</b>	<b>8.8</b>	<b>4.7</b>	<b>10.1</b>	<b>7.1</b>	<b>7.6</b>

**Source:** National Interagency Coordination Center (NICC) Wildland Fire Summary and Statistics annual reports.

**Notes:** FS = Forest Service; DOI = Department of the Interior. Column totals may not sum precisely due to rounding.

**Figure 1. Annual Wildfires and Acres Burned, 1993-2022**

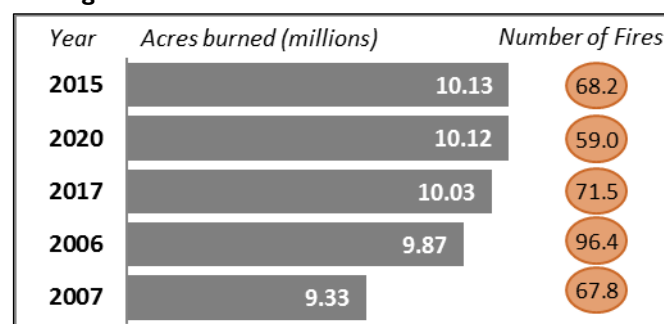


**Source:** NICC Wildland Fire Summary and Statistics annual reports.  
**Note:** Data reflect wildland fires and acres burned nationwide, including wildland fires on federal and nonfederal lands.

From 2013 to 2022, there were an average of 61,410 wildfires annually and an average of 7.2 million acres impacted annually. In 2022, 68,988 wildfires burned 7.6 million acres. Over 40% of those acres were in Alaska (3.1 million acres).

As of February 24, 2023, around 3,500 wildfires have impacted 28,700 acres this year.

**Figure 2. Top Five Years with Largest Wildfire Acreage Burned Since 1960**



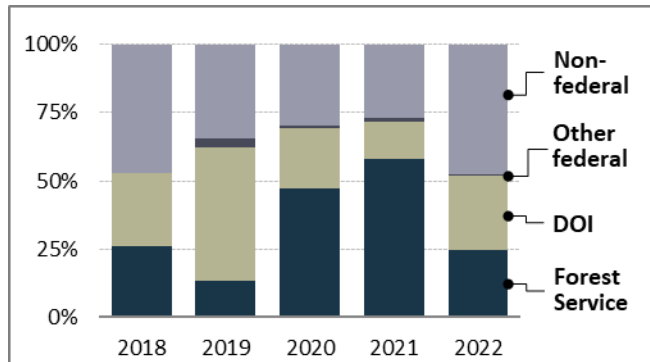
**Source:** NICC Wildland Fire Summary and Statistics annual reports.  
**Note:** Number of fires in thousands.

The number of fires and acreage burned are indicators of the annual level of wildfire activity. These numbers may not be indicative of fire's impact on human development or communities, since many fires occur in large, relatively undeveloped areas. Acreage burned also does not indicate the severity of a wildfire, the degree of impact upon forests or soils, or other ecological effects.

Most wildfires are human-caused (89% of the average number of wildfires from 2018 to 2022). Wildfires caused by lightning tend to be slightly larger and to burn more acreage (53% of the average acreage burned from 2018 to 2022) than human-caused fires.

In 2022, 52% of the nationwide acreage burned by wildfires was on federal lands (4.0 million acres; see **Table 1**), lower than the 10-year average (64%) of impacted federal land acreage. The other 48% of the acreage burned in 2022 was on state, local, or privately owned lands, though the fires on these lands accounted for 83% of total fires. Of the federal acreage burned nationwide in 2022, 52% (2.1 million acres) burned on DOI land and 47% (1.9 million acres) burned on FS land (see **Figure 3**). The 2022 figures are driven largely by Alaska, where just over half of the acreage impacted occurred on nonfederal lands (1.6 million acres) and just under half was on DOI lands (1.5 million acres).

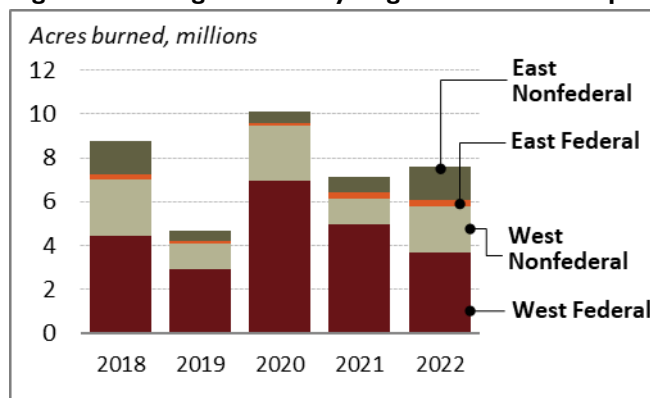
**Figure 3. Percentage Acreage Burned by Ownership**



**Source:** NICC Wildland Fire Summary and Statistics annual reports.  
**Note:** DOI = Department of the Interior.

More wildfires occur in the East (including the central states), but the wildfires in the West (i.e., Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming) are larger and burn more acreage. In 2022, just over 20,000 wildfires burned approximately 5.8 million acres in the West, compared with the over 48,000 fires that burned just over 1.8 million acres in the East. In the East (where there is less federal acreage), most of the fires occur on nonfederal lands; in the West, most of the fires occur on federal lands (see **Figure 4**). In 2022, 85% (1.5 million acres) of the acreage burned in the East was on nonfederal land, whereas 64% (3.7 million acres) of the acreage burned in the West was on federal land.

**Figure 4. Acreage Burned by Region and Ownership**



**Source:** NICC Wildland Fire Summary and Statistics annual reports.  
**Notes:** West: AK, AZ, CA, CO, ID, HI, MT, NM, NV, OR, UT, WA, and WY. East: All other states and Puerto Rico.

## Resources

Another metric useful for assessing wildfire activity is the extent to which nationwide resources—including personnel and equipment—are engaged in wildfire suppression. A proxy for resource commitments is the nationwide Preparedness Level (PL) scale, which ranges from 1 (lowest) to 5 (highest). The higher PLs indicate significant commitment of shared resources. In 2022, the nationwide level was 4 for 10 days and never reached the highest level (5). In contrast, the highest level was reached for 68 days in 2021, the longest since at least 2000.

## Wildfire Damages

Wildfires may affect certain ecological resources beneficially, but wildfires also may have devastating impacts, especially for communities affected by wildfire activity. Statistics showing the level of destruction a wildfire caused can provide useful metrics to evaluate the fire's effect. Such statistics may include acres burned or impacted, lives lost (firefighters and civilians), and structures (residential, commercial, and other) destroyed. For example, in 2022, over 2,700 structures were burned in wildfires; the majority of the damage occurred in California (see **Table 2**).

**Table 2. Loss Statistics**

	2019	2020	2021	2022
Structures Burned	963	17,904	5,972	2,717
% Residences	46%	54%	60%	46%

**Source:** NICC Wildland Fire Summary and Statistics annual reports.

## Conflagrations

Of the 1.6 million wildfires that have occurred since 2000, 254 exceeded 100,000 acres burned and 16 exceeded 500,000 acres burned. A small fraction of wildfires become catastrophic, and a small percentage of fires accounts for the vast majority of acres burned. For example, about 1% of wildfires become *conflagrations*—raging, destructive fires—but predicting which fires will “blow up” into conflagrations is challenging and depends on a multitude of factors, such as weather and geography. There have been 1,041 large or significant fires annually on average from 2018 through 2022. In 2022, 2% of wildfires were classified as large or significant (1,289); 45 exceeded 40,000 acres in size, and 17 exceeded 100,000 acres. For context, there were fewer large or significant wildfires in 2021 (943) but more in 2017 (1,409).

## Issues for Congress

Issues Congress may consider include the strategies and resources used for wildfire prevention, mitigation, and management, as well as wildfires' impact on both the quality of life and the economies of communities affected by wildfire activity. Other issues relate to post-wildfire recovery and site restoration. Congress also considers the total federal cost of wildfire management, including the cost of suppression operations; these costs vary annually and are difficult to predict.

**Katie Hoover**, Specialist in Natural Resources Policy  
**Laura A. Hanson**, Senior Research Librarian

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## NEWS

# Electric utility PacifiCorp sued, accused of causing deadly McKinney Fire in Siskiyou County

**Damon Arthur**

Redding Record Searchlight

Published 3:33 p.m. PT Aug. 16, 2022 | Updated 7:33 a.m. PT Aug. 17, 2022

A lawsuit was filed this week against PacifiCorp, claiming the utility's electrical equipment caused the McKinney Fire, which has destroyed 185 structures and killed four people in Siskiyou County.

The lawsuit, which was filed in Sacramento County Superior Court, alleges sparks from the electric utility's equipment ignited the fire, which went on to destroy much of the tiny community of Klamath River in northwest Siskiyou County.

Five people were named as plaintiffs in the lawsuit against PacifiCorp of Oregon, which provides electricity to residents in Siskiyou County.

The fire also has torched some 60,392 acres, according to the U.S. Forest Service.

**More:** Fire near Lakehead grows to 2 acres; McKinney Fire still 95% contained

Kaitlyn Webb, a spokeswoman for the McKinney Fire, said Tuesday the cause of the fire was still under investigation.

The suit was filed by Singleton Schreiber, a San Diego law firm that has represented wildfire victims in numerous lawsuits around the state. Many of those fires were started by electric utilities.

"The suit claims PacifiCorp is responsible for the deaths of the plaintiffs' loved ones, property damage (including cherished possessions), serious out-of-pocket expenses for those impacted by the fires, evacuation expenses, medical bills, loss of business income, and much more. All of this as the result of the utility's negligence," according to a press release from the law firm.

The suit lists Beverly U. Bridges, Amelia Anderson, Robert V. Cloyd, Shawn Kazen and Michael Nowdesha as plaintiffs. The filing says they are residents or business owners in Siskiyou County.

The McKinney Fire started July 29 in the area of Highway 96 and McKinney Creek Road, where PacifiCorp has a transmission line, the suit says.

Gerald Singleton, one of the attorneys handling the case, said his firm cannot say definitively the utility started the fire, but said the evidence points to the company's equipment as the culprit.

He said the law firm has evidence it believes shows probable cause PacifiCorp's equipment started the fire.

The blaze started under power lines and the company filed paperwork with the California Public Utilities Commission shortly after the fire started indicating there was an event related to its equipment at about the time the fire started, Singleton said.

PacifiCorp is the electrical provider in the area where the McKinney Fire ignited, and PacifiCorp owns and operates a transmission line that runs near Highway 96 and McKinney Creek Road, in Siskiyou County, California, in the very same location as the ignition point of the McKinney Fire.

“To date, four people have lost their lives in a fire that was entirely avoidable,” said Singleton said in a separate news release. “Every fire season, California is overrun by deaths, injuries, financial disasters, charred homes and ruined lives as a result of utilities such as PacifiCorp putting profits over safety. This is the second time in the last two years that PacifiCorp has started a fire that killed citizens of Siskiyou County.”

**More:** Klamath National Forest fire lookout among those who died in McKinney Fire

“The people who lived in the area in and around the McKinney Fire had their lives changed forever, PacifiCorp owes it to them to make this right,” said attorney Christopher R. Rodriguez. “This lawsuit cannot bring back loved ones, but it can hold this utility accountable for its own failure to meet basic safety standards.”

Tom Gauntt, a spokesman for PacifiCorp, said he could not comment on the lawsuit or the allegation that the company's equipment caused the fire.

The lawsuit alleges that PacifiCorp did not properly inspect or maintain its electrical equipment and that the company did not maintain an appropriate clearance area between the electrical equipment in its utility infrastructure and surrounding vegetation.

*Damon Arthur is the Record Searchlight's resources and environment reporter. He is part of a team of journalists who investigate wrongdoing and find the unheard voices to tell the stories of the North State. He welcomes story tips at 530-338-8834 by email at [damon.arthur@redding.com](mailto:damon.arthur@redding.com) and on Twitter at [@damonarthur\\_RS](https://twitter.com/damonarthur_RS). Help local journalism thrive by subscribing today!*



Greg Larkin/400

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March 6, 2023

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RE: Docket No. PCN-5 Greg Larkin OPUC Request Nos. 62- 84 Response Due by  
March 13, 2023.

Fourth Set of Discovery questions for Idaho Power

Please provide responses to the following request for data by the due date.

Please note that all responses must be posted to the PUC Huddle account.

Contact the undersigned before the response due date noted above if the request  
is unclear or if you need more time. In the event any of the responses to the  
requests below include spreadsheets, the spreadsheets should be in electronic  
form with cell formulae intact

## ROUTE SELECTION:

Question regarding Idaho Power response to Staff Data Request No. 90:

In in their response, Idaho Power states that “The Union County B2H Advisory Council and the BLM NEPA process both provided opportunities for input into the preferred routing and minimization of impacts” Please reference sworn statement of Irene Gilbert (Exhibit 401) in responding to these questions:

Q-62: To your knowledge, was the B2H Citizens Advisory Committee provided opportunity to provide input on any route other than the 230 Route and the Mill Creek Route?

Q-63: Please describe the citizens input opportunity which was held at the Union County Armory during 2009. Include in your response the outcome of the public input meeting including the size of the crowd, whether the citizens were supportive of the B2H transmission line and what information from that meeting was incorporated and considered by Idaho Power in their route choices and decision to build the transmission line.

Q-64:-Please identify who organized the Glass Hill Coalition and state whether those signing the petition were aware of the existence of and potential for using the “Morgan Lake Route”.

Q-65: Did Idaho Power originally refer to the “Morgan Lake Route” as the “Brad Allen Route”?

NEED:

Follow-up regarding Staff Data Request No. 91:

Idaho Power was to provide daily data as was provided for April 6, 2022 and January 3, 2023 for the Mid-C and Mona from January 1, 2018 to present. This information would be required for Jared Ellsworth to document comments regarding the transmission value of the B2H Line. The daily information was not provided with the response.

Q-66: Please provide in table format the daily data for the Mid-C and Mona for the time period from January 1, 2018 to present as previously requested.

WEED IMPACTS AND COSTS TO NATURAL AREAS, HABITAT, AGRICULTURAL AREAS

Staff Data Request No. 110:

Q-67: Does EFSC allowing the transmission line to follow a given route preclude the requirements to provide mitigation for impacts due to noxious weeds on the site spreading to surrounding forest areas including the State Natural Area referenced in Question 110?

Q-68: Did EFSC include in their evaluation or conditions requirements to comply with ORS 569 and any other state laws regarding the monitoring and control of noxious weeds?

Q-69: Are there any situations or areas where EFSC does not require noxious weeds located within the boundary of the transmission line, roads and other areas within the site boundary to be monitored, and all noxious weeds to be destroyed or not allowed to go to seed? Include in your answer:

- A. Any areas where ORS 569 requires stricter management than EFSC.
- B. Any situations where Idaho Power can be exempted from annual monitoring and control of noxious weeds for the life of the project.
- C. A response to comments of Mark Darrach (Exhibit 402).
- D. Whether testimony in the EFSC files from Mr. Butler, manager of Noxious Weed Program for Oregon Department of Agriculture, his employee or Mr. Mosiman state in the EFSC files that the Draft Noxious Weed Plan would

comply with state law or that it was adequate to control noxious weeds or keep them from dispersing from the site to areas surrounding the transmission line?

Q-70: The Weed Supervisors in several counties developed a list of requirements for controlling noxious weeds in their counties. (Exhibit 403) Please state which of their requirements are included in the Draft Noxious Weed Plan.

Q-71: Please provide an estimate of the lost value of Oregon habitat, farm and forest lands due to the spread of noxious weeds that EFSC is not requiring Idaho Power to monitor, manage and control. Include in your response references to the following:

--(Exhibit 404 "Economic Impact From Selected Noxious Weeds in Oregon, Version 2.2, The Research Group, LLC, prepared for the Oregon Department of Agriculture Noxious Weed Control Program, December, 2014) Section II-9, II-10, II-11, II-12 data supporting the study results and Section III-6 Estimated Oregon Noxious Weed Control costs per acre for the number of acres that will be impacted by the transmission line noxious weed distribution.

--An estimate of the increased costs to landowners and the state of Oregon due to increased noxious weeds resulting from the development of the B2H

transmission line over the life of the development and the methods of compensation for the losses to Oregon landowners and the state.

--The costs of Noxious Weed management and mitigation which was included in the B2H budget.

#### FIRE RISK AND RESPONSE

Q-72: Please provide a list of the negotiated settlements and court ordered restitution regarding fires attributed to transmission lines owned or operated by Idaho Power. Is it your claim that the Draft Fire Mitigation Plan being proposed by Idaho Power will assure that there will be ongoing monitoring and mitigation to avoid the increased risk of wildfires either caused by the transmission line or human access opportunities which the transmission line will provide.

Q-73: Please list any negotiated settlements or court ordered restitution regarding fires attributed to transmission lines owned or operated by your partner, PacifiCorp. Did Idaho Power consider the wildfire record of PacifiCorp prior to requesting that they partner with Idaho Power in the construction of the B2H transmission line?

Q-74: How is responsibility for transmission line safety and health regarding assuring that trees or other objects do not encroach on transmission lines and the control of trespassing onto the line right of way being divided between Idaho Power and PacificCorp? Who is responsible and accountable for what activities and the timelines for completing the activities for the life of the line?

#### LIGHTNING CAUSED FIRES AND POTENTIAL LIGHTNING STRIKES TO TRANSMISSION INFRASTRUCTURE

Follow up questions regarding Idaho Power response to Staff's Data Request No. 104 and 105 referencing limited risk of lightening in western United States.

Q-75: What area is included in the area of "Western United States" referenced in your response?

Please refer to the Oregon Natural Hazards Mitigation Plan and the Union County Community Wildfire Protection Plan (Exhibit 405) (Pages 11 and 14) when responding to the following questions:

Q-76: Please explain your responses to Staff Data Requests 104 and 105 in relation to Page 11 of the Union County Community Wildfire Protection Plan

statements that wildfires are a common and widespread natural occurrence in Oregon and that 30 percent of those fires are lightning caused.

Q-77: Would you describe the risk of fire in areas containing grain crops as low, medium or high?

Q-78: Do you agree that most wildland fires (approx.. 70%) are human caused?

Q-79:.. Will the creation of a corridor through previously inaccessible or difficult to access areas of the state increase the likelihood of human caused fires?

Q-80:.. Does Idaho Power claim that gates and “No Trespassing” signs will remove the increased risk of human access, travel and human caused fires along the transmission line right of way? Include in your response what additional mitigation methods Idaho Power intends to implement that will assure that the opportunities provided for on foot as well as motorized trespassers do not increase the fire risk due to the development of the transmission line.

#### FIRE RESPONSE RESOURCES::

You have stated that Idaho Power intends to rely primarily on existing fire departments/districts to address the increased fire risk created by the development of the transmission line.



Q-81: Did you receive specific requests from both Baker County and Union County (Exhibit 406) for specific resources to address the increased risk of fire as a result of the B2H transmission line?. If so, please include the following in your response:

- A. Did you include these resources in your Fire Management Plan?
- B. Since Oregon citizens and landowners will have no involvement in the finalization of the Fire Management Plan, what assurance do they have that they will not be assuming costs of providing firefighting resources to Idaho Power and PacificCorp beyond the costs already being born by them to provide existing firefighting resources?

Q-82: Please provide the following information regarding the resources you identified:

- A. The number of relied upon resources which provide structural fire protection in Union County and along the length of the transmission line in Oregon.
- B. The number of relied upon resources which provide wildland fire protection in Union County and along the length of the transmission line in Oregon.

C. The percentage of firefighting personnel being relied upon who are volunteers.

D. Any actions which Idaho Power is required to take to assure that all firefighting personnel are trained and continue to receive the training and experience necessary to fight fires located in wildlands and adjacent to electric transmission lines.

## NOISE

### Staff Data Request No. 99

Idaho Power states in their response that they intend to provide mitigation for Noise Impacts as listed in the “Final Order 684-685, Idaho Power’s Supplement to Petition for CPCN, Attachment 1 at 691-692 if 10603.

Q-83: Please describe the mitigation planned in these documents and the average cost of each of the planned mitigation methods. Include in your response whether Idaho Power stated cost of abatement of noise exceedances was a reason for requesting a variance or exception?

Q-84: As has been noted in multiple documents filed by the public in the EFSC Contested Case Process, and the Oregon Supreme Court appeal (Exhibit 106 Ann Morrison brief), the public lacks confidence that the Oregon Department of

Energy will protect the public from significant financial damages due to approving Mitigation Plans which do not require Idaho Power to assume the costs of the damages caused by the Boardman to Hemingway Transmission Line. Since Oregon citizens and landowners are not being allowed to participate or object to the conditions in the final Mitigation Plans for Noxious Weeds, Wildfire Mitigation, Habitat Mitigation, and Habitat Restoration, please provide an estimate of the costs to Oregon landowners and citizens due to the following impacts of the transmission line:

- A. Unmitigated costs of lost production of timber and agricultural products for the life of the transmission line.
- B. Unmitigated costs of the management and control of noxious weeds beyond the boundary of the transmission line and access road boundaries.
- C. Unmitigated costs of the loss of habitat, crop production due to the spread of noxious weeds beyond the boundaries of the transmission line right of way and road boundaries.
- D. Unmitigated costs of wildfires and costs of fighting wildfires by local firefighting resources.

Until Mitigation Plans have been finalized and the costs being assumed by Oregon Landowners and citizens in terms of their Safety, Health and Costs have been identified, no Certificate of Public Convenience and Necessity should be issued.

Dated this 6<sup>th</sup> day of March, 2023

/s/Greg Larkin

#### CERTIFICATE OF MAILING

On March 6, 2023, I certify that I filed the above Data Request via the OPUC Filing Center, for the Docket # PCN-5, and to the following party as noted below.

/s/Greg Larkin

Greg Larkin

Intervenor, PCN-5

By US Postal Service

John C. Williams

PO Box 1384

La Grande, Or 97850

## SWORN STATEMENT OF IRENE GILBERT, MARCH 3, 2023

I am making this statement regarding Idaho Power's statements contained in their response to Staff Question 90 regarding the selection of the Morgan Lake Route and the decision not to pursue the Environmentally Preferred Route.

I was a member of the 9 person Union County B2H Advisory Committee convened by the Union County Commissioners to obtain and provide input regarding the Union County Citizen responses regarding the B2H project. Brad Allen was also a member of that committee. Brad Allen stated that his interest was in avoiding having the transmission line cross a specific ridgeline on his property called "Cowboy Ridge" due to the fact that this ridge is documented to produce between 1,000 and 1,500 elk calves each year. I had been approached by Brad Allen to assist him in protecting this resource from the B2H power line and had started researching issues such as the Indian fish restoration activities along Rock Creek to support his arguments.

During the public comments before the Citizens Advisory Committee, I do not recall any public comments that were supportive of the transmission line.

During one of the meetings, the committee was told that they were to determine which of two routes, in their opinion, would be the most preferable if the line were to be built. The county stance was to remain that the line should not be built. We were provided only the 230 route and the Mill Creek route to consider in spite of committee concern that the Glass Hill Route should also be considered. At the time, the committee was only aware of the three routes in play. I voted for the 230 route in part due to the devastating impacts the other route would have

on the elk population in Union County. Brad Allen voted for the 230 route also. It was established as the choice of the Citizens Advisory Committee between the two routes we were allowed to consider.

Later, Brad Allen shared that he had made what he called a “gentlemen’s agreement” with Idaho Power to move the line just off the ridgeline onto what is being called the Morgan Lake Alternative, but which previously was referred to as the Brad Allen route in spite of my concerns that this would not remove the negative impact to this important elk calving area. Mr. Allen offered to pay me for the time I had devoted to research on his behalf. He also offered to allow me to hunt on Elk Song Ranch (Brad Allen’s property at the time) as a result of my work. I refused both offers. According to Brad Allen’s statements to me, the Morgan Lake route was the route Idaho Power agreed to in order to avoid him following through with his threat to spend up to 2 million dollars to fight the transmission line in the event it went across Cowboy Ridge. He stated this was his estimate of the amount that his property value would decrease if the transmission line went through the Mill Creek route and crossed Cowboy Ridge.

I swear under threat of perjury that the above comments are accurate and correct according to my recollection of the events which I have stated occurred.

Irene Gilbert

2310 Adams Ave.

La Grande, Oregon 97850

Phone: 541-805-8446

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS  
STATE OF OREGON  
for the  
OREGON DEPARTMENT OF ENERGY**

OAH Case No. 2019-ABC-02833

Oregon Revised Statutes include extensive discussion of noxious weed species infestations as threats to resources and as a nuisance to the public. This ORS language greatly understates the severity of the problem on both a regional and local scale. I have watched, horrified, as the landscape of eastern Oregon has become seriously degraded by noxious weed infestations. Entire eastern Oregon landscape elements such as shallow-soil basalt scablands, treasured home to numerous spectacular wildflower species, have become degraded and, indeed, ecologically destroyed – most probably permanently. Of particular



concern in my experience is a species known by the common name North Africa grass – *Ventenata dubia*. Infestations of this species have spread out of control while various state and federal agencies stood by and did absolutely nothing at all to stem the tide. The B2H project will very obviously create a virulent weed corridor for this horrific, yet unassuming, species to gain new footholds and create numerous new wildfire ignition risk points as uncaring and ignorant off-road vehicle users, amongst other likely ignition sources, take advantage of the newly opened access points along the B2H corridor.

The end result can only be to see further, and extensive, damage to both dryland and wetland ecosystem elements along and adjacent to the proposed route. And, as it now stands, there is no plan whatsoever by IPC to control this weed species at all as it does not fall into the arbitrarily chosen Oregon Noxious Weed A and T categories as proposed in the IPC 2018 weed plan.

ORS Chapter 569 clearly states that the owner or occupant of a given property is obligated to control – i.e. destroy or prevent going to seed – any weed species designated as noxious as elucidated in the most up-to-date list of noxious species maintained by the Oregon State Department of Agriculture. IPC is not in any way exempt from this requirement. IPC does not get the privilege of “cherry-picking” which Oregon listed noxious weeds it wants to control, and which it chooses to ignore. This is blatantly illegal under the current language of the statutes.

Previously, an extensive list of concerns were submitted to IPC in the “B2H Noxious Weed Plan Comments” by a broad consortium of regional weed control managers and other professionals in the field. These comments were submitted by the Union County weed coordinator. This document in paraphrase states: “The county weed supervisors of Morrow, Umatilla, and Union counties met with the Oregon Dept. of Agriculture and the Tri-County Cooperative Weed Management Area partners on 22 August, 2017 to pore over the B2H Attachment P1-5 ‘Noxious Weed Plan’. In conjunction with the comments from previous meetings with Malheur and Baker county weed coordinators, the following list of concerns was developed...”.

IPC’s Noxious Weed Plan of 2018 does not in any way address the concerns compiled by this broad consortium of noxious weed professionals and technicians.

A primary concern by the noxious weed managers in 2017 was that IPC is attempting to exclude itself from addressing the full list of noxious weeds within the project footprint. The 2018 version of the IPC B2H weed plan maintains it is only required to control weeds on the ODA class A and class T lists. This is quite clearly an arbitrary and capriciously selected subset of weeds that abrogates the ORS statute legally mandated responsibility to control all of the listed noxious species within the project footprint.

Many of the IPC’s unaddressed/ignored ODA listed species of noxious weeds present clear and present dangers to the ecological integrity of natural areas along the project corridor. As mentioned above, *Ventenata dubia* is one of these species – it is an extreme fire danger (Kerns et al. 2020: <https://doi.org/10.1016/j.foreco.2020.117985>).

A wide spectrum of ODA class B and C noxious weeds are major ecological threats along, or nearby, the B2H project corridor. Amongst them are Canada thistle, common crupina, common reed, diffuse knapweed (which, among other knapweeds, inhibits the growth of other plants by exuding toxic naturally-produced chemicals to the soil), field bindweed, halogeton, Himalayan blackberry, hoary alyssum, kochia, leafy spurge, lens-pod whitetop, meadow hawkweed, meadow knapweed, medusahead rye, musk thistle, pheasant’s eye,



poison hemlock, puncture vine, purple loosestrife, ragweed, rush skeletonweed, Russian knapweed, Scotch thistle, spiny cocklebur, spotted knapweed, St. Johnswort, sulfur cinquefoil, tree of heaven, white bryonia, yellow flag iris, yellow starthistle, and yellow toadflax. All of these noxious species are potential, and or existing threats along the B2H corridor. None of them are even being mentioned in the existing weed plan as it now sits. This will not stand – it is directly in opposition to the existing Oregon weed statutes. IPC has offered nary a word in response to these salient concerns. Why should IPC receive special treatment when local landowners and entities do not receive such privilege? Just because IPC is politically powerful does not exempt it from the laws others are held to follow.

It is also prominently noted that, upon construction completion, the proposed post-construction procedures for the unacceptably and illegally narrow list of A and class T weed taxa are far too limited – particularly with respect to the timeline of sunseting IPC responsibilities.

The Draft Noxious Weed Plan section 6.1 addresses monitoring for noxious weeds post-construction. This far too brief section states that monitoring shall begin in the first summer following completion of construction in the corridor. Monitoring *should* begin in the mid-spring, not the summer. However, repeat monitoring during the summer shall be necessary as well. If you want to get ahead of quite a number of noxious weed species' infestations it is important to begin treatment before there is any chance of plants going to seed. Biennial weed species in particular establish basal rosettes in the mid-spring when treatment is easy and usually quite successful.

Verbatim, section 6.1 paragraph two states:

1. *Noxious weed monitoring and control will occur during the first 5-year period. When it is determined that an area of the Project has successfully controlled noxious weeds at any point during the first 5 years of control and monitoring, IPC will request concurrence from ODOE. If ODOE concurs, IPC will conclude that it has no further obligation to monitor and control noxious weeds in that area of the Project.*
2. *If control of noxious weeds is deemed unsuccessful after 5 years of monitoring and noxious weed control actions, IPC will coordinate with ODOE regarding appropriate steps forward. At this point, IPC may suggest additional noxious weed control techniques or strategies, or monitoring, or IPC may propose mitigation to compensate for any permanent habitat loss.*

Other large transmission line projects in the PNW in recent years have required that the oversight authority of the transmission line corridor be responsible for noxious weed monitoring and treatment for the lifetime of the project – essentially in near perpetuity. It is completely unsatisfactory that IPC is even suggesting that there be a 5-years or less sunseting of responsibility. ODOE has essentially nothing in the way of staffing resources to verify that population control of a given noxious weed occurrence has indeed been met. It is ludicrous to even suggest this when we as professionals know all too well that even if a given occurrence has been fully eradicated there will be plenty of others taking their place somewhere in the corridor nearby – it is a constant responsibility.

Essentially, when IPC creates the permanent disturbance the construction corridor will entail, then noxious weeds will be a constant persistent presence. The 5-year timeline is meaningless. IPC MUST assume constant and permanent responsibility for the noxious weed scenario that will develop both within the Right of Way and adjacent to it as well. Weed infestations in the Right of Way are going to be constant progenitors of new

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infestations outside of the immediate corridor footprint. Responsibility cannot be allowed to expire until the transmission corridor is decommissioned in the distant future. To walk away after 5-years or less leaves the counties, the state, federal agencies and private landholders holding the bag with very little in the way of adequate financial and staffing resources to stem the ongoing noxious weed tide IPC will create.

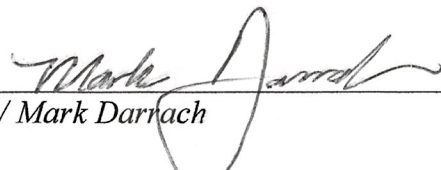
IPC, it is assumed, will be using commonly available germination inhibiting herbicides. Application of these herbicides must be applied with great care as they destroy native species as well. Wetland sites in particular are of great concern as they are our most sensitive and often our most productive biodiverse ecosystem elements. One facultative wetland plant species documented to exist within the project corridor near Twin Lakes is Douglas clover – *Trifolium douglasii*. This G3 – globally vulnerable – species will almost certainly be extirpated should uncontrolled weed infestations overrun its tenuous hold on existence, and poorly considered herbicide application is of paramount concern when the plant is not in flower and difficult to identify. It is absolutely critical that licensed applicators have deep knowledge of plant identification such that native species impacts are minimized – look alike native plant species, e.g. sulfur cinquefoil vs. slender cinquefoil – can easily be accidentally eradicated by novice applicators. It is a scenario I have seen many many times in the past. I have even seen listed rare species destroyed by poorly trained or, worse, uncaring applicators.

To summarize, the IPC noxious weed plan, as it now stands, is totally inadequate. It attempts an end-run in direct violation of existing ORS statutes by exempting a broad suite of noxious species that are required to be controlled. The plan allows IPC to wiggle off the hook of responsibility after or even prior to 5-years post construction. In this light, and in my view as a professional botanist with many years of experience the Energy Facility Siting Council MUST reject the proposed noxious weed plan and therefore the application as well. Weed management for the full timeline extent of the project must rest squarely upon IPC as a critical condition of a finalized application.

With Regards,  
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360-204-0233

I hereby declare that the above statements are true to the best of my knowledge and belief, and that I understand they are made for use as evidence in administrative and court proceedings and are subject to penalty for perjury.

Dated this 12<sup>th</sup> day of September, 2021.

  
/s/ Mark Darrach





## UNION COUNTY Weed Control

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### B2H Noxious Weed Plan Comments August 22<sup>nd</sup>, 2017

#### Summary:

The County Weed Supervisors of Morrow, Umatilla, and Union counties met with the Oregon Dept of Ag and Tri-County CWMA on August 22<sup>nd</sup>, 2017 to go over the B2H Attachment P1-5 Noxious Weed Plan. In conjunction with comments from previous meetings with Malheur and Baker county weed supervisors, the following list of concerns was developed.

In addition to the following list, each county may also require a Bond for the Construction timeframe to ensure all weed control issues are addressed properly. This will happen on a county by county basis. For Union County, a bond of \$406,500 will be required to pay for costs in the event that adequate weed control is not conducted by IPC (as determined by the county weed supervisor) and the county must go through the enforcement process and contract the work themselves. This number consists of \$7,500/year for 5 years of Inventory, \$13,800/year for 5 years of herbicides (assuming an average of 10% cover for the initial 5 years), and \$60,000/year for 5 years of contract spraying and management. These numbers are based on average contractor control costs on the roughly 3,500 acres of Disturbed ground and Site Boundary areas along with and 55 miles of disturbed/ new roads that will be within Union County.

#### Notes/ changes required on the June 2017 Attachment P1-5 Noxious Weed Plan:

1. Pg. 2 In 15-19: This is the #1 priority of the Noxious Weed Plan and needs to supersede all other sections of this document in the case of contradiction. Many sections of this document do not adhere to state and county weed laws. I have listed the areas of concern for the county weed supervisors below. In the end, every landowner and land manager is responsible for the control of ALL state and county listed noxious weeds on their property/ ROW. Whether the weeds have been here for 50 years or don't show up till the 20<sup>th</sup> year of Operation, IPC will be held responsible for the control of noxious weeds in the areas they manage- the same as everyone else.
2. Pg. 2 In 44-45: Change to "...IPC will be responsible for control of noxious weeds that are within the entire final Project Site Boundary as well as all disturbed roads and any other disturbed areas including (but not limited to) communication station sites, multi-use areas and fly yards."
3. Pg. 2 In 46 to Pg3 In 3: Remove "...and are a result of their construction- or operation-related, surface-disturbing activities. IPC is not responsible for controlling noxious weeds...that were present prior to the Project." This is incorrect. IPC will be held responsible for controlling all state and county listed noxious weeds on lands they manage or hold right of way on regardless of cause or pre-existence, the same as any other landowner or manager.
4. Pg. 3 In 19-20: "Coordinate and consult with land management personnel..." This is excellent. IPC needs to work in conjunction with each counties weed department to ensure seamless control and alert counties of any potential problem areas or issues.

August 22, 2017

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5. Pg. 3 In 16-18: T& E species. It is important to preserve T& E species, and the best way to do that is to control the noxious weeds encroaching into their habitat. It is also important to note that the presence of T& E species does not absolve the land manager of noxious weed control responsibilities. If IPC determines that herbicide treatments are likely to cause an unacceptable take of a T& E species population, then a site-specific manual or biological control plan needs to be developed through consultation with the local county weed supervisor with IPC still being the responsible party.
6. Pg. 4: IPC needs to coordinate with each county weed supervisor annually to ensure they are operating off of the most recent county Weed List, as these often change slightly each year.
7. Pg. 5: IPC needs to ensure they are working off of the most recent USFS and BLM EIS, as the list of approved herbicides has changed since the writing of this document.
8. Pg. 13: The inventory contractor needs to coordinate with each county weed supervisor prior to and after the preconstruction noxious weed inventory. We will provide them with weed location data and ensure they know what to look for.
9. Pg. 15-17: The acres and list of weeds present in the survey data for each county suggests meeting with the inventory contractor and verifying that they know what to look for is vital. These numbers are not in keeping with what we know to exist in our counties, and several species known to exist in the project Site Boundary are not on this list.
10. Pg. 17 In 16 to Pg. 18 In 1: While inventory maps are very useful for developing a treatment plan, delineating which weeds IPC is responsible for is simple- IPC will be held responsible for ALL state and county listed noxious weeds on areas they disturb, hold right of way on, or manage.
11. Pg. 18 In 3-7: excellent idea.
12. Pg. 18 In 8-11: GIS data for weed surveys needs to be provided to each county weed supervisor or federal agency with a minimum of the following data: location, weed species present, size of infestation, and density of infestation.
13. Pg. 18 In 16-27: Remove this section. As stated above, IPC is responsible for ALL state and county listed noxious weeds on areas they disturb, hold right of way on, or manage for the entire life of the Construction and O & M timeframe. This includes both new and pre-existing roads where disturbance has occurred as well as the entire final project site boundary. Roadside control will be required until the county weed managers deem that revegetation efforts have succeeded and noxious weeds are no longer likely to invade the disturbed soil. Land managers are responsible for their noxious weeds, even if inherited from a previous owner/manager.
14. Pg. 19 In 5-8: Specialists need to be familiar with any and all weed species they may encounter in the project. They must be familiar with the weed species in this area, not just noxious weeds in general. Possession of a Commercial Applicator License or Trainee licensee if supervised will be sufficient for this work as well.
15. Pg. 19 In 16-25: All vehicles need to be cleaned prior to and following construction activities as well as EVERY time the vehicles move from site to site. Vehicle cleaning needs to be conducted on-site, not at multi-use areas to best stop the spread of noxious weeds. Vehicles used after Construction during the Operation and Maintenance timeframe need to be cleaned prior to entering sites as well.
16. Pg. 20 In 25: Seed mixes used for this project need to "Oregon Certified Seed" or all states weed free seed- meaning the mix cannot contain seeds from any plant on Any of the 50 U.S. state weed lists. This helps protect us from invasion of new weeds that may not be currently present within the project area.
17. Pg. 20 In 27-29: As certified weed free gravel and mulch are not available in Oregon, IPC will coordinate with County Weed Supervisors to conduct pre-construction inventory and treatments of gravel pits where material will be drawn from.
18. Pg. 21 In 39-46: Add "IPC will coordinate with each County weed supervisor to determine where biological control methods should be utilized to provide the most appropriate/ effective control of noxious weeds."

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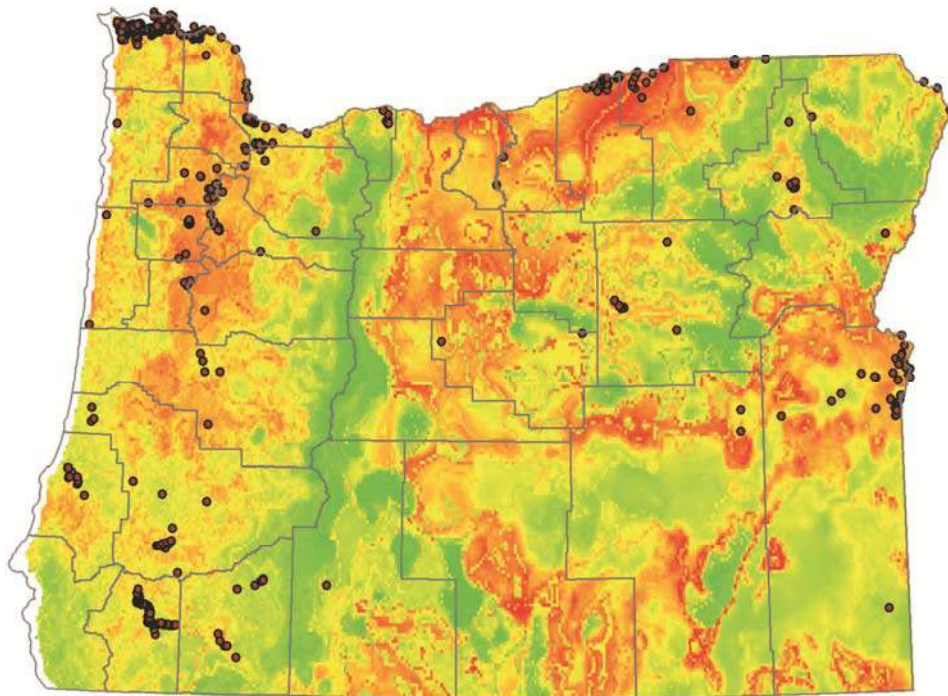
19. Pg. 22 Ln 26-27: Written approval for herbicide use should be for entire life of project unless the land is sold to decrease the chance of approval letters getting lost or forgotten and/or approval not happening in time for proper timing of herbicide application. IPC will be held responsible for weed control even if herbicide use is not approved, so getting long term agreements will decrease costs to IPC. IPC needs to notify each county weed supervisor annually of any landowners not allowing herbicide treatments.
20. Pg. 22 Ln 29: Change "applicator" to "operator" Or if work is done by IPC staff, add "...applicator or supervised trainee..."
21. Pg. 23 Ln 4: Add "...or any other state/ land manager approved method." This will allow the use of equipment like mule sprayers or aircraft in areas where they could increase effectiveness and decrease costs.
22. Pg. 23 Ln 10-12: Change to "Herbicide applications will follow all label and land manager guidelines especially in regards to treatments near Threatened and Endangered species and waterbodies." The 100 ft. buffer is excessive and completely unnecessary; nor is it in keeping with any federal or state guidelines. As IPC will be held responsible for all noxious weed control in the project site boundary, regardless of proximity to special status plants or waterbodies, it is in IPC's best interest to follow labels- and not impose arbitrary buffers. If IPC deems herbicide too dangerous in an area, then they will be required to control weeds through manual or biological control methods-as per consultation with the county weed supervisor.
23. Pg. 23 Ln 28-30: Remove this sentence. There will be no limiting of weeds to be controlled. - IPC will be held responsible for controlling all state and county listed noxious weeds on lands they disturb, manage, or hold right of way on regardless of cause or pre-existence.
24. Pg. 23 Ln 35-42: While IPC is responsible for control of ALL noxious weeds on lands they disturb, manage, or hold right of way on; IPC may consult with County weed supervisors to determine the extent and type of treatments needed, especially in regards to widespread B list weeds. IPC is also encouraged to attend county weed board meetings to voice any noxious weed concerns to best facilitate working together.
25. Pg. 23 Ln 45: Excellent! GIS data also needs to be shared annually with the county weed supervisors. Data sent should include: weed locations, species present, size of infestation, and density of weeds.
26. Pg. 24 Ln 23: While ODOE concurrence is important, it in no way absolves IPC of responsibility for noxious weed control. Also, control "at any point during first 5 years" is not control- it simply shows a temporary absence of weed species. IPC is responsible for noxious weed control throughout the entire Operation and Maintenance timeframe, in addition to the Construction period. See Pg. 26 Ln 6-8.
27. Pg. 24 Ln 28: There will be NO waiver option. Even if ODOE no longer requires IPC to control their weeds, both Oregon state and county weed laws require it.
28. Pg. 25 Ln 31: As stated above, IPC is responsible for controlling all state and county listed noxious weeds on lands they manage or hold right of way on throughout the entire Construction, Operation, and Maintenance timeframes. See Pg. 26 Ln 6-8.
29. Pg. 26 Ln 6-8: Excellent! This paragraph correctly defines IPC's responsibility with the sole change needed of "ROW" to "Site boundary, disturbed areas, etc." IPC IS responsible for "...monitoring and focused control of noxious weed infestations, as needed, for the life of the ODOE Site Certificate, etc...."
30. Pg. 27 Ln 8: Remove "less than 20 gallons per year" This is an arbitrary number and may not reflect actual work done on the ground.
31. Pg. A-1: Update to current federal lists. Milestone needs to be added to both lists.

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Greg Larkin/404

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# Economic Impact From Selected Noxious Weeds in Oregon



*Photos from left to right:*

- 1. Leaf beetle *Galerucella calmariensis* feeding on purple loosestrife leaves*
  - 2. Aerial survey for yellowtuft in Curry County*
  - 3. Woolly daisy flower head*
  - 4. Paterson's curse treatment in Douglas County*
- Map: Purple loosestrife distribution and habitat suitability in Oregon*

**Oregon Department of Agriculture**

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### **Suggested Citation**

The Research Group, LLC. Economic Impact From Selected Noxious Weeds in Oregon. Prepared for Oregon Department of Agriculture Noxious Weed Control Program. December 2014.



# **Economic Impact From Selected Noxious Weeds in Oregon**

**Version 2.2**

prepared by

The Research Group, LLC  
Corvallis, Oregon

prepared for

Oregon Department of Agriculture  
Noxious Weed Control Program

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## PREFACE

The Oregon Department of Agriculture Noxious Weed Control Program (ODA) commissioned an update for the economic analysis study of noxious weeds completed in a previous study with a report dated November 2000. The update work was assigned to the same economic consulting firm who prepared the previous study. The update consultant was The Research Group, LLC, Corvallis, Oregon (TRG). There were four primary authors for the update study report. Shannon Davis was the principal investigator and was greatly assisted by Kari Olsen. Hans Radtke, Ph.D., Consulting Natural Resource Economist, Yachats, Oregon was the study coordinator in addition to having authorship duties. Ed Waters, Ph.D., Professional Economist Consultant, Beaverton, Oregon provided IMPLAN system information for the input-output modeling used in the economic analysis.

For reading convenience, the authors have adopted a less technical writing style in this report. The narrative is not extensively interrupted with citations to material/communications from others. It is also assumed that the reader is somewhat familiar with plant ecology and economic base modeling. A glossary is included, but not all biological and economic analysis terms are defined nor explained. Some narrative in this report is captured or paraphrased from the previous study report when relevant and applicable.

The authors are primarily responsible for updating the economic activity model. The model's output is factors for noxious weed specific marginal economic impact per infestation area. The factors show changes to the state's economy using measurement units for business sales and household income, personal income, and jobs. The ODA has provided results from a separate modeling exercise for estimating the current and potential infestation areal extent. A time dimension for the invasion growth into the susceptible areas is assumed to be immediate and without economy structural adjustment.

The authors' interpretations and conclusions should prove valuable for this study's purpose, but no absolute assurances can be given that the described results will be realized. Government legislation and policies, market circumstances, plant ecology, climate and other influences can affect the basis of modeling assumptions in unpredictable ways and lead to unanticipated changes. The information should not be used for investment or operational decision-making. The authors do not assume any liability for the information and shall not be responsible for any direct, indirect, special, incidental, or consequential damages in connection with the use of the information.

## ACKNOWLEDGEMENTS

There are many update study participants to be acknowledged. At the Oregon Department of Agriculture Noxious Weed Control Program (ODA), Tim Butler, Program Manager; Tom Forney, Projects Coordinator; Eric Coombs, Biocontrol Entomologist; and Glenn Miller and Carri Pirosko, Integrated Weed Management Coordinators all provided a wealth of knowledge about noxious weeds and control programs. Alex Park, GIS Specialist provided the spatial modeling information for the invasive species infestations current and susceptible areas and

analysis of impacts on natural resources. Tim, Tom, Eric, and Alex at the ODA authored case study write-ups. Dennis Isaacson, ODA retired staff also contributed case study write-up material. Tom Nordblom, Principal Economist, New South Wales Department of Trade and Investment provided information about Australian control programs. Gary Lettman, Economist, Oregon Department of Forestry provided information about invasive species considerations within the context of forestland management. The Cascade Pacific Resource Conservation and Development was the fiscal agent for the update study contracting. Kirk Shimeall was the fiscal sponsorship coordinator. Information was received from Oregon county noxious weed coordinators and other technicians in academia and industry. Permission for revealing their names was not sought, so they will have to be thanked anonymously.

The authors made certain independent examination of this report was carried out in accordance with accustomed procedures and that review comments were carefully considered. While all of these acknowledged contributors and reviewers provided material and comments that assisted in making the update study results as sound as possible, they were not asked to endorse study findings and results. And as such, the authors are solely responsible for content.

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## GLOSSARY

AUM	An animal unit month (AUM) is the amount of forage needed by an animal unit (AU) grazing for one month. The quantity of forage needed is based on the cow's metabolic weight. The measure for an AU is defined to be one mature 1,000-pound cow and her suckling calf. The average consumption rate is 26 pounds of forage dry matter per day (Society for Range Management Glossary). That makes an AUM equal to 31 days x 26 pounds per day or about 800 pounds of air-dried forage. More conservative or liberal values are also used, for example 600 to 1,000 pounds of forage per AUM are common values.
BCA	Benefit-cost analysis (BCA) (see "net economic benefits")
CEA	Cost effectiveness analysis (CEA) is a method to assess how to get the biggest "bang for the buck." CEA can be used to compare two or more alternatives when the projects have the same type of outcome. For example, what alternative noxious weed control technique might achieve the least cost long-term for agricultural production. In the case of comparisons for projects that will have ongoing costs versus one-off costs, equivalency annualized costing procedures are first applied.
CWMA	Cooperative weed management areas (CWMA)
Economic consequences	An economic contribution metric that relates to a short-term perspective for how an industry is represented in the local economy. If there is a change in the economy's industry activity, there may very well be adjustments in the longer term that may cause increased or decreased economic contributions. For example, a tourism business start-up may replace a fishing industry business closure.
Economic metric	The economic contribution measurement selected for this study is business sales, personal income, and a jobs metric. It could just as well been other metrics that would describe the same economic direct and secondary effects, but in a different dimension. Other example metrics are business output (analogous but different than sales), value added, generated government taxes, and job equivalents. The jobs metric is different than the jobs equivalent metric. The former includes full-time and part-time employees, and proprietors. The latter would be a measure for a full-time position at an assumed compensation level.
EDRR	Early detection and rapid response (EDRR) is an approach that focuses on surveying and monitoring at-risk areas to find infestations at their earliest stages of invasion. After initial introduction of a new invasive plant, there is a short period of opportunity for eradication or containment. Once permanently established, a new invader becomes a long-term management problem.
ESA	Endangered Species Act (ESA)



FEAM	Fishery Economic Assessment Model (FEAM) was used to calculate fishing industry economic contributions. The FEAM is a derivative model of the IMPLAN system.
IMPLAN <sup>®</sup>	The Impact Analysis for PLANning (IMPLAN) is a software and dataset system for input-out models applicable to the nation, states, and counties. Datasets for U.S. zip codes are also available.
Input-output (I/O)	The relationships between suppliers and producers and the economic impact of import or export of producer goods to meet consumer demand. The relationship is the extent that the outputs of one industry become the inputs to another.
IWM	Integrated Weed Management (IWM)
KRESS	The Kinetic Resource and Environmental Spatial System (KRESS) is software used to define areal extent of habitat suitability for noxious weed invasions.
Marginal changes	The change in economic value associated with a unit change in output, consumption, or other economic indicator.
MCDA	Multi-Criteria Decision Analysis (MCDA)
Multiplier effect	The economic effects from subsequent rounds of spending (indirect and induced effects) that occur before money has leaked from the economy. For example when personal income is the economic metric, it includes the net earnings from jobs and business owner income where commercial businesses and recreational users purchase goods and services. It also includes the net earnings gained from businesses receiving the share of household spending that can be attributed to income from the affected industries.
Net economic benefits	The sum of positive and negative net economic values (NEV) typically used in benefit-cost analysis (BCA) framework. NEV is measured by the most someone is willing to give up in other goods and services less the actual costs in order to obtain a good, service, or state of the environment. The accounting of benefits in a BCA would include valuations for not only extracting or disturbing natural resources like fish, but also appreciating their non-use. The accounting for costs in a BCA would include opportunity costs, such as for the next best use of the investment being studied. One summary statistic for the BCA is net present value (NPV), which is the sum of discounted net between benefits and costs over the period being analyzed. The BCA has the advantage for including economic effects from decisions made in a current year that are staged over future years. It is important to declare an accounting stance when applying a BCA to understand which user and non-user groups are being included. A national economy accounting stance is generally declared for an analysis when decision actions affect non-users.
NEV	Net economic value (NEV) (see "net economic benefits")

Oregon Noxious Weed Rating System	<p>"A" listed weed - a weed of known economic importance which occurs in the State in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent. Recommended action: Infestations are subject to eradication or intensive control when and where found.</p> <p>"B" listed weed - a weed of economic importance which is regionally abundant, but which may have limited distribution in some counties. Recommended action: Limited to intensive control at the state, county, or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.</p> <p>"T" listed weed – annually, a target list of weed species is selected that will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T listed noxious weeds are designated by the Oregon State Weed Board and directs ODA to develop and implement a statewide management plan. T listed noxious weeds are species selected from either the A or B list.</p>
ODA	Oregon Department of Agriculture Noxious Weed Control Program (ODA)
ODF	Oregon Department of Forestry (ODF)
ODFW	Oregon Department of Fish and Wildlife (ODFW)
OSU	Oregon State University (OSU)
Personal income	Income accruing to households in the form of net earnings from wages, salaries, and proprietorship income. Total household personal income includes transfer payments (such as social security payments) and investment income (such as stock dividends, rental property income, and interest payments).
PRISM (Chapter II)	Parameter-elevation Regressions on Independent Slopes Model (PRISM)
PRISM (Chapter III)	Partnerships for Regional Invasive Species Management (PRISM)
Public good	<p>An activity may cause additional effects on uninvolved parties. The externality effects may be negative (public cost) or positive (public benefit). Those who suffer from external costs do so involuntarily, whereas those who enjoy external benefits do so at no cost. Eradication or control of unwanted and noxious weeds with biological agents is an example of a public good. Private parties may be required to pay for the eradication costs where culpability can be established, but the public enjoys the benefits. In turn, the public may solely be the payee for eradication and private parties have a "free ride" in absorbing the benefits.</p>

Regional economic impact (REI)	Economic contribution and REI are different concepts, but in this report the two terms are used interchangeably. A stricter use of the term "contribution" would be for an economic activity that exists. The use of the term "impact" would be when an economic activity is to be subtracted or added. It is the share of the regional economy supported by the expenditures made by the industry being analyzed. It can be expressed in terms of a variety of economic metrics.
Resource rent	The term resource rent (or just the one word rent) introduces opportunity and expectation costs to a business operation profit equation. There would be subtractions from the production revenues from not only the operation costs, but also from using the capital investment and labor investment in a next best substitute manner, and the subtraction for the perceived amount of normal profit to be made in the business operation. Resource rent calculations typically do not include external effects outside the operation, such as ecosystem effects.
Response coefficient	A response coefficient is analogous to a multiplier, but expresses relationships between different economic variables. Where the multiplier has the same units (income, output, or employment) in both the numerator and the denominator, a response coefficient has different units in the numerator and denominator. A response coefficient is the response of income (or output, or employment) to increases or decreases in output.
Success rate	A recreational effort (usually measured in a visitor day) per taking unit (for example one retained fish or one killed deer). The inverse of success rate for fishing is sometimes titled "catch per unit effort."
WSM	Weighted Sum Model (WSM)
WTP	Willingness to pay (WTP) is the maximum amount an individual is willing to sacrifice to procure a good or service minus the actual cost of the good or service.

## EXECUTIVE SUMMARY

Noxious weeds are depriving Oregon agriculture and other natural resource industries of significant revenues. This causes adverse economic impacts to Oregon's economy. The Oregon Department of Agriculture Noxious Weed Control Program (ODA) contracted with The Research Group, LLC (TRG) in Corvallis to conduct an economic impact study for current and potential infestations of specific noxious weeds on Oregon rangelands, farmlands, forestlands, and wildlands. The study is distinctive in that it incorporates Oregon WeedMapper software program results for existing invasions, which was analyzed along with other environmental variables using a unique geospatial analysis model to provide noxious weed habitat suitability data for potential infestations.

The study found there is an estimated annual loss of almost \$83.5 million personal income to the State's economy from 25 selected weed species. (All referenced values in the study are adjusted to 2012 dollars.) That is the equivalent to the loss of about 1,900 jobs in the private sector. If left unchecked, there is a potential annual loss of \$1.8 billion personal income and 40,800 jobs. Two of the 25 selected weeds, Armenian blackberry and Scotch broom, are widespread and contribute \$79.6 million to the current overall economic impact. The remaining 23 species are limited in distribution and are under intensive management thus contributing to less than five percent of total current impacts.

The purpose of this current study is to update a previous similar study of noxious weeds found in Oregon. Case descriptions for several individual species are documented to bring clarity for how different prevention and control programs are utilized and have demonstrated success. Government policy implications for providing noxious weed research and control program services are discussed. In particular, the current study provides an opportunity for ODA to look at the impacts of two widespread invasive weeds (Armenian blackberry and Scotch broom) and address the potential economic impact of up and coming noxious weeds. The study reveals the benefits of having safeguards such as biological, prevention, and other control programs in place to minimize impacts.

The noxious weeds selected for the analysis contain all but one of the previous study's weeds, two grouped together, and six additional species for a total of 25 weeds. This economic analysis is limited to measurements of regional economic impacts (REI) using the metrics for business sales, personal income, and jobs. This economic analysis distilled the selected weeds into 15 unique economic model groupings. The marginal REI calculations for the groupings can be used to calculate a new weed's economic impacts.

The economic impact information is supplemented with explanations and estimated unit costs for different control approaches including none; prevention; early detection and rapid response (EDRR); and, long-term maintenance. The cost discussions when related to the economic impact results provide illuminating information about the importance of control programs. However, the provided economic impact information in the current study is not from a formal benefit-cost analysis (BCA). The REI measure tells us an immediate with or without change in economic activity. A BCA deals with the time value of money where sometimes one-time costs

are incurred today, but net economic benefits accrue far into the future. A BCA can include externality effects or changed societal values, and a BCA can account for the positive benefits as well as the foregone economic activity. The disadvantage of a BCA is that the measurement can lack tangibility and authenticity. The public and decision makers are generally only provided simple benefit-to-cost ratios and other summary indexes without knowing assumptions and methods.

A properly conducted BCA will show whether the net economic benefits for a single weed control project make it worth undertaking a control program given commercial and recreational production to be recovered or preserved. For example, the previous study found that biological control of tansy ragwort has a \$13 return for every \$1 investment and prevention programs have a benefit to cost ratio of 34 to one.

The assumed affected economic activities for the analyzed weed species were associated with the previous study four land types:

1. Rangelands: livestock loss, reduced cattle foraging, and reduced wildlife grazing.
2. Farmlands: seed loss, decreased other agriculture, and reduced aquaculture.
3. Forestland: reduced timber production.
4. Wildlands: wildlife and fish stressor that lowers hunting, fishing, and boating recreational uses.

Economic model parameters specific to the analyzed weeds include the following:

1. Plant coverage factor. The share of the infested areas that affects a particular economic activity.
2. Degradation factor of the economic activity. This factor can have various interpretations depending on the economic activity. For example, it could be interpreted as a cow mortality rate for the livestock economic activity. The assigned degradation factors are different for an economic activity affected for a particular analyzed noxious weed located on a particular land type. The factors are normalized to apply to an economic activity and are usually expressed as a percent.
3. Land production factors. The factors are an assignment based on the land use for livestock, other agriculture, timber, or wildlife management.

The geospatial analysis model developed to show current and potential area infestations is titled Kinetic Resource and Environmental Spatial System (KRESS). Its output was the potential range across Oregon for the 25 selected weeds. The modeling was based on the weeds' currently known locations, and their relationship with environmental and elevation variables. A post KRESS outcome factor was applied to forestry susceptible areas to account for land management set asides for non-timber production. The KRESS models utilized the Oregon WeedMapper dataset, which is comprised of 300,000 known weed infestations across the state. The KRESS input data is collected through partnerships with non-profit, local, county and federal agencies. The KRESS determined mean predicted area was bounded with confidence intervals of one

standard deviation to provide a statistical measure of precision. Potential weed ranges were compared against different land uses capable of being degraded by noxious weeds. The eight land types in the KRESS model were mapped to the four land types used in the economic activity modeling.

Of the estimated foregone economic activity from current levels of noxious weed infestations (\$83.5 million personal income and about 1.9 thousand jobs), the economic impact shares from the analyzed species three largest contributors (in order) are: Armenian blackberry 48 percent, Scotch broom 47 percent, and rush skeletonweed two percent. The current study economic impacts without the six additional analyzed species are \$43.1 million, which compares to the previous study \$101.5 million. The decrease would be an indicator of success in the containment efforts for the previous study's analyzed species.

The estimated economic impact of the analyzed species would be between \$1.5 billion and \$2.4 billion personal income if infestation moved into the susceptible areas. The point estimate for mean within this range would represent 40.8 thousand jobs. The three analyzed species with the largest contributions for susceptible areas are: Armenian blackberry 15 percent, rush skeletonweed 12 percent, and gorse 11 percent. For the six species analyzed for susceptible areas in the previous study (tansy ragwort, distaff thistle, leafy spurge, purple starthistle, hawkweeds, and spartina), the current study economic impacts from susceptible areas is \$305.0 million as compared to the previous study \$68.7 million. While methods differ between the two studies on the estimation of susceptible habitat, an inference is that there is a growing threat from the six species.

The results are from complex methodological calculations that have high uncertainty. For example, the species with the second highest economic loss threat of the 25 analyzed species is Scotch broom. The current infestation share of lost economic activity for this species is \$39.5 million personal income. The important lost economic activity associated with this species is from timber production degradation following invasion. An uncertainty analysis shows a 42 percent increase in the degradation factor and susceptible area would about double the lost income over the current study estimate.

There are five case studies that provide examples of control projects conducted by ODA. Biological control and prevention programs are shown to be beneficial and can have a high return on the investment from these types of activities.

The unintended spread of introduced species such as Scotch broom can turn them into undesirable plants in a very short time. The costs of direct control, such as herbicides, are often substantial, especially in extensive rangeland environments. Concerns about the cost effectiveness of chemical treatment and growing public concern about environmental safety have led to more research and use of insects or microorganisms that adversely affect the unwanted plant. While more emphasis is being placed on biological controls, chemical or manual control in the early stages of invasion may also result in favorable cost effectiveness. Programs for existing noxious weeds that are expensive to eradicate with manual or chemical means, and that have no potential biological control agents, may not evaluate financially favorable. In such cases, education about containment may be the only option.

The control and spread of noxious weeds are of public concern because of a private market externality problem. The background research and maintenance costs can be prohibitive for any single individual or even single industry. A public agency may need to be involved when private party culpability and enforcement processes are not adequate for controlling invasions. Once control programs have been established, the private businesses will become a free rider to the benefits of the program in the case the weed is deleterious to commercial production. Depending on harm caused by particular weeds, the public will also benefit from control programs through greater recreational use opportunity. In either case, there is a gain in social values from knowing ecosystems are being restored.

ODA serves as a leader in protecting natural and agricultural resources from the introduction and spread of noxious weeds. ODA approaches noxious weed control with an integrated, multidisciplinary approach. Integrated Weed Management (IWM) is a decision making process based on the best available science and experience of weed managers. Control options depend on site-specific information and the best strategy or combinations of strategies for effective management decisions. IWM uses all available methods and techniques for noxious weed control including prevention, mechanical, cultural, chemical and biological control.

There are many entities involved in noxious weed management in Oregon including state and federal agencies, county weed control programs, cooperative weed management areas, and universities. The Oregon Invasive Species Council serves to protect Oregon's natural resources from invasive species thorough coordination efforts. Other regional and national groups are engaged to increase awareness, address policy needs, and direct resources toward invasive plant control. Government agencies and universities contribute through research services, sponsored prevention and control operations, financial incentive grants, and punitive regulations.

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## I. INTRODUCTION

### A. Purpose

The purpose of this current study is to update the economic analysis found in a November 2000 publication sponsored by the Oregon Department of Agriculture Noxious Weed Control Program (ODA). The publication was titled "Economic Analysis of Containment Programs, Damages, and Production Losses From Noxious Weeds in Oregon" and was authored by The Research Group, LLC (TRG). The publication described the economic analysis results for a reconnaissance level study of 21 weeds listed in Oregon as noxious.<sup>1,2</sup> The previous study analysis was for both the existing infestation and the potential spread of the noxious weeds.

Almost 15 years later, there is more detailed information about harm caused by noxious weeds; useful prevention and control programs; and, changes in the type and extent of economic activity that is affected by noxious weeds. There are improved methods available to determine infestation susceptible areas using environmental and landscape variables to determine habitat suitability. The current study's noxious weed list contains the previous study's weeds sans one weed, two grouped into one, and six new weeds added for a total of 25 weeds (Table I.1). The current study economic analysis is limited to be for measurements of regional economic impacts (REI) using the metrics for business sales, personal income, and jobs.<sup>3</sup>

The current study economic analysis descriptions are supplemented with explanations and estimated costs for different control approaches including none; prevention; early detection and rapid response (EDRR); and, long-term maintenance. Sometimes the three control approaches are additive and other times singular, but all will have future costs and benefits for reduced environmental impacts and increased water and land productivity.

Economic modeling that shows the REI with and without prevention and controls becomes a tool to run scenarios for informing policy and management decision-making about best use of noxious weed management funds. Case descriptions for several individual species are documented to bring clarity for how different prevention and control programs are utilized and have demonstrated success. Government policy implications for providing noxious weed research and control program services are discussed.

### B. Problem

Noxious weeds in Oregon are a subset of both plant and animal invasive species that threaten ecosystems, commercial land and water production, and human health. An economic analysis of even the noxious weed subset of the overall invasive species problem can be useful for educating and informing about necessary regulations and making control program funding decisions.

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1. The Oregon State Weed Board adopted lists of noxious weeds assists in setting control program priorities as authorized by Oregon Revised Statutes Chapter 569.
  2. TRG (November 2000) assessed 14 species primarily affecting rangelands, two species primarily affecting both rangeland and farmland, two species primarily affecting forests, and three species primarily affecting wildlands.
  3. This report contains a glossary of economic analysis terms. There is also a chapter that describes methods and assumptions used in the economic analysis.

Economic analysis is complex when done correctly. There are social as well as economic consequences, and while economics does have the tools to deal with the broad effects, results can be abstract and lose tangibility in informing. This current study attempts to limit the economic analysis to determining the most understandable measurements. While the analysis results will be highly qualified, there are narrative explanations about the assumptions and exclusions so that the reader has an understanding about where results fit into other economic studies about invasive species. There is a growing body of noxious weed economic study literature that is in addition to the already mentioned TRG (2000) report. There is national (for example Pimentel et al. 2001) and worldwide (for example Emerton and Howard 2008) orientation to the studies. A report prepared by PNWER (2012) summarized several state level, national, and worldwide economic studies.

Other studies have provided economic evaluations of certain noxious weed species in certain areas. For example, the estimated total direct cost for all Idaho lands is \$300 million annually based on information from private lands, and federal, state, and county organizations (Idaho State Department of Agriculture 1999). A dollar value for the loss of plant diversity, wildlife habitat, watershed health, recreation and tourism, human life and property was not completed for the Idaho study.

An economic study of leafy spurge's competition with desirable plants was completed for areas in Montana, Wyoming, and both Dakotas. The study found reduced carrying capacity and therefore reduced ranchers' economic contribution to the regional economy estimated to be nearly \$129 million personal income (Federal Interagency Weed Committee 1999). The same study reported that, if spotted knapweed were allowed to continue to spread to the fullest extent of its range, it would cost Montana's agriculture industry \$155 million each year (Idaho State Department of Agriculture 1999). This includes the total economic impact, in terms of lost income to farmers, suppliers, and the general economy. In Oregon, spotted knapweed has spread from three areas in 1982 to throughout the state by 1999. Without a containment program, it has the potential to have a similar negative effect on Oregon's economy as what has happened in Montana.

The estimated annual loss of productivity caused by invasive species in the U.S. is \$120 billion (Pimentel et al. 2004). The loss in production in the agricultural sector alone has been estimated to be \$20 billion (Federal Interagency Weed Committee 1999). In the agricultural sector, losses and control costs associated with weeds in 46 major crops, pasture, hay and range, and animal health were estimated to be more than \$15 billion per year. In non-crop sectors including golf, turf and ornamentals, highway rights-of-way, industrial sites, aquatic sites, forestry, and other sites, losses and control costs totaled about \$5 billion per year.

### C. Analytical Framework

The following workflow is used to complete the current study economic analysis.

1. The Oregon State Weed Board has designated 118 weeds as noxious as of the date of this publication. ODA staff selected 25 of the most worrisome for economic harm and infestation

potential for inclusion in this current study. Appendix A contains a summarized description of the analyzed species status. Appendix B contains descriptions of the harm that can be caused by the species and includes affected area maps for the species.

2. The areal extent of the analyzed noxious weeds existing and potential infestation was determined using a geospatial habitat suitability model. Infestation existing and susceptible area and stream lengths of anadromous fish habitat were the model outcomes. The statistical lower bound, mean, and upper bound were calculated for the susceptible habitat. Appendix D shows model outcomes by species and by classifications for eight land types (agriculture, rangeland, urban, riparian, pasture, forestry, estuarine, and wildlife). Table I.2 depicts the crosswalk between the current study eight land types, the previous study four land types (rangeland, farmland, forestland, wildland), and the associated economic activity model type (livestock, agriculture, timber, recreation).

The habitat suitability model is titled Kinetic Resource and Environmental Spatial System (KRESS). KRESS inputs are environmental variables for precipitation, elevation, wet/freeze days, growing degree days, and other temperature data. The variables are combined to generate a gradient from low to high probability of suitability based on where the plant grows today to predict where it could grow in the future. There are other limiting factors to plant growth such as soil characteristics and land management practices that were not included in the habitat suitability model's design. A post model outcome factor was applied to forestry susceptible areas to account for land management set asides for non-timber production.

3. The previous study's economic model for direct effects and REI was updated. Only market valuation of harm is applied in this current study. Other valuations would have to be assessed if rigorous benefit-cost analysis (BCA) was desired, such as for considerations where the noxious weed threatens endangered species. The direct effect's economic indicators are commercial production sales and recreational expenditures foregone due to noxious weed infestation (Figure I.1). Decreased commercial production and shrinking recreational use will decrease business sales and attendant labor and proprietor income. The decreases have multiplier effects throughout regional and state economies.

The current study economic assessment model includes new production prices, recreational use spending, and carrying capacity assumptions. A marginal per area economic metric for sales and personal income was calculated for each model type and previous study noxious weeds. Biophysical information for the new six weeds in the current study was used to decide which combination of previous study economic production model type and land type was to be associated with the new weeds. The marginal economic impact factors were then applied to the infestation current and susceptible areas provided by the geospatial habitat suitability model.

4. Prevention and control programs and their costs are described for the analyzed noxious weeds. Programs must be tailored to the invasive progression status and consideration for harm being done to an ecosystem. The management approach for invasives must have an ecosystem perspective because there can be benefits from noxious weeds as well as negative impacts to land/water cultivation production and recreation. The ecosystem perspective is

important in economic analysis discussions because decisions about best use of limited management funds need to consider broad objectives for cost effectiveness in management spending. It is necessary to know the status, biological development, effects on human use of land, and effects on biodiversity so that the end goal for management will justify the means and cost to get there.

When the economic assessment information was complete, it was then referenced in discussions about the benefits of prevention and control programs. Economic assessments of noxious weeds or invasives of any flora or fauna will show massive economic damage numbers if the species are allowed to flourish. The numbers are generated in this current study to not only underscore the importance of prevention and control programs, but also at the same time identify the economic sectors most impacted by the direct and secondary effects.

#### D. Report Contents

This report begins with an introduction chapter that summarizes the purpose and analytical framework for the updated economic analysis. Chapter II describes the economic and geospatial analysis methods and assumptions used in the economic assessment model. Oregon noxious weed prevention and control programs are described in Chapter III. Discussion about modeling results is contained in Chapter IV. The discussions include comparing prevention and control costs and the foregone benefits for several Oregon noxious weeds. Extensive use of appendices is made to provide noxious weed inventory and management descriptions. Appendix A summarizes in a table format the bio-economic characteristics of the current study's analyzed noxious weeds. Appendix B describes in detail the analyzed noxious weed presence in Oregon. The appendix offers additional economic information about production losses and control cost for five case study noxious weeds. Appendix C shows the economic assessment model assumptions, algorithms, and dependencies. The noxious weeds current and susceptible area determinations are shown in Appendix D.

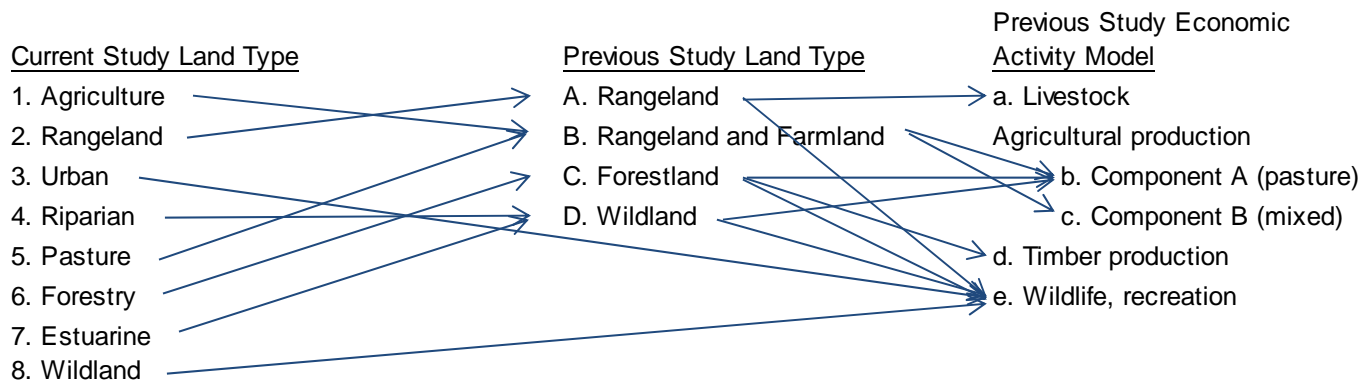
Table I.1  
Noxious Weeds in Current and Previous Study

Species in Current and Previous Study	
<u>Current Study</u>	<u>Previous Study</u>
Cordgrass	Spartina
Gorse	
Leafy spurge	
Hawkweeds (meadow and orange)	Yellow, orange hawkweed
Mediterranean sage	
Perennial pepperweed	White top and perennial pepperweed
Purple loosestrife	
Purple starthistle	
Rush skeletonweed	
Scotch broom	
Scotch thistle	
Tansy ragwort	
White top (hoary cress)	White top and perennial pepperweed
Woolly distaff thistle	Distaff thistle
Yellow starthistle	
Knapweeds - Diffuse	
Knapweeds - Meadow	Russian knapweed
Knapweeds -Spotted	
Knapweeds -Squarrose	
Species in Current Study and Not in Previous Study	
Armenian blackberry (Himalayan)	
Dalmatian toadflax	
Giant hogweed	
Japanese knotweed	
Kudzu	
Paterson's curse	
Species in Previous Study and Not in Current Study	
Brazilian elodea	

Notes: 1. The table's species list uses generally known common names (less known are in parenthesis). See Appendix A weed profiles for taxonomy of genus names and the species name.

Source: Study.

Table I.2  
Crosswalk of Current Study and Previous Study Land Types  
and Associations With Economic Activity Models



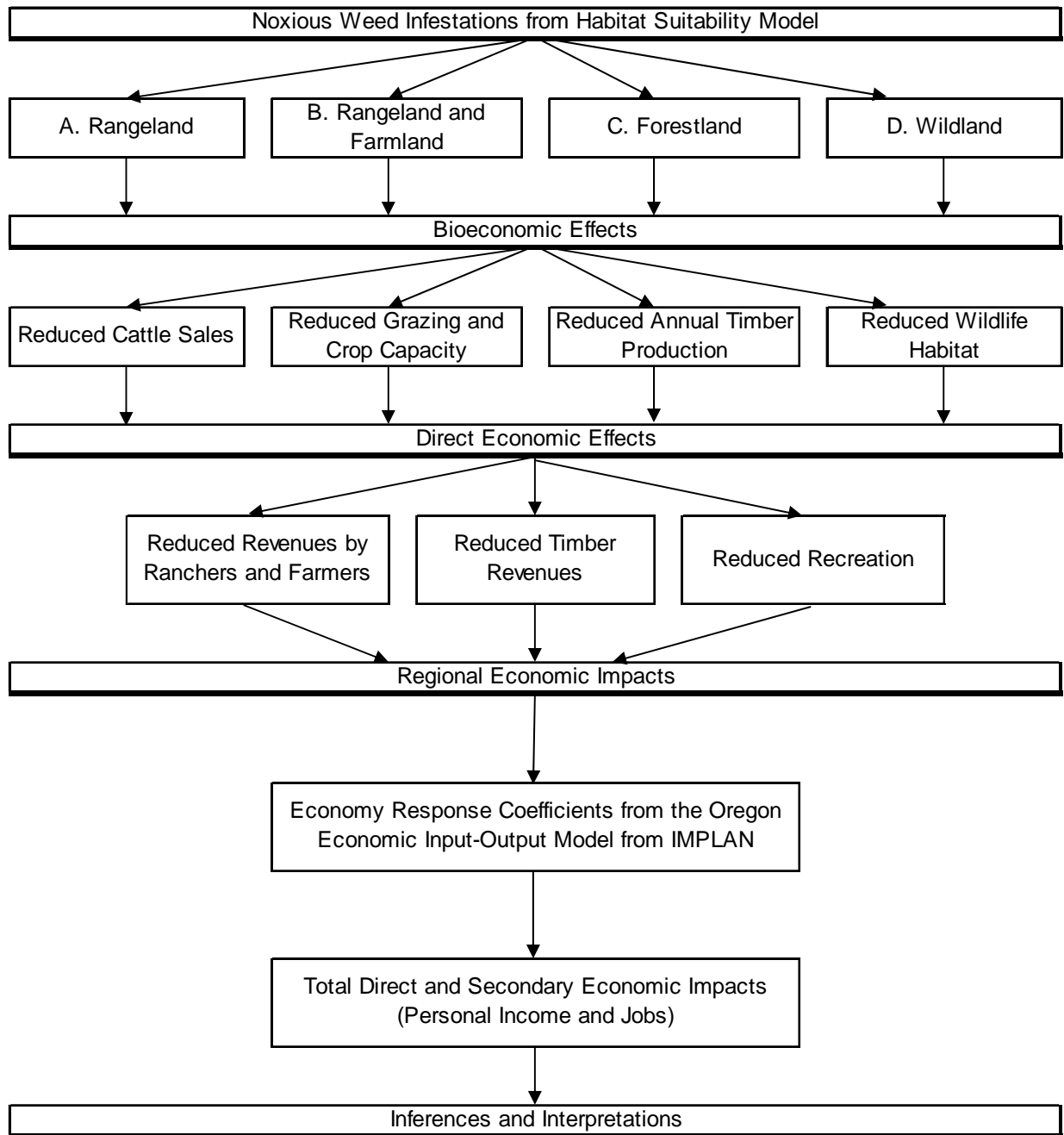
Current Study and Previous Study Infestation Land Types and Association With Economic Model

Current Study		Previous Study	
Species	Land Type	Land Type	Economic Model
Armenian blackberry (Himalayan)	1, 3, 4, 5, 6	<b>C</b>	<b><i>b, d, e</i></b>
Cordgrass	7	D	c, e
Dalmatian toadflax	2, 3, 4, 8	<b>A</b>	<b><i>a, b, e</i></b>
Giant hogweed	3	<b>B</b>	<b><i>b, c</i></b>
Gorse	3, 5, 6, 8	C	b, d, e
Japanese knotweed	3, 4	<b>A</b>	<b><i>a, b, e</i></b>
Kudzu	3	<b>A</b>	<b><i>b, e</i></b>
Leafy spurge	2, 4, 5, 8	A	a, b, e
Hawkweeds (meadow and orange)	3, 4, 8	A	b, e
Mediterranean sage	2	A	b, e
Paterson's curse	1, 2	<b>A</b>	<b><i>a, b, e</i></b>
Perennial pepperweed	2, 4, 5	A	a, b, e
Purple loosestrife	4, 8	D	e
Purple starthistle	2	A	none
Rush skeletonweed	1, 2	B	b, c
Scotch broom	3, 6	C	b, d, e
Scotch thistle	2, 3	A	a, b, e
Tansy ragwort	5, 8	B	a, b, c, e
White top (hoary cress)	1, 2, 5	A	a, b, e
Woolly distaff thistle	2	A	a, b, e
Yellow starthistle	2, 3, 5	A	a, b, e
Knapweeds - Diffuse	2, 3, 5	A	b, e
Knapweeds - Meadow	3, 5, 8	A	b, e
Knapweeds -Spotted	2, 3, 5	A	b, e
Knapweeds -Squarrose	2	A	b, e

Notes: 1. Species in the current study and not the previous study show bold and italic font for the assigned previous study land types and economic activity model.

Source: Study.

Figure I.1  
Economic Assessment Model System



Notes: 1. IMPLAN is a software and data system for creating multiplier and other useable economic analysis factors from input-output models of the national, state, and county economies in the U.S. The system allows for multi-state and multi-county regional economies to be developed.  
Source: Study.

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## II. ECONOMIC AND GEOSPATIAL MODELING PROCEDURES

### A. Economic Measurement Concepts

Economics provides tools to inform managers and policymakers about the economic impacts of existing and potential infestations and the benefits that can come from different noxious weeds prevention and control programs. Cusack et al. (2009) points out that economic studies have been particularly focused on forest or agricultural potential infestation production losses and damage to natural resources which lowers both market and social values. The economic impacts on ecosystem functioning and human health have been less well studied. Invasive species management is also a "weakest link" public good, meaning incentives exist to take a "free ride" on the efforts of others and shoulder less than a fair share of the costs of prevention and control. Economics can be used to provide before-the-fact evaluation, prioritization, and selection of prevention and control programs (ex-ante). After-the-fact evaluation of management measures assesses their efficiency and effectiveness (ex-post).

Economic analysis generally uses two measures. The first measure is typically referred to as REI modeling because the impacts are the effects from changed spending within an area for goods and services. The measures for the effects can be business sales, personal income, and jobs. The first measure's calculation is accomplished through the use of input-output (I/O) modeling. I/O models are mathematical representations of the economy that describe how different economic sectors are linked to one another. The models trace how spending associated with an activity such as agricultural operations and recreation circulates through a regional economy. The initial direct expenditures start a flow of spending in the region. For example, farmers make purchases at local businesses. These businesses in turn pay suppliers for goods and also pay workers for their labor. The dollars from the initial expenditures are "multiplied" through rounds of spending but leak out of the local and state economy over time.

The second measure is net economic value (NEV) and is typically used in a BCA. A BCA accounting stance is usually at the national level. Program costs can be compared to program benefits using discounted streams of future net economic benefits.<sup>1</sup> NEV measures:

- Deal with the time value of money where sometimes one-time costs are incurred today, but net economic benefits accrue far into the future.
- Will show if program or policy ultimately has an investment index (net economic benefits in numerator and costs in denominator) greater than one or an acceptable return on investment (usually measured as an internal rate of return that is compared to the adopted discount rate).
- Useful for comparing one program or policy to another to see which is better.
- Advantages are that it can include externality effects or changed societal values.

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1. Net economic benefits are value received minus the dollar amount paid. The two main types of net economic benefits are producer surplus (revenues minus costs), and consumer surplus (willingness to pay (WTP) minus the amount actually paid). Several types of societal values (e.g., existence value, option value and bequeathal value) can also be defined to be included net economic benefit calculations.

Other studies' BCA measurements are referenced, but calculations are not included in the current study. The reason is that the measurement can lack tangibility and authenticity. The public and decision makers are provided simple benefit-to-cost ratios without knowing methods. For example, what is the accounting stance (regional, national, etc.), and are opportunity and social costs included? BCA is difficult because in many cases total costs for prevention and control programs are unknown. There may be many private land owners and agencies involved, all operating independently and at different operational levels. Further, land management operations that have controlling effects will have taken place anyway. It would be impossible to track the beneficial uses arising from the costs of those operations. For example, reforestation of timberlands is required the Oregon's Forest Practices Act. The reforestation design may be partially influenced by the control of noxious weed spread. Lastly, noxious weeds are mostly present because of their beneficial uses. The BCA should necessarily account for the positive benefits as well as the foregone economic activity.

Other economic analysis can be completed such as cost effectiveness analysis (CEA) which finds relative costs for generating a desired outcome or objective like eradicated weed infested acreage, increased grazing production, or saved fish smolts. The advantage for using CEA is that benefits do not have to be calculated.

Sometimes a suite of metrics is used for the economic measurements. The suite of metrics offers a description of the same economic effects, but in different dimensions. The choice of one metric or another is related to a person's familiarity with a particular measure, and how the measure will be used in providing information for possible tradeoff decisions. All too often a metric is chosen simply because it is larger (such as business sales) than another (such as personal income) in order to impress and justify issue positions. The meaning and usefulness of economic measurements can be lost in this choice of metrics.

The analytical framework described in Chapter I explains the direct effects and REI methodological approach and measurements to be used for this current study's economic analysis. The chosen valuation metrics for this current study (business sales, personal income, and jobs) all have qualities for being understandable and comparable. This chapter first explains the methods and assumptions used to develop the economic assessment model. Second, the specifications for the economic assessment model are explained. Third, economic analysis results are shown. Discussion about the results is contained in Chapter IV.

## B. Regional Economic Impact Modeling

Developing an REI measurement for producers starts with determining the actual or potential expenditures made in a defined geographical region. For example, a farmer will purchase herbicides at a local supplier. If the herbicide is manufactured outside of the region, then a portion of the farmer's payment will leak to the economy where it is manufactured. A portion of this purchase will be retained in the local economy for transportation services and wholesale and retail trade operations. Some of the money will make its way to pay for wages and salaries of those who work for the supplier. The first round and subsequent re-spending of the original purchase that finds its way to household income from wages, salaries, and proprietorships gross

profits is the economic impact from the purchase. The measurement units can be business sales, personal income, or jobs. Business sales are the total purchases created by the affected industries. When personal income is estimated, a job metric can be calculated by dividing the total personal income created from the purchases by the annual average earnings received across all affected occupations in the geographical area.

The REI is calculated via an I/O model. An I/O model approximates an economy by defining the economic relationships among economic sectors. These economic relationships are expressed as dollar values of purchases or sales between specified economic sectors. Depending upon the model, there can be from a few dozen to as many as several hundred economic sectors. A sector is defined as any homogeneous grouping of businesses, organizations or industries (e.g. tree fruit industry, insurance industry, charitable organizations).

Each sector purchases goods and services from itself and/or from other sectors. The annual dollar amounts of these transactions are organized into a table called a transaction matrix. The transaction matrix table generated by an I/O model provides detail about the dynamics of an economy, describing which sectors contribute to the production of representative goods and services and which sectors are the markets for those goods and services. The relationships among sectors are arrayed in a matrix format, and an algebraic technique (matrix inversion) is used to calculate the direct and indirect impacts of changes in the sectors of the model. These changes are expressed in the form of multipliers and response coefficients.<sup>1,2</sup>

The I/O model used in the previous and this current study is the IMPLAN system.<sup>3</sup> The IMPLAN system was designed for the construction of regional I/O models in order to evaluate the potential economic effects of alternative management actions in local areas. For example, a timber management plan with associated harvest activities, mill operations, and recreational activities could be evaluated using IMPLAN based on estimated economic impacts in the affected local communities. Data are organized by counties, which can be aggregated into appropriate geographical units (regions, states, nation) relevant to the analysis. Over time, researchers, analysts, and managers have adapted IMPLAN to a wide array of resource planning applications.

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1. An input-output multiplier reflects the difference between the initial effect of a change in final demand and the total effects of that change. Once a transaction has been made it will normally cause a chain reaction of other transactions – as these transactions occur (called "turnover") additional output and income will be generated. The compounded result of these transactions divided by the initial change is called a multiplier. There are different multipliers for the different modeled outcomes.
  2. A response coefficient is analogous to a multiplier, but expresses relationships between different economic variables. Where the multiplier has the same units (income, output, or employment) in both the numerator and the denominator, a response coefficient has different units in the numerator and denominator. A response coefficient is the response of income (or output, or employment) to increases or decreases in output.
  3. The Impact Analysis for PLANning (IMPLAN) system was originally designed by the U.S. Forest Service in the early 1980's in response to the mandates of the National Forest Management Act and the National Environmental Policy Act. These two acts required the Forest Service to consider economic efficiency and economic effects in the formulation, evaluation and selection of land management planning alternatives. Operation of the IMPLAN model and database was subsequently transferred to the University of Minnesota, where it was administered by the Minnesota IMPLAN Group, Inc. (Alward et al. 1989). The system is now owned and administered by IMPLAN Group LLC located in Huntersville, N.C.

It is important for an analyst to understand the industry being studied. If the industry is well represented by a sector already contained in IMPLAN, then a derivative model need not be constructed. If it is not represented (commercial fishing is a good example of not having representation), then the multipliers and response coefficients must be derived from IMPLAN. The derivative process includes disaggregating as well as aggregating sectors. The analyst must be careful to marginalize transportation services and wholesale and retail trade so as not to duplicate total business sales when undertaking the derivative model building. The process allows for the targeted industries to be further specified into supporting sectors. These supporting sectors reflect the economic activities such as housing, utilities, transportation, etc. Both basic IMPLAN sectors and unique groupings are utilized in this current study. The most important reason for using this derivation approach is that it provides the user with a detailed analysis of specific industry operations, and a thorough evaluation of resulting economic impacts on the affected region.

### C. Habitat Suitability Geospatial Modeling Methods

Working with Oregon State University (OSU) beginning in 2011, ODA quantified the potential distribution of invasive plant species by utilizing topographic and climatic data in Oregon in a Multi-Criteria Decision Analysis (MCDA) Weighted Sum Model (WSM) inside the KRESS developed at OSU (Johnson et al. 2005). Seven climatic variables and a digital elevation model GTOPO30 were scaled to 256 levels and re-sampled to 1.25 arc-minute resolution for analysis in KRESS. Relative probabilities were extracted from where a condition is met, such as the presence of a weed and used as the relative weight in the WSM (Johnson et al. 2005). Each variable was weighted based on expert knowledge and the potential risk of invasion was assigned in proportion to the distribution curve for that variable based on intersections between weed locations and environmental variables. Those areas most climatically and elevationally similar to current infestations were assumed to have the highest risk of infestation within the WSM (Johnson et al. 2005).

The environmental variables being utilized in the model consist of (1) GTOPO30 Digital Elevation Model, (2) freeze free days, (3) growing degree days over 10 degrees C, (4) precipitation, (5) average temperature maximums, (6) temperature means, (7) average temperature minimums and (8) number of wet days. Climatic data was obtained from The Climate Source, Inc., whom developed the datasets using the Parameter-elevation Regressions on Independent Slopes Model (PRISM). PRISM utilizes point measurements of environmental data, digital elevation models, and other geospatial data to generate annual and monthly climate data. The datasets utilized in KRESS were generated from data between 1971-2000 (Daly and Taylor 2001). Elevation data was obtained from the U.S. Geological Service, EROS Data Center and was comprised of the GTOPO30 data set.

The modeling process for plant habitat suitability modeling consists of the following steps:

1. Define the area in which the plant currently exists through use of Global Positioning System (GPS), expert knowledge, and Geographic Information System (GIS).
2. Identify the factors of importance (these being environmental and landscape variables).

3. Build the GIS layers of factors that are needed as ASCII Raster Maps.
4. Scale each of the factors so that they can be treated similarly between 0-256.
5. Determine or estimate of the "importance" or the weight of each of those factors for mathematical analysis.
6. Determine the spatial and temporal relationships between the factors.
7. Build the model in the KRESS modeling interface.
8. Process the weighted factors mathematically using a Weighted Sum Algorithm.
9. Each cell in the area being modeled will be evaluated for suitability.
10. View the spatial pattern of the model.
11. Evaluate the model using statistical methods or in-field verification.

The KRESS multiple factor analysis is used to simultaneously take into account a series of factors that affect the preference of plants for a particular position on the landscape based on a deterministic application of rules (Johnson et al. 2005). A scientist or resource manager can conceptualize linear, non-linear, or mixed models, and if spatial data exists for the parameters chosen, apply them to the landscape. The user can then incorporate information about the system to build a model that seems reasonable and generate the suitability for each cell on the landscape (Johnson et al. 2005). The KRESS model will be used in this research to quantify and convey the potential area protected from continued, unfettered expansion of weed populations if not for the control programs implemented by ODA.

A statewide land cover grid created by the Oregon Natural Heritage Information Center was utilized in analyzing intersections between the habitat suitability model of the modeled weeds (OBIC 2010), and particular resources that are susceptible to invasion. These land use types were chosen by the ODA (ODA 2013). The land cover grid was altered from its original 156 separate land use elements, and concatenated into resource categories based on their vegetation type or land use. For this study, the appropriate elements were combined to display the general distribution of agriculture, rangeland, urban zones (including right-of-way and parks), pasture, riparian zones, forestry, estuarine zones, and wildlife zones (publicly owned land) (ODA 2013). ArcGIS was used to overlay the mean, plus and minus one standard deviation of the habitat suitability model onto these particular resource categories to generate acreages of potential impact if these weeds were to reach these ecological amplitudes in each resource area. The mean of the model was chosen as to improve precision across all models analyzed, while negating the natural inclination of fitting models to data, thereby reducing human error. Additional analysis using standard deviations was generated to create confidence intervals. It is important to note that because vegetation categories were used to generate these acreages, it does not reflect the political boundaries that define these lands utility i.e., areas considered rangeland with available forage may not be grazed by the land manager.

Impacts from riparian invaders to anadromous fish runs were also analyzed. Using Oregon Department of Fish and Wildlife's (ODFW's) Fish Distribution Data (ODFW 2014), the predicted suitability area (including standard deviations and means) were extracted onto existing runs of coho, steelhead, Chinook, and chum. Historical runs were removed from analysis. River miles of impacted habitat were captured for economic analysis.

The data collated to comprise the weed location dataset was created from 25 different management agencies, with different collection protocols between and within the agencies. Disparate protocols create gross errors in both quality of observations, GPS precision, and quality control. Additionally, each data point can represent one to an unknown quantity of a weed, neither indicating density of infestation or size. The datasets that were retrieved from the agencies also came in different geographic projections, which were subsequently transformed into WGS84 when conducting the standardization of the dataset, which will also generate spatial error.

Point data in the weed location dataset did not consistently contain attribute indicating the size and density of the infestation, thus each presence was treated equally where the whole cell was converted to a one to indicate presence. Each cell is approximately 394 hectares (973 acres), and thus the conversion to raster is a gross over-estimation of actual area infested by the weeds analyzed, but as each cell needed to be of exact size and dimension, this was necessary to implement the model and analysis.

The resampling and scaling process introduces error through scaling the continuous environmental data, whereby a single value in the scaled dataset can represent a range of data from the original environmental dataset. Depending on the size of the continuous environmental dataset, the amount of values combined into a scaled value can vary. This makes analysis less precise as the scaled data represents one or more real-world values. The GTOPO30 data set was resampled to match the cell size of the PRISM dataset by averaging approximately 4 GTOPO30 cells to fit the 1.25 arc minute resolution of the PRISM data.

#### D. Economic Assessment Model Specification

The focus of this current study economic analysis is on the primary economic activity being decreased due to noxious weeds. There is additional information about other ecosystem harm caused by the analyzed invasive terrestrial and aquatic species in Appendix A and B. Given the serious intrusions that some species make into ecosystem alterations, it would not be possible to include all of the primary and secondary harm caused to production systems and biodiversity in this current study. The intent is to at least capture some of the directly affected production systems (such as livestock losses, agriculture carrying capacity, timber harvests, and recreational uses) while acknowledging there are other direct impact systems not being captured (such as water supply and quality, infrastructure maintenance, energy production, human health, etc.). There are also indirect and tertiary effects not being measured (such as commodity market prices, decreased tax revenue, compromised investment spending, increased community economic vulnerability, and increased fire and flood risk). In addition to market related effects, there are also non-market impacts such as diminished cultural values associated with pristine ecosystems.

Another limitation in this economic analysis is that there is not an economic assessment of noxious weeds' benefits. Noxious weeds may have production positive valuations, some of which are associated with why they became introduced (weeds such as spartina for erosion control, Armenian blackberry for berries and honey, and other species for ornamental nursery

stocks). Scotch broom was found to be useful for controlling sand dune movement after being introduced for its ornamental qualities. Armenian blackberry is enjoyed for its fruit and provides the nectar for a wild blackberry honey commercial product. Another positive economic impact not being considered is from the control programs themselves. Often there are federal funds available that when expended within the region becomes an infusion of new money into the economy. Outside sourced money will always have a positive economic impact unless the money has to be repaid. Despite the limited circumscribed comprehensiveness of the economic model, there is a need for even a limited economic analysis to show some quantitative measure of economic damages. It provides information about the comparable importance of the problem so as to improve control program funding tradeoff decision making, demonstrate the relative hazard for not providing prevention and control programs, and lead to greater understandings of economic sectors being affected.

The economic assessment model is production driven, based upon the physical flows of goods and services. For example, business sales are measured in terms of the cattle and wheat sold, or recreational use expenditures. Total business sales is a common reference in business statistics, but it reflects only the level of gross economic activity. It does not convey economic efficiency or well-being. A preferable measure of economic change in a community or region is represented by personal income. To convert sales information into income data, the level of production activity is first transformed into industry revenues based on the prices received for the goods or services sold. For the goods-producing industries such as ranching, business sales revenues are divided into cash flows (expenditure) on the basis of industry accounting models. The cash flows are then multiplied by response coefficients from the I/O model to determine the estimated contribution in regional income resulting from the stated production. A follow-on statistic for jobs is calculated using average net earnings in the region.

The economic assessment model examines marginal changes - the change in economic value associated with a unit change in output, consumption, or other economic indicators. The results will only hold for relatively small changes within the region being considered. Any infestation that is large enough to change the underlying structure and trade relationships of the economy will necessarily change the relationships quantified in the response coefficients. These adjustments are not reflected in the marginal statistics developed for this current study.

There are distributional issues that are not reflected in the economic assessment model. The considered effects to certain commercial production and recreational use will assist in understanding economic sectors being affected, but there can be concerns that different business establishments and social groups within sectors will be affected at dissimilar scales and times.

The adopted production functions assume that average damages per area is equal to marginal damages per area for commercial production changes and recreational use degradation due to plant coverage. The marginal ratio estimator for economic impacts per acre was developed using the net acres affected from the previous study. Because it was those infestation area amounts that the degradation factors were applicable, it becomes an assumption that the marginal economic impact ratio estimator still applies to the new infestation area estimates. It could be the degradation factors may be different depending on the growth trajectory of a particular weed and its continued effect on commercial production and recreational use. Moreover, the other

inputs for production such as labor may be different at other levels of plant coverage. For example, the economic impacts could actually increase if control costs increase. The higher economic impact would occur in the short run. In the long run, the increased costs may be so high as to cease total agricultural production. The effects from temporally changed inputs were not included in the economic assessment model.

There is a great amount of data specificity in the current study economic analysis. The accompanying data variability is carried through in the economic activity modeling parameters. The infestation area estimates are accompanied with a variability range; a +/- one standard deviation in bio-physical filters are used for determining upper and lower bounds. The dynamic response of the ecosystem or land cultivation may cause what appears to be susceptible habitat to reject the spread. Production degradation may not be a linear response as the weed spreads into habitat that is less hospitable to weed growth. Risk and uncertainty for spread and production degradation is discussed more in Chapter IV. The current study economic assessment model answers the question for "what-if" the spread occurs within the lower and upper bound range of susceptible areas and assumptions about production degradation.

The general economic assessment production function for calculating foregone economic activity is as follows.

$$H = f(Y, T) \quad \text{Function Eq. 1}$$

where:  $H$  is economic harm

$Y$  is commercial production sales foregone

$T$  is decreased expenditures from diminished recreational use

The function inputs for commercial production in algebraic notation are as follows.

$$Y_j = \sum_i A_j * B_j * LI_{i,j} * WI_i \quad \text{Production Eq. 2}$$

where:  $Y$  is sales foregone for a particular economic activity

$A$  is price

$B$  is normal production per area

$LI$  is factor of production degradation due to noxious weed

$WI$  is noxious weed infested area

$i$  is noxious weed

$j$  is economic activity affected

$$I_p = \sum_j Y_j * R_j \quad \text{Production Eq. 3}$$

where:  $I_p$  is personal income impact from production

$R$  is the I/O model response coefficients

For the commercial production function,  $A$  and  $B$  are constants for each economic activity and  $W$  and  $L$  depend on the land type for the analyzed noxious weed bioeconomic and biophysical characteristics.



The recreation economic assessment model inputs are based on per area participation and valuations from pertinent studies found in literature searches. The input estimators are for hunting, fishing, and boating.

$$T_u = \sum_i F_u * L2_{i,u} * W2_i \quad \text{Recreation Eq. 4}$$

where:  $T$  is expenditures for a recreational use economic activity

$F$  is expenditures per area

$L2$  is a recreational use degradation factor

$W2$  is noxious weed infestation area

$u$  is recreational use affected

$i$  is noxious weed

$$I_u = \sum_u T_u * R_u \quad \text{Recreation Eq. 5}$$

where:  $I_u$  is personal income impact from recreation use

$R$  is the I/O model response coefficients

The calculated personal income from commercial production losses and diminished recreational use can be translated to jobs.

$$J = (I_p + I_u) / N \quad \text{Jobs Eq. 6}$$

where:  $J$  is jobs for full-time and part-time employee and proprietor in the regional economy.

$N$  is average net earnings in the regional economy

The selected economy level for calculating total effects (including multiplier effects) is the State.

## E. Economic Assessment Model Calibration

The economic assessment model is distilled to 15 unique model groupings according to the analyzed noxious weeds for which they are applicable. The model groupings' current study and previous study applicable noxious weeds are shown in Table II.1. The Appendix Table C.1a and C.1b show the model's input values for variables independent of analyzed species and input values that are associated with a particular analyzed species. The table shows intermediate calculations for the marginal economic impacts. The marginal calculations could be used for a new weed that has similar effects on economic activity as one or more of the analyzed species groupings. The Appendix Table C.2 contains a table showing the economic assessment model algorithms for each of the analyzed species groupings. The Appendix C.3 contains another table that summarizes the degradation and plant coverage factor assumptions.

The basic assumptions (see Table C.1a for sources) for input variables independent of the analyzed species for the previous study four land types are as follows:

1. Rangelands: livestock loss, reduced cattle foraging, and reduced wildlife grazing. Livestock loss and reduced cattle foraging is based on animal unit month (AUM) supported by a particular land type. An AUM is usually defined to be what a cow and calf consumes on grazing grounds in one month. Price of range land will usually be appraised on the AUM carrying capacity of the land. For example, a ranch of 2,000 acres, with carrying capacity of two acres per AUM, and no additional features such as meadows, could expect to produce a total of 1,000 AUM's. At an assumed 2014 AUM lease rates of \$13.50 (average between public and private lands as described in the cited study showing on Table C.1a), the grazing value of that land would be about \$13,500. The end product of a ranch operation is the annual sales of the calf production. The weaning rate (sale of calves per cow) is generally about 82 to 85 percent. Also it takes at least one bull per 20 cows to produce calves. Therefore including these considerations, it takes the nutrition of about 15 AUM's to produce one calf for sale. On a per calf sale that averages over \$600, and the sale per AUM would be \$38.13.
2. Farmlands: seed loss and reduced aquaculture. Seed production from bentgrass and wheat are the examples of diminished cultivated land production. Many other agricultural crops could have been included in the agriculture Component A model. The noxious weed profile descriptions in Appendix A mention other agriculture impacts. The calculated economic activity should be considered highly conservative for the analyzed species. The example aquaculture production is oysters.
3. Forestland: reduced timber production. It is assumed an average annual growth across western and eastern Oregon forests is 0.25 thousand board feet per year. The foregone sales is a "pond value" for the Table C.1a shown price. (Pond value is the timber stumpage value after consideration of hauling transportation costs.)
4. Wildlands: wildlife and fish stressor that lowers hunting, fishing, and boating demand.
  - a) Wildlife (hunting) is based on agriculture Component A plant cover and degradation and cow-deer equivalency of 4.5 and with 7.3 acres per AUM grazing. The deer hunting expenditures per day are assumed to be \$73.66, with success rate of 15.2 days per deer, and 30 percent harvest rate.
  - b) Wildlife (fishing) is based on 2.5 salmon adults per mile of anadromous fish habitat for invasive species removal. The assumed harvest rate for the adults is 50 percent. It is further assumed that half of the harvests are caught in commercial fisheries and half are caught in recreation fisheries. Fall Chinook salmon is the assumed species to translate harvests into economic activity. Fall Chinook are included in a fall fishery and are caught coincident with other salmon species in many ocean and inriver locations, therefore the calculated economic activity will include the presence of other salmon species recovered through the invasive species removal. The assumed ex-vessel value per fish and assumed angler expenditures per day are \$100. The recreational success rate is assumed to be four days per fish. The recreational economic activity is based on trip only expenditures since the desired parameter is marginal changes. This assumes economic activity for equipment expenditures

would have occurred with or without the increased production due to invasive species removal.

- c) Wildlife (boating) economic impacts assume the presence of the noxious weed species cordgrass will eliminate boating activity. The boating use days are for "bays" and include all trip purposes except fishing since fishing economic impacts are included in another wildlife category. The calculated economic impacts are probably liberal due to the average includes water types that are not conducive to cordgrass growth. It is also assumed cordgrass will eliminate oyster aquaculture in its presence. The reduced oyster production and economic activity parameters are shown as an agriculture Component B on Table C.1a.

Parameters specific to the analyzed weeds used as inputs for the economic activity model include the following:

1. Plant coverage factor. The share of the infested areas that affects a particular economic activity.
2. Degradation factor of the economic activity. This factor can have various interpretations depending on the economic activity. For example, it could be interpreted as a cow mortality rate for the livestock economic activity. The assigned degradation factors will be different for an economic activity affected for a particular analyzed noxious weed located on a particular land type. The factors are normalized to apply to an economic activity and are usually expressed as a percent.
3. Grazing production factor. The factor is an assignment based on the land forage qualities affected by a particular weed.
4. Land management factors. Forestland managed for other than wood production and lands in reserve (such as for old growth protection, wilderness designation, and other conservation purposes) and multiple uses (saved for recreation, water production, etc.) is estimated to be 47.5 percent (OFRI 2013).<sup>1</sup> These lands vegetation succession will not provide soil conditions in disturbed site status for Scotch broom invasion. If there are invasions, there would purportedly not be a loss in timber production due to the management restrictions. A post habitat suitability model outcome factor of 52.5 percent was applied to forestry susceptible areas.

## F. Economic Assessment Model Results

The current and previous study infestation areas are shown on Table II.2. The calculated economic impacts for infestation areas are shown on Table II.3 and Figure II.1 (direct effects are depicted on Table II.3a and REI are depicted on II.3b). The estimated foregone economic activity from current levels of noxious weed infestations is \$83.5 million personal income which would represent 1.9 thousand jobs. The economic impact share from the analyzed species three

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1. The share of timberland managed for wood production is 36 percent and the share managed for multiple uses is 33 percent. The balance is managed for reserve status. It was assumed half of the multiple use land would be for wood production.

largest contributors (in order) are: Armenian blackberry 48 percent, Scotch broom 47 percent, and rush skeletonweed two percent. The current study economic impacts without the six additional analyzed species are \$43.1 million, which compares to the previous study \$101.5 million (adjusted 2012 dollars). The decrease would be an indicator of success in the containment efforts for the previous study's analyzed species.

The estimated economic impact of the analyzed species would be between \$1.5 billion and \$2.4 billion personal income if infestation moved into all of the susceptible areas. The point estimate for mean within this range would represent 40.8 thousand jobs. The three analyzed species with the largest contributions for susceptible areas are: Armenian blackberry 15 percent, rush skeletonweed 12 percent, and gorse 11 percent. For the six species analyzed for susceptible areas in the previous study (tansy ragwort, distaff thistle, leafy spurge, purple starthistle, hawkweeds, and spartina), the current study economic impacts from susceptible areas is \$305.0 million as compared to the previous study \$68.7 million (adjusted 2012 dollars). While methods differ between the two studies on the estimation of susceptible habitat, an inference is that there is a growing threat from the six species.

An analyst might be interested in performing an ex-ante analysis to find economic impacts of a weed not analyzed in this report. The ex-ante analysis might be useful for comparing the foregone economic contribution due to the weed presence to the costs of a control program. The first step would be to select an economic activity grouping most applicable to the new plant's characteristics from the 15 groupings showing in Table C.1b. The next step is to apply the ratio estimator "economic impacts per net acre" to the new weeds plant coverage. Figure II.2 conveniently shows where this factor is displayed on Table C.1b. For example, if the new weed's characteristics fit the tansy ragwort economic activity grouping, then the economic impacts per net acre for reduced cattle foraging on rangelands is \$8.57 personal income per acre (includes multiplier effect). A more thorough ex-ante analysis might be needed when control costs are high and span many years for implementation. In such cases, the simple ratio estimator approach may not be a sufficient economic measurement to fully describe the benefits from a control program.

Table II.1  
Current Study and Previous Study Analyzed Noxious Weeds  
Associated With Unique Economic Assessment Model Groupings

Economic Assessment Model Group	Previous Study	Current Study
1	Tansy ragwort	Tansy ragwort
2	Yellow starthistle	Yellow starthistle Japanese knotweed
3	Distaff thistle	Woolly distaff thistle Paterson's curse
4	Scotch broom	Scotch broom
5	Knapweeds	Knapweeds - Diffuse Knapweeds - Meadow Knapweeds -Spotted Knapweeds -Squarrose Kudzu
6	Gorse	Gorse Armenian blackberry (Himalayan)
7	Leafy spurge	Leafy spurge
8	Rush skeletonweed	Rush skeletonweed Giant hogweed
9	Purple loosestrife	Purple loosestrife
10	White top and perennial pepperweed	White top (hoary cress) Perennial pepperweed Dalmatian toadflax
11	Scotch thistle	Scotch thistle
12	Mediterranean sage	Mediterranean sage
13	Purple starthistle	Purple starthistle
14	Hawkweeds	Hawkweeds (meadow and orange)
15	Spartina	Cordgrass

Source: Study.

Table II.2  
Comparison of Current Study and Previous Study Infestation Area

	Infestation Area (thousands of acres)					
	Current Study				Previous Study	
	Mean		Susceptible Variance		Net	Gross
Current Study	Current	Susceptible	Upper Bound	Lower Bound		
Armenian blackberry (Himalayan)	1,638	10,106	+36%	-25%		
Cordgrass	T	40	0%	0%		
Dalmatian toadflax	345	31,724	+35%	-33%		
Giant hogweed	T	2,077	+31%	-26%		
Gorse	28	16,580	+52%	-13%	31	300
Japanese knotweed	42	1,799	+30%	-23%		
Kudzu	T	7,313	+31%	-13%		
Leafy spurge	8	37,277	+20%	-34%	7	13
Hawkweeds (meadow and orange)	1	17,888	+32%	-25%	T	1
Mediterranean sage	90	15,410	+20%	-30%	250	1,275
Paterson's curse	T	19,737	+86%	-37%		
Perennial pepperweed	89	15,992	+25%	-17%	1,184	2,322
Purple loosestrife	7	15,276	+49%	-41%	2	4
Purple starthistle	T	4,017	+95%	-45%	T	T
Rush skeletonweed	110	15,365	+33%	-31%	60	2,000
Scotch broom	1,528	7,601	+15%	-17%	1,500	16,000
Scotch thistle	102	19,241	+4%	-45%	527	1,011
Tansy ragwort	125	11,384	+31%	-19%	163	3,260
White top (hoary cress)	191	15,558	+20%	-31%	0	0
Woolly distaff thistle	T	18,627	+55%	-36%	T	2
Yellow starthistle	376	18,596	+33%	-19%	947	1,873
Knapweeds - Diffuse	275	16,191	+16%	-28%	1,816	3,622
Knapweeds - Meadow	125	12,443	+35%	-21%	0	0
Knapweeds -Spotted	168	37,297	+25%	-31%	0	0
Knapweeds -Squarrose	T	14,003	+44%	-10%	0	0

- Notes: 1. Acres are shown in thousands, and non-zero amounts less than 500 are shown with a "T" for "trace."  
2. Previous study gross acres are areas where a species is an immediate potential threat for infestation or has been detected which has caused some level of productivity degradation. Net acres are areas spatially located within the gross acres where productivity has been wholly displaced.  
3. Species that were not in the previous study are blank in the previous study columns. Species that were in the previous study but not the current study are excluded. The previous study combines white top and perennial pepperweed, and knapweeds, so the combined acres are shown in only one row of each, and the other rows show zero.  
4. The infestation susceptible area upper bound and lower bound correspond to area calculations for minus one standard deviation and plus one standard deviation, respectively.

Source: Study.

Table II.3a  
Noxious Weeds Regional Economic Impacts of Current  
and Susceptible Areas Measured by Direct Sales

<u>Current Study</u>	<u>Current</u>	<u>Susceptible</u>			<u>Previous Study</u>
		<u>Mean</u>	<u>Upper Bound</u>	<u>Lower Bound</u>	
Armenian blackberry (Himalayan)	46,815	358,811	504,416	238,288	
Cordgrass	1	52,238	52,238	52,238	N/A
Dalmatian toadflax	341	27,219	36,176	19,100	
Giant hogweed	0	1,434	1,883	1,055	
Gorse	531	255,546	343,006	223,457	1,566
Japanese knotweed	42	1,801	2,345	1,386	
Kudzu	0	197,478	264,160	169,802	
Leafy spurge	29	104,328	119,441	62,935	114
Hawkweeds (meadow and orange)	1	24,692	32,476	18,545	2
Mediterranean sage	0	1,964	2,181	1,500	1,355
Paterson's curse	0	275,691	357,596	229,473	
Perennial pepperweed	182	8,831	10,145	6,743	26,834
Purple loosestrife	20	45,810	68,076	26,923	5,513
Purple starthistle	0	8,207	8,584	7,960	N/A
Rush skeletonweed	2,177	355,493	490,068	301,610	6,223
Scotch broom	44,853	204,428	233,615	166,922	74,939
Scotch thistle	8	3,185	3,389	1,216	3,023
Tansy ragwort	185	20,710	23,466	19,480	9,665
White top (hoary cress)	882	86,819	116,970	53,608	
Woolly distaff thistle	0	253,092	293,926	201,586	N/A
Yellow starthistle	1,320	45,463	72,034	31,496	5,444
Knapweeds - Diffuse	55	2,302	2,544	1,984	9,838
Knapweeds - Meadow	205	21,522	28,163	17,790	
Knapweeds -Spotted	49	161,322	199,257	118,395	
Knapweeds -Squarrose	0	3,389	9,242	2,257	
Total	97,696	2,521,774	3,275,398	1,975,750	144,517

- Notes: 1. Direct sales is expressed in thousands of 2012 dollars.  
2. The infestation susceptible area upper bound and lower bound correspond to area calculations for minus one standard deviation and plus one standard deviation, respectively.  
3. Species that were not in the previous study are blank in the previous study columns. Species that were in the previous study but not the current study are excluded. The previous study combines white top and perennial pepperweed, and knapweeds, so the combined direct sales are shown in only one row of each, and the other rows show zero.

Source: Study.

Table II.3b  
Noxious Weeds Regional Economic Impacts of Current  
and Susceptible Areas Measured by Personal Income

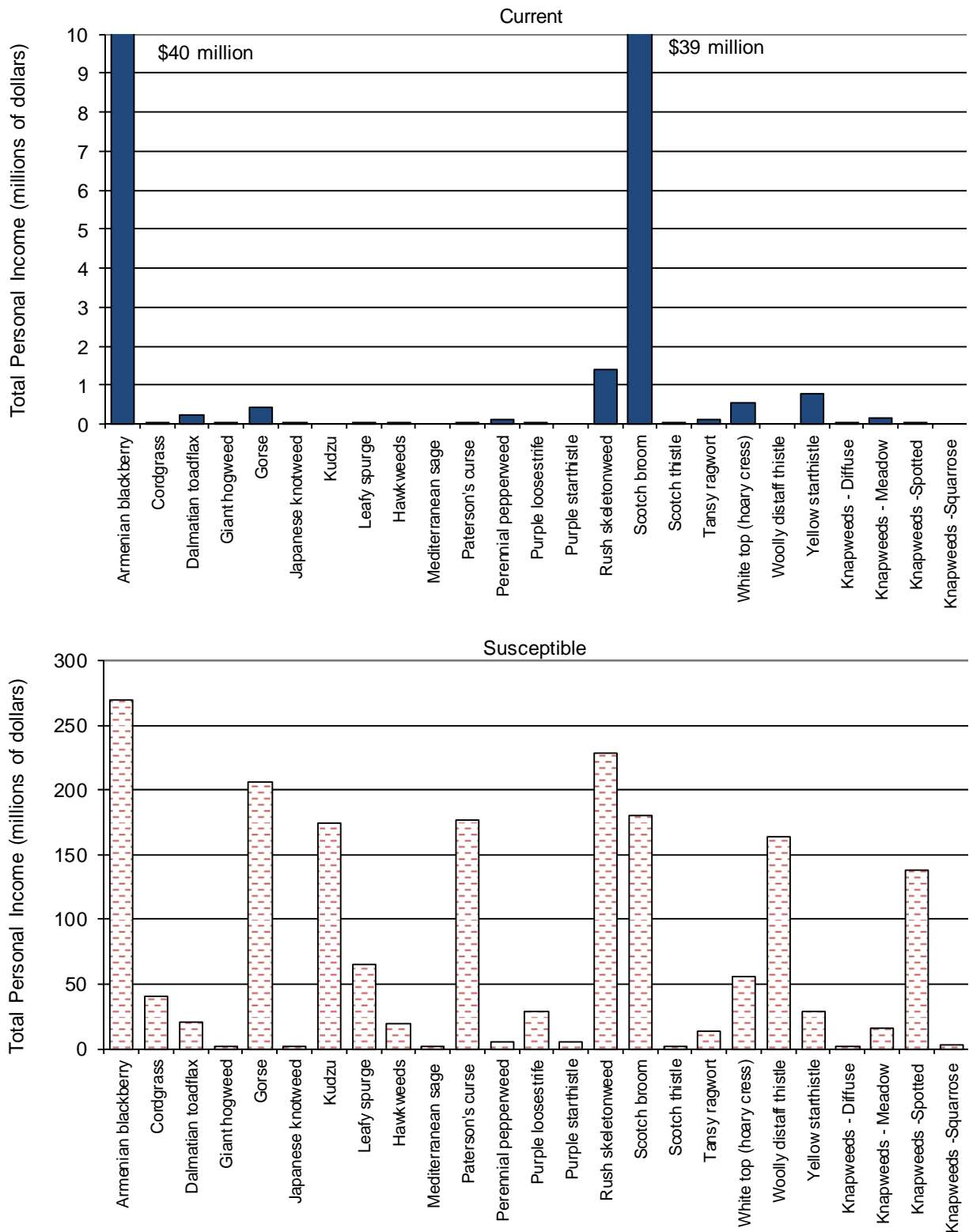
Current Study	Current	Susceptible			Previous Study
		Mean	Upper Bound	Lower Bound	
Armenian blackberry (Himalayan)	40,133	268,382	373,402	185,799	
Cordgrass	1	40,223	40,223	40,223	N/A
Dalmatian toadflax	254	20,335	27,027	14,269	
Giant hogweed	0	1,071	1,407	789	
Gorse	441	205,576	269,215	179,952	1,278
Japanese knotweed	31	1,338	1,742	1,029	
Kudzu	0	173,590	232,247	149,254	
Leafy spurge	17	65,174	75,340	40,063	63
Hawkweeds (meadow and orange)	1	18,448	24,263	13,855	1
Mediterranean sage	0	1,132	1,257	865	754
Paterson's curse	0	176,765	229,070	147,045	
Perennial pepperweed	110	5,329	6,152	4,063	14,882
Purple loosestrife	12	28,444	42,270	16,717	3,640
Purple starthistle	0	4,729	4,946	4,587	N/A
Rush skeletonweed	1,397	228,219	314,613	193,627	4,160
Scotch broom	39,465	179,838	205,513	146,839	61,151
Scotch thistle	6	1,923	2,052	741	1,680
Tansy ragwort	115	12,661	14,491	11,798	5,369
White top (hoary cress)	559	55,263	74,533	34,020	
Woolly distaff thistle	0	163,800	191,031	130,126	N/A
Yellow starthistle	774	27,911	43,229	19,814	3,026
Knapweeds - Diffuse	36	1,379	1,532	1,182	5,477
Knapweeds - Meadow	146	15,070	19,898	12,315	
Knapweeds -Spotted	33	138,064	170,243	101,479	
Knapweeds -Squarrose	0	2,057	5,560	1,358	
Total	83,532	1,836,719	2,371,255	1,451,812	101,481
Jobs	1,855	40,797	52,670	32,247	2,254
Total w/o 6 new	43,114	1,195,239	1,506,361	953,626	101,481

- Notes: 1. Personal income is expressed in thousands of 2012 dollars. Personal income includes the "multiplier effect."
2. The infestation susceptible area upper bound and lower bound correspond to area calculations for minus one standard deviation and plus one standard deviation, respectively.
3. Species that were not in the previous study are blank in the previous study columns. Species that were in the previous study but not the current study are excluded. The previous study combines white top and perennial pepperweed, and knapweeds, so the combined personal income is shown in only one row of each, and the other rows show zero.

Source: Study.



Figure II.1  
Noxious Weeds Regional Economic Impacts of Current  
and Susceptible Areas Measured by Personal Income



Source: Study.

Figure II.2  
Factors to Use in Ex-Ante Analysis

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI Sales	REI Income	Current Acres	REI Sales	REI Income
Group 1 - Tansy Ragwort						
1. Livestock (rangeland)	156,480	\$6,781	\$3,907	0	\$0	\$0
a. Plant cover/impact per area	96%	\$43.33	\$24.97			
b. Degradation - livestock mortal	10%					
c. AUM production per acre		1.30				
2. Agriculture						
Component A (rangeland)	156,480	\$2,327	\$1,341	9,194	\$137	\$79
a. Plant cover/impact per area	95%	\$14.87	\$8.57			
b. Degradation	30%					
c. AUM production per acre		1.30				
Component B (farmland, bentgrass)	6,520	\$587	\$377	0	\$0	\$0
a. Plant cover/impact per area	4%	\$90.00	\$57.78			
b. Degradation	12%					
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	156,480	\$65	\$48	115,626	\$48	\$36
a. Plant cover/impact per area		\$0.41	\$0.31			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$65	\$48			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	163,000	\$9,759	\$5,673	124,819	\$185	\$115

Source: Study.

### III. DETERMINING ECONOMIC EFFECTS AND MANAGEMENT COSTS

#### A. Economic Effects

The underlying goal of the previous study was to quantify the economic impacts of particular noxious weeds in such a way that a general economic analysis model was developed to show the importance for improving and implementing both control and research programs. Modeling is difficult because it is necessary to build-up a catalog of information about the analyzed species in a standardized manner. The catalog has to contain the bio-physical properties, economic activities affected, existing/potential growth status of the species being analyzed, and control programs available or underway. The problem with cataloging is the unpredictability for where a species might be on its growth curve.

The previous study cited Groves (1999) about a noxious weed's growth.

"A plant population goes through certain phases as it increases in numbers - it is introduced to a new site, it establishes and becomes naturalized, it increases in numbers slowly and, after a period of time, its rate of increase becomes higher until some factor in the environment limits further increase. This limiting factor may be imposed either naturally or as a result of human intervention, some form of management, after which the rate of population increase slows."

Figure III.1 depicts the ODA's staff estimated status of example noxious weeds as of the date of the previous study's publication.

Given the growth curve's non-linear shape, it may not be appropriate to rely on the current study's ratio estimators to predict economic impacts for new analyzed noxious weeds nor new plants. The modeled estimates may be for a status that is highly transitory and what occurs in one measurement year may be quite different the next year. There may be relationships with ecosystems and climate that naturally limit or encourage growth. A cross sectional approach such as used in this current study may under or over estimate the economic impacts depending on where the analyzed species might be on the growth curve and how the species might react to a designed control program. There is a typical lag between marshaling budget resources and carrying out implementation for management projects, and the foregone economic activity justification estimates may not apply when the management project starts.

Smith et al. (1999) compiled a database of noxious weeds and concluded that effects on resources, ecosystems, and biodiversity typically accelerate when measures to eradicate an infestation are delayed.

"The contention is that an early and rigorous approach to the eradication of new invasive weed infestations is expedient, for both environmental and economic reasons. It also supports policy recommendations that we implement programs to manage large well-established infestations in ways that can minimize enormous annual increases in infested acreage that will otherwise occur."

Sytsma (2009) discussed the status of invasive species related to the Columbia River in terms of vector strength (pathways for introductions) and management. A stylized management framework overlaid on the pathway and growth potential of invasive species is shown on Figure III.2.

There are three basic reasons why a public agency may be involved in control and preventative programs for noxious weeds. The first reason has to do with localized control programs causing hybridizations which make weeds immune to existing control methods (CAST 2012; Roush 2013). Additional research and development costs are incurred to overcome the hybridization effects (Figure III.3). The second is to preserve the economic development that comes from private landowners and public resource managers land uses. The third has to do with externalities. In a market economy, it is assumed that all of the consequences of a decision are borne by the agent making the decision - there are no "spill-over" effects. An externality exists wherever this is not the case. Externalities can be either negative or positive and can be associated with the production or consumption of a good. An example of a negative production externality is when a nursery introduces a flowering plant that escapes and expands uncontrolled and adversely affects fish stocks and the quality of water. Unless anglers are also managers of the company, an efficient level of invasion will not result. That is because the party that benefits from polluting the river with the introduced plant is not the party than bears the cost of the pollution.

Traditional market economies do not adequately deal with public goods. These are goods for which one person's consumption does not diminish another person's consumption of the same good. Examples include vistas and biodiversity. The private market will underproduce these goods due to the free rider problem. This is when a consumer has an incentive to understate his true willingness to pay (WTP), since he can enjoy the benefits from someone else's contribution. A public good is a product or service that many actors in the private sector may not have the incentive to produce in amounts desired. A pure public good cannot be withheld from some consumers who refuse to pay (non-exclusion), and consumption of that good by one person does not reduce its usefulness to someone else (shared consumption). Due to non-exclusion and shared consumption, private firms have no means of profiting from production of public goods, even though society may value these goods highly.

Eradication or control of unwanted noxious weeds with biological agents is an example of a public good. The background research, establishment, monitoring, and maintenance costs can be prohibitive for any single individual or even single industry. Once the control agent has been established, people cannot be excluded from benefiting from the program. The benefits of such a program can be shared by a variety of agricultural producers and the public at large. Duncan et al. (2004) found in a literature search that environmental and societal costs were not included in most invasive species economic analyses. The study concluded that additional research is needed to quantify economic and environmental losses of invasive species. This conclusion is a continuation of earlier observations by Frandsen and Boe (1991). While the issue is discussed, the current study's limited economic analysis does not improve upon the literature noted shortcomings.

## B. Management Costs and Approaches

The ODA approaches noxious weed control with an integrated, multidisciplinary approach (ODA 2001). Integrated Weed Management (IWM) is a decision making process based on the best available science and experience of weed managers. Control options depend on site specific information and the best strategy or combinations of strategies for effective management decisions. IWM uses all available methods and techniques for noxious weed control including prevention, mechanical, cultural, chemical and biological control.

Prevention: Prevention and early intervention are the most effective techniques that can be deployed against weeds. Prevention is the process of stopping or reducing the distribution of reproductive plant parts to uninfested areas. Prevention activities include: minimizing soil disturbance, reseeding disturbed sites, use of weed free planting stock, cleaning of equipment to minimize transport of weed propagules from infested areas and the use of good management practices to keep desired vegetation and provide competition to prevent noxious weed invasion.

Biological Control: Biological control is the purposeful introduction of selected natural enemies to reduce the population density of targeted pest species below economic and ecological injury levels. This is the reassociation of an exotic pest with its natural enemies. Biological control of noxious weeds is and continues to be the major emphasis of IWM programs in Oregon. Acquiring and introducing new biocontrol agents, monitoring of weed populations, and the introduction of biological agents into appropriate areas is a primary objective throughout the state.

Mechanical: Mechanical control is the use of physical methods to control weeds. These methods are important for use in an integrated control program. Manual and mechanical control can be used in sensitive areas where chemicals are not appropriate or on small infestations where biocontrol and chemical application are not practical.

Cultural Control: The use of land management activities that favor desirable vegetation and reduce or hinder the spread and establishment of invasive undesired species are cultural control methods. The use of competitive planting, grazing practices, fertility management, sanitation and cleaning of equipment, the use of clean seed, weed free forage, clean construction materials, etc., all help to prevent the spread and introduction of weeds. Many weeds contribute to the degradation of natural resources. Weeds may also be a symptom of degradation caused by other factors. Either way, it is important that the cause of the weed problem be identified and treated.

Chemical: Chemical control is an effective method of control, and will continue to be an important and useful tool as part of an IWM program. Chemicals have proven successful at eradicating new introductions of noxious weed species and containing larger or wider spread infestations.

The ODA policy on IWM can be summarized as both a preventative program and treatment program. The preventative program includes tracking information from surrounding states on

new threats. This program includes surveying potential sites for new invader species within Oregon. Early detection and preventive projects are not highly visible. However the payoffs may be substantial in that costs of early detection and prevention may be very low in relationship to future benefits (Rejmánek and Pitcairn 2002).

Table III.1 outlines treatment program costs for different land types and means. The chemical, aerial, manual, and mechanical treatment means generally have large initial costs followed by ongoing maintenance costs. Once biocontrol agents become abundant, the costs per release after five to 10 years can be as low as \$50 per release. The biocontrols adapt and spread on their own, and reapplication in infested areas and application in nearby newly infested areas become effectively treated without the intervention treatment costs.

Biocontrol programs can have effectiveness lag times between initial implementation until there is a regional success (Syrett et al. 2000). For example, it took nearly 20 years for the tansy ragwort biocontrol project to become regionally successful in western Oregon (Coombs et al. 1996).<sup>1</sup> Figure III.4 shows the delay between when weeds were first identified and a biocontrol agent was developed and deployed for five western states (Rice 2014).

Treatment programs involve participation by private individuals and other agencies. Treatment may be costly for individuals because of the externality problem. Statewide coordination that includes awareness of costs as well as potential benefits to individuals and the public is important in designing treatment programs. Biological control programs of specific noxious weeds are an example where the initial research cost of programs may be very high and subsequent streams of annual benefits of a successful program may also be very high (Coombs et al. 1996).

Economic analysis efficiency ranking of invasive species prevention and control programs would show (Smith et al. 1999):

- EDRR and prevention are among the most cost-efficient and cost-effective ways of reducing the adverse economic impacts of invasive species.
- Biological controls when shown to not have indirect adverse effects are usually preferable to herbicide and insecticide control programs.

Smith et al. (1999) noted what is needed to reduce risk of catastrophic economic losses:

- Enhanced EDRR capabilities
- Vulnerability assessments of suitable habitat using new satellite imagery inventorying methods
- Research on management techniques
- Resolution of approval and permit issues for control programs
- Coordinated state level programs
  - Localized control programs need statewide approach that anticipates hybridizations which can cause immune weeds and insects

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1. Comprehensive information for western states including Oregon about the lag from weed appearance to when it was targeted for biocontrol can be found in the Invaders Database System (Rice 2014).

- There are economies of scale for prevention and control
- State government can overcome free rider problem

The State's IWM is coordinated at the local and federal government level. At the local level, county government will generally have assigned weed management contacts and responsibilities. Special districts can be established in Oregon with taxing authority to pay for control programs. There are cooperative weed management areas (CWMA's) that can have multi-county and intra-county boundaries. They are a partnership of federal, state, and local government agencies, tribes, individuals, and interest groups that manage noxious weeds in defined areas.<sup>1</sup>

In other areas in the U.S., the Partnerships for Regional Invasive Species Management (PRISM) may take the place of CWMA's. PRISM's simply expand the goal of CWMA's across broader defined areas. In Oregon the Oregon Invasive Species Council addresses all invasive species: plants, animals, pathogens, aquatic, and terrestrial. There is more than one state agency in Oregon with staff and programs devoted to control of invasive species. The ODFW is active with projects to control aquatic plants and animal invasive species. The Oregon Department of Forestry (ODF) includes noxious weed management considerations when approving timber management plans. ODF undertakes operations control projects for forest lands they manage. The ODA with oversight on weed classification and control program priorities provided by the Oregon State Weed Board concentrates on all plant species.

Other states and federal government agencies work with ODA via financial incentives (i.e. grant programs), contracts, memorandums of understanding, or regulation. There is less consistency and coordination between state-to-state programs than in intra-state programs (Ederington and Minier 2003). This is despite federal programs being unbiased in financial support of prevention and control programs and through legislation imposed prohibitions on interstate and international trade of plants designated as noxious weeds and products containing noxious weeds.<sup>2</sup> There are several interstate coordinating bodies in the Pacific Northwest, including Pacific Northwest Invasive Plant Council, 100th Meridian Initiative, and the Pacific Northwest Economic Region Invasive Species Working Group.

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1. CWMA partners develop a comprehensive weed management plan for their area. Locally-driven CWMA's are especially effective at generating public interest in weed management and organizing community groups to support on-the-ground programs. There are 27 cooperative weed management areas in Oregon that occupy 85 percent of the land base. The first was formed in 1994. The structure in Oregon varies from small landowner groups focusing on a specific project to multi-agency organizations. There is an Oregon Cooperative Weed Management Association (ORCWMA) whose membership is all of the CWMA's.
  2. The interstate transfer legislation is the Plant Protection Act of 2000 and the Federal Seed Act of 1939. There are many other federal laws and regulations addressing invasive species flora and fauna, including the Noxious Weed Control and Eradication Act of 2004. The federal Executive Order 13112 directs all federal agencies to address invasive species concerns and preparation of a national invasive species management plan.

Table III.1  
Estimated Oregon Noxious Weed Control Costs

Pasture/Range and Forest:

- Chemical - Spot: \$165 per acre; Broadcast: \$65 per acre; Aerial: \$50 per acre
- Manual - \$1,000 per acre
- Mechanical - \$250 per acre
- Biological - \$650 per release or about \$130 per acre

Riparian:

- Chemical - Spot: \$500 per acre; Broadcast: NA
- Manual - \$1,000 per acre
- Biological - \$650 per release or about \$130 per acre

Right-of-Ways:

- Chemical - Spot: \$80 per acre; Broadcast: \$65 per acre
- Mechanical - \$250 per acre
- Manual - \$1,000 per acre
- Biological - \$650 per release or about \$130 per acre

Estuary:

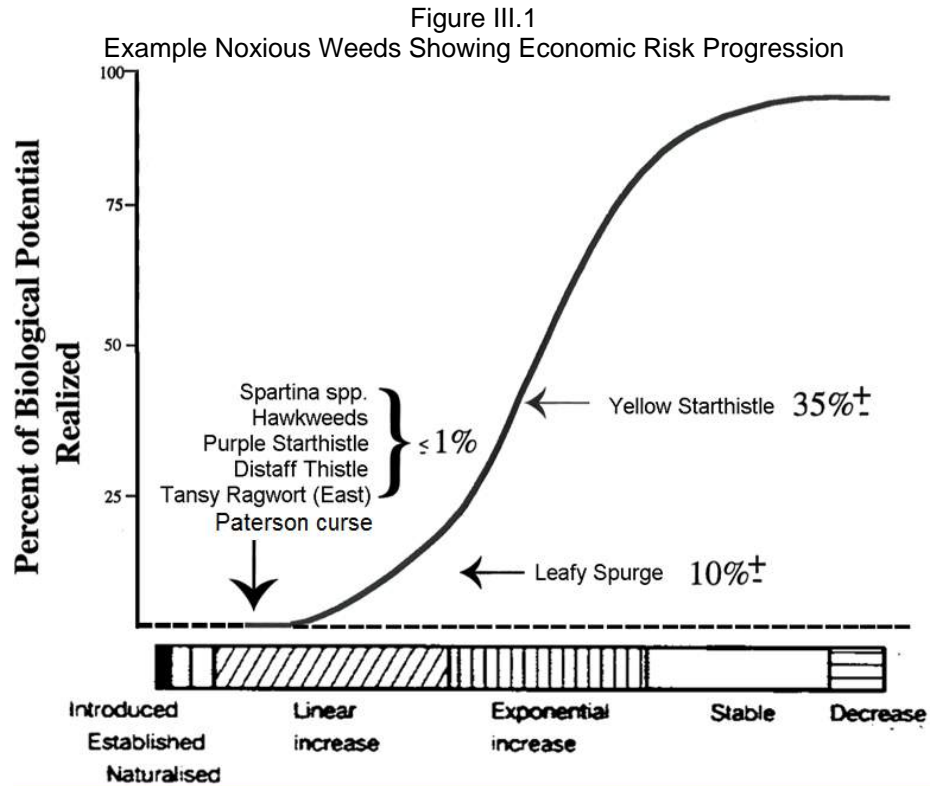
- Chemical - Spot: \$500 per acre; Broadcast: NA
- Manual - \$1,500 per acre

Notes: 1. Estimated average costs based on information from the ODA and cooperators contracting costs. There are many variables that can cause control costs to increase such as terrain and accessibility.

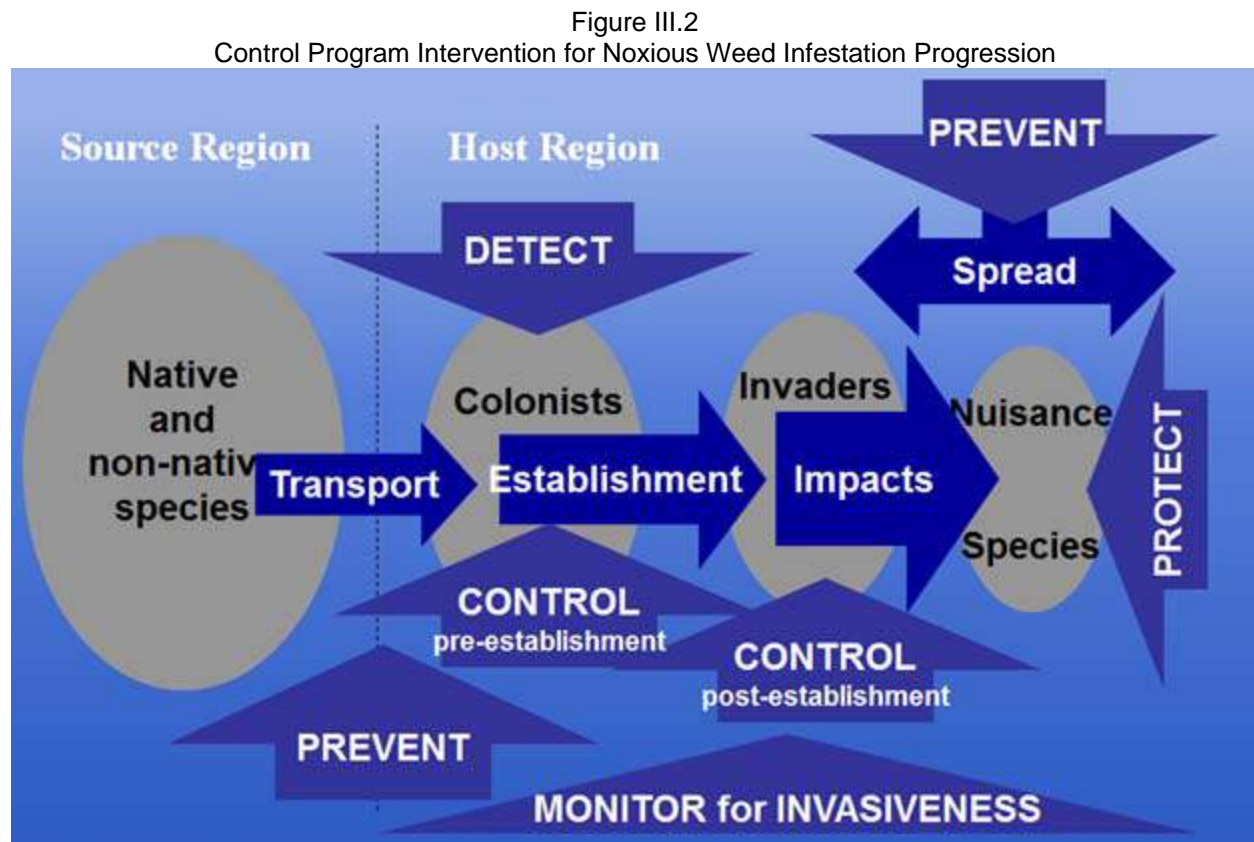
2. There is very little difference in the cost of control between different weed species. The major cost differences are from increases in labor costs due to the type of site and terrain and the method of treatment.

Source: ODA personal communication (April 2014).



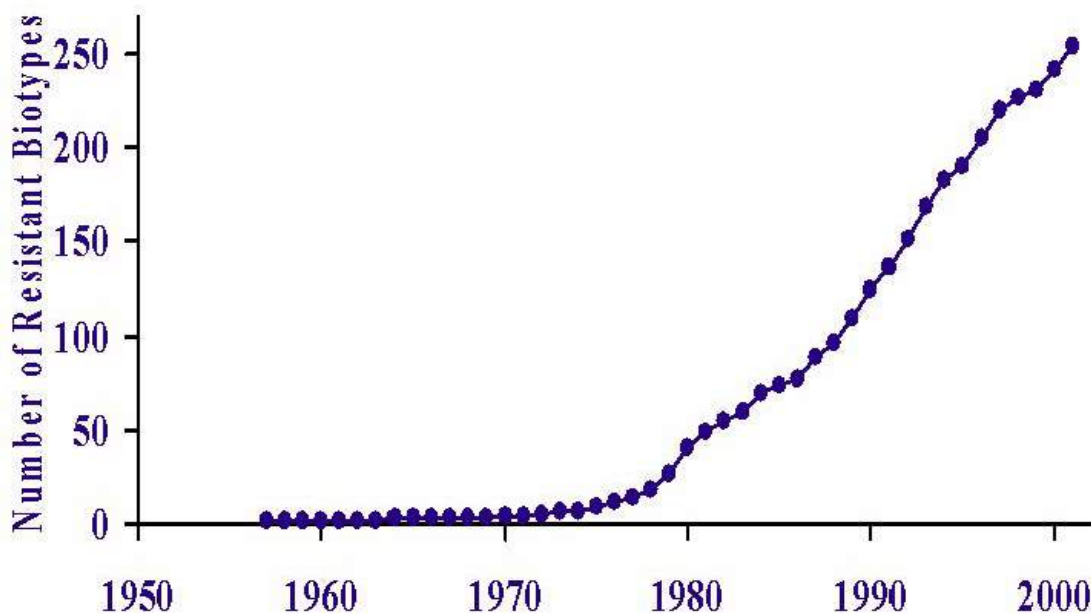


Source: TRG (November 2000).



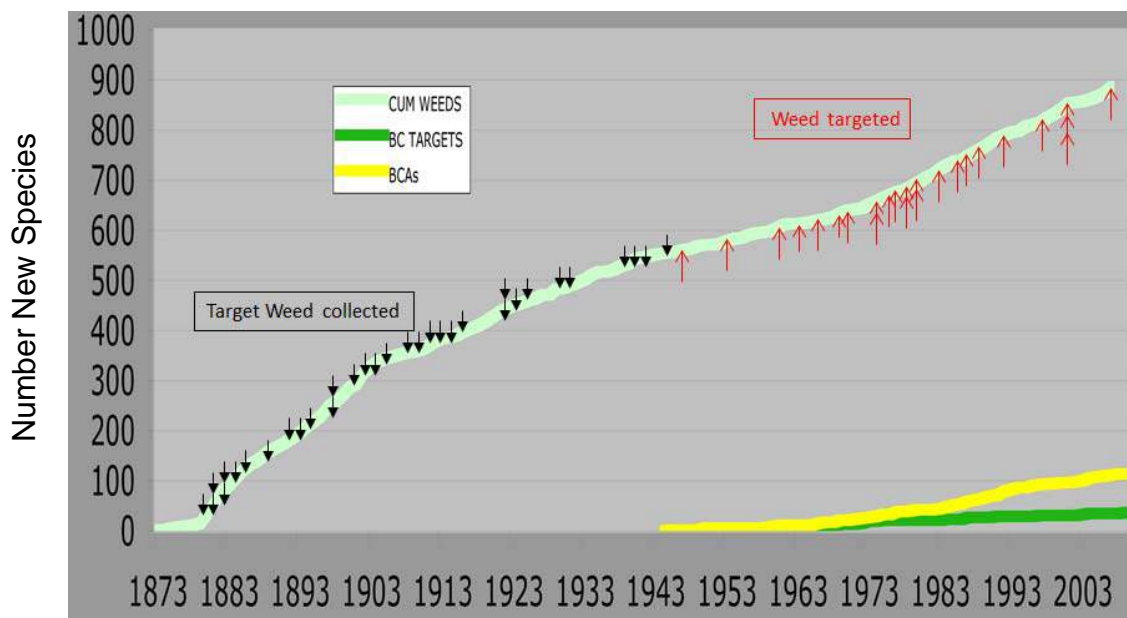
Source: Sytsma (2009).

Figure III.3  
The Chronological Increase in Unique Cases of Herbicide-Resistant Weeds Worldwide



Source: Roush (2013).

Figure III.4  
Weed Identification and Biocontrol Agent Development and Deployment Timeline Through 2007



- Notes:
1. CUM - cumulative; BC - biocontrol; BCA - biocontrol agent.
  2. Timeline shows lag between when weeds are identified and biocontrol agents are developed and deployed.
  3. Compilations are for five western states: Oregon, Idaho, Washington, Montana, and Wyoming.

Source: Rice (2014).

## IV. DISCUSSION

### A. Benefits From Prevention and Control Programs

#### 1. Foregone Economic Activity

This current study updates one of the more comprehensive state level economic analyses of noxious weeds that exists (Duncan et al. 2004). Despite the limited economic analysis methods applied (i.e. no net economic evaluation that would include societal losses) and limited economic activity included (i.e. no water quantity/quality losses), the results are still purposeful for informing decision makers about the scale and range of economic effects from current infestations and how bad it can get if prevention and control programs are not implemented.

Current study results show for the 25 weeds chosen by ODA to be particularly harmful with high risk for additional spreading have \$83.5 million personal income (includes multiplier effect) lost to the State's economy. This is equivalent to about 1,855 jobs. While this impact is overwhelming, it is insignificant if the infestations spread to susceptible areas. The mean estimate in lost personal income would be \$1.8 billion which represents about 41 thousand jobs. This enormous loss of production and diminished recreational activity from the 25 analyzed species can be compared to the total REI for the Oregon commercial forestry sector at \$5.2 billion personal income in 2011 (FSEAT 2012) and the total REI for the Oregon agriculture sector at \$9.8 billion personal income in 2009 (OSUES 2011).<sup>1</sup>

The economic analysis results are from complex methodological calculations that have high uncertainty. A following section in this chapter describes result sensitivities to model parameters using Scotch broom for an example.

#### 2. Control Program

In order to evaluate the economic effectiveness of prevention and control programs, the cost of programs needs to be developed. Such an analysis was performed on the tansy ragwort program.<sup>2</sup> The Oregon tansy ragwort biological control program was evaluated on the basis of "what if the policy makers in 1974 speculated on an 18 year stream of benefits and costs of this program." The evaluation of this control program showed that the State received net economic benefits of about \$13 for every \$1 invested for biological control program (Table IV.1). The prevention program for this type of control program has a benefit to cost ratio of 34 to one. If the threat of tansy ragwort is as real as identified by ODA staff, then it would be prudent for Oregon to invest several times the \$300 thousand amount in these types of control programs.

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1. The OSUES (2011) reports offer an economic impact measurement for jobs (full and part-time) to be 2.2 million (includes the multiplier effect). This calculates to the \$9.8 billion net earnings component of personal income using an Oregon average \$37,660 per all job estimate in 2009 as reported from the U.S. Bureau of Economic Analysis.
  2. Managing noxious plants is a capital investment. Both benefits and costs of weed management occur through time. Because of the time element, economic evaluation requires the use of a BCA that would generate summary statistics like net present value and benefit-cost ratios. Such an analysis adjusts all costs and benefits to current dollars. The annual cost of the Oregon Tansy Ragwort Biological Control Program averaged \$300 thousand during the 1970's (Radtke 1999).

The cost information needed to evaluate other specific species program is not readily available. However, an overview of some ongoing and potential preventive programs may provide information on the returns to the public of these programs.

#### a. Biocontrol Programs

An example of success for a biocontrol program is its use against St. Johnswort, also called Klamath weed or goatweed (Richter 1966). This is an undesirable poisonous weed of foreign origin, which at one time was abundant in many parts of Oregon, before its control by biological means. The plant is unattractive to livestock and crowds out desirable grasses. Cattle feeding on the plant develop a hypersensitivity of the white skin areas to sunlight. Animals feeding on small amounts of the plant have sore mouths and generally fail to gain weight. Spectacular control of St. Johnswort in western Oregon has been achieved since the introduction in 1948 to 1950 of a French, Chrysomelid leaf beetle. It is believed that the success of this program was due to its synchronization with both climate and the growth of its host plant. The adult beetles strip the plants in the spring and early summer when they are beginning to flower, and the larvae feed in the fall and winter, destroying the prostrate growth before the plants can recover from the summer damage.

Evaluation of biocontrol programs has attracted increased attention in research. This is especially evident in such places as New Zealand, which is very susceptible to introduction of foreign and undesirable weeds. Such economic evaluations have recently been completed for Hieracium (crowd out desirable plants) (Grundy 1989a), *Clematis vitalba* or old man's beard (a serious threat to native forests) (Greer and Sheppard 1990), and sweet brier (a noxious weed) (Grundy 1989b). In the case of sweet brier control, the evaluation concluded that an internal rate of return of 17.8 percent could be achieved by a biocontrol program. For gorse in New Zealand, a BCA showed that a high degree of control would result in a ratio of benefits to costs of at least 12:1.7 (Hill 1986). There is promise from biocontrol for Scotch broom using the seed beetle, *B. villosus* (Syrett et al. 1999). The biocontrol of gorse and Scotch broom is especially significant to Oregon agriculture and timber production in that the two weeds have become troubling invaders.

#### b. Calamitous Threat Species

ODA staff has identified five noxious weeds as posing particularly harmful future threats to commercial production and recreation. These are Paterson's curse invading agricultural and rangelands; purple loosestrife invading riparian and wildlands; cordgrass (spartina) invading Oregon estuaries and wetlands; woolly distaff thistle invading rangelands; and tansy ragwort invading pasture and wildlands. The Appendix B case study section describes existing control programs for these species. Foregone benefits of these weeds to the State are estimated to be \$128 thousand current and \$421.9 million susceptible personal income (Table II.3b).

## B. Economic Analysis Model Parameter Sensitivity

Making public policy decisions about noxious weed control programs is sobering because it pertains to the use of public funds, involves many existing interest groups, impacts private property owners, and has long-term effects to the environment. The economic activity models offer point estimates without bounds for what might occur if data and relationships had uncertainty. The infestation susceptible area determinations are offered for +/- one standard deviation of the combined predictive parameters. Other data descriptions and modeling assumptions were stated, but the complex interactions among the natural environment, social and economic, and political systems cannot be perfectly defined. As such, policy decisions informed by economic analysis results rely on the best available information.

This section presents additional information about economic effects if there was a different analytical model specification or more was known about data limitations. In offering this information, it assists decision makers to realize there is a range of possible outcomes with only probabilities that the described effects and implications will occur. While study resources did not allow for a formal analysis of data error propagation and introduction and/or refinement of the model specification, economic results are shown if different values and modeling factors for key variables are changed. Uncertainty and risk analysis is its own discipline and much more research could be undertaken. The National Research Council in 1983 (NRC 1983) and again in 1996 (NRC 1996) describes procedures for how risk assessment and management can have relevance to policy decisions.

Sensitivity tests are made for degradation and infestation area variables. Scotch broom is used as an example for the sensitivity analysis. The threat of Scotch broom infestation damage is enormous in Oregon. The current infestation share of lost economic activity for this species is 47 percent of all analyzed species or \$39.5 million personal income. This rises to \$179.8 million (10 percent of all analyzed species) if the species invades all of the susceptible habitat. Scotch broom affects mainly marginal rangelands and timberlands in western Oregon. Once established, Scotch broom eradication by chemical and/or manual methods is expensive. The \$1,000 per acre (Table III.1) control costs for eradication plus the annual maintenance would exceed expected future production returns from the land. Private land owners may simply decide to not manage the lands for production and divest ownership rather than undertake control programs.<sup>1</sup>

The important economic activity associated with this species is from timber production degradation following invasion. Figure IV.1 shows the incremental change to lost income for forestland susceptible area and timber production degradation. A 42 percent increase in the two factors would about double the lost income over the current study estimate. The uncertainty for the two variables has more than just statistical range interpretation:

- The previous study model used a 50 percent timber production degradation based on investigation of the existing situation in coastal Oregon counties for forestland private land ownership. Timber management in such situation has relatively short rotations and

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1. An example ranch being abandoned in Klamath County due to leafy spurge invasion is described by Marks (1997).

the infestation is on disturbed soils with high weed climate and habitat suitability. The current study model uses a 25 percent degradation factor. The different factor was adopted based on personal communication with ODF (2014) timber management specialists who suggested statewide degradation with longer management rotation would be high at 25 percent. Conifer growth eventually wins out over noxious weeds, especially when the invasive species are at limits of their habitat suitability.

- The habitat suitability model provided susceptible area calculations based on elevation and climate information. Other limiting factors for plant growth, such as soil characteristics, were not a habitat suitability model input. Also, land management was not a habitat suitability model input characteristic. A post habitat suitability model outcome factor for 52.5 percent was applied to the forestry susceptible area calculation based on estimated non-timber management areas provided by OFRI (2013).

There could be higher factual interpretations for the two variables used in the economic assessment model. If the degradation factor was 50 percent and the calculation of susceptible area did not consider land management, then the REI for Scotch broom potential invasion into susceptible areas becomes \$684.2 million. The Scotch broom economic activity model's specification is used to calculate REI for gorse, Armenian blackberry, and knapweeds, so the parameter change would substantially increase the total for all the analyzed species.

A similar sensitivity analysis could be applied for the other analyzed species assumptions and data inputs. Any change in the parameters could create significant bias in the economic analysis results. The high uncertainty in the estimates should be considered when relying on the utility of the results for program or policy decision making.

### C. Program Policy Implications

Noxious weeds are a problem for private landowners and resource managers because they reduce the usefulness of productivity or the land. Loss of productivity may be measured in terms of decreased economic activity as well as increased costs for prevention and control programs. The damages (animal mortality, productivity decreases, loss of environmental quality) can be estimated in terms of economic effects. The problem is assessing who should pay for the prevention and control programs.

Most alien plants now established in the United States were introduced for food, fiber, or ornamental purposes. The rate of introductions and risks associated with invasive species has increased enormously because of human population growth, rapid movement of people, and alteration of the environment (Pimentel et al. 2004).

Scotch broom, as an example introduction for beneficial purposes, was brought into Oregon as an ornamental plant and a stabilizer of beaches. The Siuslaw Oar (1950) reported an event that explains the intentions for the introduction. "This year's supply of Scotch broom seed has been collected locally by the nursery division of the U.S. Conservation Service working out of the Siuslaw Soil Conservation district office. Sixty-five pounds of seed were harvested for eventual

planting in the dunes. Wilbur Ternyik, local nurseryman, explains that the 65 pounds collected is without pods, as with pods it would amount to at least six times this weight. He also laments that he did all collecting; he was unable to hire anyone to do this work for a dollar an hour.

"The planting cycle is planned so that the beach grass shades the young Scotch broom plants, which provide nitrogen and shade for the shore pines. After the shore pines become established, they will choke out the Scotch broom and grass plantings, according to Tom Flippin, farm planner."

The unintended spread of introduced species such as Scotch broom can turn them into undesirable plants in a very short time. The main negative impacts include interference with forest land regeneration, reduced sight distance when it grows on highway right-of-way, interaction with physical and biotic characteristics of the natural landscape, and harm to nursery businesses when its sales are prohibited (Isaacson 2000).

The costs of direct control, such as herbicides, are often substantial, especially in extensive rangeland environments. Concerns about the cost effectiveness of chemical treatment and growing public concern about environmental safety have led to more research and use of insects or microorganisms that adversely affect the unwanted plant. While more emphasis is being placed on biological controls, chemical or manual control in the early stages of invasion may also result in favorable cost effectiveness. Programs for existing noxious weeds that are expensive to eradicate with manual or chemical means and that have no potential biological control agents may not evaluate financially favorable. In such cases education about containment may be the only option.

Noxious weeds have become so thoroughly established and are spreading so rapidly on state and federally-owned lands, as well as private land, that they have been declared by Oregon Revised Statutes Chapter 569 to be a menace to public welfare. Steps leading to eradication, where possible, are necessary. It is further recognized that the responsibility for such eradication and/or intensive control rests not only on the private landowner and operator, but also on the county, state, and federal government.

#### "Weed Control Policy

Therefore, it shall be the policy of the Oregon Department of Agriculture (ODA) to:

1. Rate and classify weeds at the state level.
2. Prevent the establishment and spread of listed noxious weeds.
3. Encourage and implement the control or containment of infestations of listed weed species and, if possible, eradicate them.
4. Develop and manage a biological weed control program.
5. Increase awareness of potential economic losses and other undesirable effects of existing and newly invading noxious weeds, and to act as a resource center for the dissemination of information.
6. Encourage and assist in the organization and operation of noxious weed control programs with government agencies and other weed management entities.

7. Develop partnerships with county weed control officers, universities, and other cooperators in the development of control methods.
8. Conduct statewide noxious weed surveys and weed control efficacy studies.

The previous and current study may be used to educate the public of the seriousness of the noxious weed problem to Oregon's commercial production and recreation potential as well as conservation of natural resources. More detailed information is required in order to evaluate the most cost effective means of a specific species program. Foregone benefits of invaded (or potentially invaded) areas with the cost of specific programs should be evaluated when making management program priority funding decisions. Such an analysis will provide decision makers with comparative information about economic benefits and program costs. A similar approach has been proposed for targeting resource conservation expenditures by Wu et al. (2000) and selecting biological reserves cost-effectively. As Ando et al. (1998) summarizes, "future work should attempt to incorporate the biological and economic consequences of alternative land management to capture more of the important, but complex, reality inherent in conservation decision-making."

The control and spread of noxious weeds are of public concern because of a private market externality problem. The background research and maintenance costs can be prohibitive for any single individual or even single industry. Once control programs have been established, the private businesses will become a free rider to the benefits of the program in the case the weed is deleterious to commercial production. Depending on harm caused by particular weeds, the public will also benefit from control programs through greater recreational use opportunity. In either case, there is a gain in social values from knowing ecosystems are being recovered.



Table IV.1  
Biological Control of Tansy Ragwort in Western Oregon, 1974-1992: Benefit-Cost Evaluation

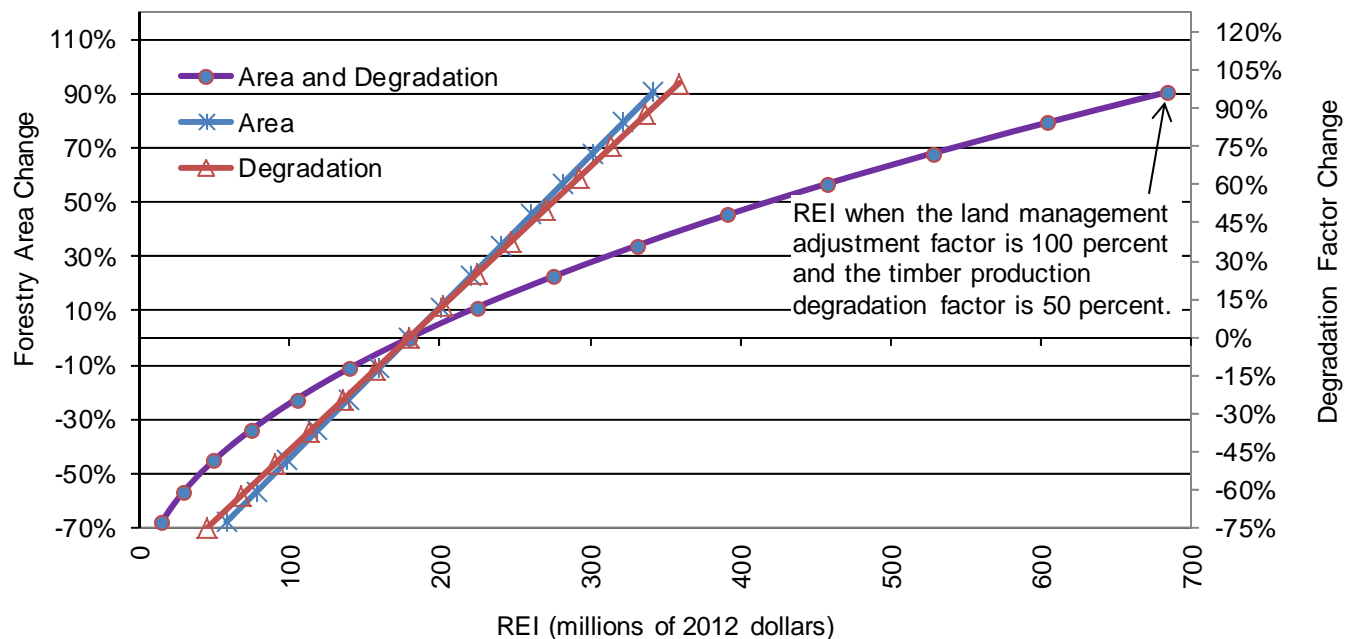
Discount Rate (percent)	Percent Value		
	Program Cost	Benefits	Benefit-Cost Ratio
Seven	\$1.5	\$23.2	15.0:1
Ten	\$1.2	\$16.2	13.0:1

Notes: 1. Values in millions of 1974 dollars.

2. Internal Rate of Return = 83.0%.

Source: Radtke (1993).

Figure IV.1  
Sensitivity of Scotch Broom Regional Economic Impacts to  
Forestry Susceptible Areas and Timber Production Degradation



Notes: 1. REI is measured by personal income and includes the "multiplier effect."

2. The current study assumes the timber production degradation factor is 25 percent and the land management adjustment factor for forestry susceptible areas is 52.5% percent.

3. The y-axis change is the positive and negative percent change of the study assumed timber degradation factor and study assumed forestry land management adjustment factor.

Source: Study.

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## **APPENDIX A**

### **Analyzed Oregon Noxious Weeds Status**

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## Analyzed Oregon Noxious Weeds Status

Noxious Weed Names /1	Rating Class /2	Present Status /3	Estimated Affected Acres in U.S. /6	Species is Native From /4	Management Policy /5	Method of Control /5	Resource and Industry Affected /5	Negative Impacts /7	Potential Future Impacts /7	Beneficial Use /7	Geographic Distribution in Oregon /5
Armenian blackberry (Himalayan) ( <i>Rubus armeniacus</i> )	B	Found throughout the U.S.	No estimate	Central Asia	Containment	Chemical, mechanical, biological control	Agricultural, urban, riparian, pasture, forestry	Ecosystem domination due to fast expansion rate by caning, and seed dispersal by birds. Removal is expensive and energy intensive.	Continued expansion into most of Oregon's temperate landscape, where its presence results in competition with native plants and agriculture	Produces consumable fruit	Established widely in western Oregon, expanding into NE Oregon. Interruption of agricultural and ecological systems if not removed quickly. Total domination of sites possible. Outcompetes native vegetation along anadromous fish bearing waterways.
(15) Cordgrass* ( <i>Spartina spp.</i> )	A, T	Expanding in the Pacific Northwest in Washington and California	No estimate	East Coast North America	Eradication	Chemical and manual	Estuarine areas; shellfish production	Ecosystem alteration/habitat modification (mudflat to salt marsh). Impacts to shore and to migratory birds, fish crustaceans and mollusks.	In Washington infestations have grown from 4.5 acres in 1945 to 3,600 acres in 1999. Washington spends \$1 million per year for control.	Used in coarse paper production.	One site in Siuslaw estuary eradicated. Monitoring and detection efforts in other Oregon estuaries.
Dalmatian toadflax ( <i>Linaria dalmatica</i> )	B	Found throughout the U.S.	844	Western Asia	Containment, local eradication	Chemical, biological control	Range, urban, riparian, wildlands	Dalmatian toadflax most successfully invades areas of cultivation and/or soil disturbance in dry climates where competition from other perennial plants is reduced.	Potential future impact into disturbed rangelands where competition is largely reduced. Successful biological control has reduced large scale infestations across state.	None	Established mainly in central and eastern Oregon, with spotty infestations on the west side of the Cascades.
Giant hogweed ( <i>Heracleum mantegazzianum</i> )	A, T	Oregon, Washington, and eastern U.S. states.	No estimate	Southwest Asia	Eradication	Biological control	Urban	Threat to human health due to toxic sap. Readily invades riparian habitat and can ecological dominate said systems with high seed production rates.	Movement throughout urban areas poses a growing threat to human health. Active management has limited this spread.	None	Established mainly in the Portland metro area with scattered infestations on the Oregon Coast. Limitations to access of recreational areas, and if left to expand, limiting areas for fishing.
(6) Gorse ( <i>Ulex europaeus</i> )	B, T	Isolated in Pacific Coast	No estimate	Europe	Biocontrol and containment.	Biocontrol, chemical, manual	Urban, pasture, forestry, wildlife and recreation	Highly competitive shrub. Limits access; forestry production, pasture and habitat degradation; right of way maintenance/access; and recreation. Is a fire hazard. May close access to recreation at coastal parks.	Once established the economics of control are questionable	None known.	Concentrated in Coos, Curry, Douglas, and Lane Counties. Small infestation in Clackamas, Tillamook, Clatsop, Lincoln, and Columbia Counties.
Japanese knotweed ( <i>Polygonum cuspidatum</i> )	B	Found throughout the U.S.	No estimate	Asia	Containment, local eradication	Chemical and manual	Urban, riparian	Plants grow vigorously along roadsides, waste areas, streams and ditch banks and create dense colonies that exclude native vegetation and greatly alter natural tree regeneration. Established populations are extremely persistent and do not respond to mowing/cutting.	Riparian areas across the state are susceptible to this plant.	None	Heavy infestations occur in northwestern Oregon, but scattered infestations are present in most of the counties of the State. Large infestations can be eliminated with approved herbicides, but treatments are costly and time consuming. Reduction of native plant cover can impact salmonid species and reduce fishing access.

Noxious Weed Names /1	Rating Class	Present Status	Estimated Affected Acres in U.S.	Species is Native From	Management Policy	Method of Control	Resource and Industry Affected	Negative Impacts	Potential Future Impacts	Beneficial Use	Geographic Distribution in Oregon
	/2	/3	/6	/4	/5	/5	/5	/7	/7	/7	/5
Kudzu ( <i>Pueraria lobata</i> )	A, T	Oregon, Washington, central and eastern U.S. states.	7 million	Asia	Eradication	Chemical and manual	Urban	Kudzu kills or degrades native and desirable plants by smothering them under a solid blanket of leaves, by girdling woody stems and tree trunks, and by the sheer force of its weight breaking branches or uprooting entire trees and shrubs. Trees covered by kudzu become damaged by its weight during ice events or die from insufficient light.	Kudzu grows best where winters are mild, summer temperature are above 80 degrees and annual rainfall is 40 inches or more, thus much of the western portion of the State is at risk.	None	One small infestation in Portland remains. Once established kudzu grows at a rapid rate extending as much as 60 feet per season at a rate of about one foot per day, thus urban and forestry areas impacted would see large control costs.
(7) Leafy spurge ( <i>Euphorbia esula</i> )	B, T	Western U.S.	3 million	Europe and Asia	Biocontrol and containment.	Biocontrol, chemical, manual, cultural (sheep and goats)	Rangeland, riparian, pasture, wildlife	Riparian degradation, range degradation and livestock health problems. Displaces desirable species. Cattle will not graze in 10% infected areas.	Has expanded to almost 2 million acres in Montana, North and South Dakota. From 1950 to 2000 it increased 20 fold. An additional 3.6 million acres could be affected.	Leafy spurge has been shown to provide some forage for sheep and goats.	Small scattered sites in central and eastern Oregon. Few sites in Jackson County.
(14) Hawkweeds Orange hawkweed ( <i>Hieracium aurantiacum</i> )  Yellow hawkweed ( <i>Hieracium floribundum</i> )	A, T	Expanding in the Pacific Northwest	No estimate	Europe	Eradication	Chemical and manual	Urban, riparian, wildlife	Highly competitive in natural meadows, pasture, hay, range, forest openings. Expands rapidly.	Hawkweeds have quickly spread throughout the U.S. since their arrival 30 years ago. An additional 1.5 million acres in Oregon could be affected.	Livestock, deer, and elk consume hawkweed foliage and bulbs at certain times of the year.	Two sites, Clackamas and Wallawa Counties.
(12) Mediterranean sage ( <i>Salvia aethiopis</i> )	B	Expanding in western states	1.3 million	Northern and Eastern Mediterranean Area	Limited biocontrol/ control	Biocontrol, chemical, manual	Rangeland	Reduces forage production on rangeland and pasture. Unpalatable to grazing animals.	Potential for additional spread in Eastern Oregon.	None known.	Eastern Oregon
Paterson's curse* ( <i>Echium plantagium</i> )	A, T	Oregon, California, and some eastern U.S. states	No estimate	Europe	Eradication	Chemical and manual	Agriculture, rangeland	Paterson's curse is poisonous to grazing animals and a threat to natural areas. Paterson's curse is a prolific seed producer enabling rapid spread and displacement of pasture, range and desirable plants.	It is a threat to native habitat with the potential to invade oak woodland, native prairie, and dry upland slopes. The plant contains pyrrolizidine alkaloids that cause chronic liver damage and death to susceptible animals.	None	Infestations occur in Linn and Douglas Counties.
(10) White top and perennial pepperweed ( <i>Cardaria draba</i> and <i>Lepidium latifolium</i> )	B, T (p.p. only)	Expanding in the West	No estimate	Asia	Containment/ control	Chemical and manual	Ag., range, pasture (white top); range, riparian, pasture (p. pepperweed)	Highly competitive, displaces desirable species, pasture, competes for moisture, may be toxic to livestock.	Potential for additional impacts to pasture and wildlife. Potential invader in croplands.	Provide nectar for honeybees	Small infestations found throughout central and eastern Oregon
(9) Purple loosestrife* ( <i>Lythrum salicaria</i> )	B	Found throughout the U.S.	No estimate	Europe	Biocontrol and containment.	Biocontrol, chemical, manual	Recreation areas, riparian wetland; wildlife	Wetland degradation. Decreases water quality and stream flow. Reduces waterfowl habitat.	Currently at 10% of potential in Oregon.	Nectar for bees. Is an ornamental.	Small infestations found through the state.
(13) Purple starthistle ( <i>Centaurea calcitrapa</i> )	A, T	Expanding in the West, especially in California	No estimate	Mediterranean area	Eradication	Chemical and manual	Rangeland	Limits access, degrades pasture, displaces desirable species. Animal injury from spines. Deters grazing by livestock and wildlife.	Existing economic problem is minimum. Potential problem is similar to yellow starthistle. An additional 2 million acres in Oregon could be affected.	None known.	One site in Clackamas County declining under eradication program. One site eradicated in Sherman County in 1991.

Noxious Weed Names /1	Rating Class	Present Status	Estimated Affected Acres in U.S.	Species is Native From	Management Policy	Method of Control	Resource and Industry Affected	Negative Impacts	Potential Future Impacts	Beneficial Use	Geographic Distribution in Oregon
(8) Rush skeletonweed ( <i>Chondrilla juncea</i> )	B, T	Expanding in the West	6.2 million	Asia and Mediterranean Region	Biocontrol	Biocontrol, chemical, manual	Agriculture, rangeland	Reduces wheat production. Range degradation. Reduces foliage available for livestock and wildlife.	Currently at only 10% to 20% of potential in Oregon.	Is palatable and nutritious for sheep. Source of pollen for honeybees. Natural overall for wildlife.	Southwestern Columbia Basin and northeastern Oregon.
(4) Scotch broom ( <i>Cytisus scoparius</i> )	B	Pacific Coast		Europe	Biocontrol	Biocontrol, chemical, manual	Urban, forestry	Highly competitive shrub. Limits access; forestry production, pasture and habitat degradation. Right of way maintenance problems.	Once established the economics of control are questionable. Central and eastern Oregon forests are at risk.	Used as an attractive nursery crop and stabilizes sand dune areas.	Western Oregon; limited to a few sites in central and eastern Oregon.
(11) Scotch thistle ( <i>Onopordum acanthium</i> )	B	Western U.S.	No estimate	Europe and Asia	Containment/control	Chemical and manual	Rangeland, urban	Competes with and decreases desirable forage. Sharp spines deter livestock and wildlife from grazing.	Potential for wider distribution in the state.	None known.	Eastern and central Oregon.
(1) Tansy ragwort* ( <i>Senecio jacobaea</i> )	B, T	Pacific Northwest	3 million	Europe and Asia	Biocontrol in western Oregon and eradication in eastern Oregon	Biocontrol, chemical, manual	Pasture and wildlife	Livestock injury (liver damage); rangeland and habitat degradation; and displacement of desirable species	Potential to spread in eastern Oregon.	None known.	Widespread in western Oregon. Limited in eastern Oregon.
(3) Woolly distaff thistle* ( <i>Carthamus lanatus</i> )	A, T	California	No estimate	Mediterranean area.	Eradication and containment	Chemical, manual	Rangeland	Limits access, degrades pasture; displaces desirable species; animal injury from spines deters grazing and access by livestock and wildlife.	Existing economic problem is minimal. Potential problem may be similar to yellow starthistle. Currently less than 1% of potential spread in Oregon. An additional 2.5 million acres in Oregon could be affected.	None known.	Southern Oregon (Douglas and Josephine Counties)
(2) Yellow starthistle ( <i>Centaurea solstitialis</i> )	B	Western states	8 million	Mediterranean Region of Europe	Biocontrol and containment	Biocontrol, chemical, manual	Rangeland, urban, pasture	Livestock injury (chewing disease) especially horses; range and habitat degradation; and displacement of desirable species.	Potential to spread in southeast Oregon. Currently at 40% of biological potential. This could affect 2.5 million additional acres in Oregon.	Some forage for cattle and sheep in pre-spring stage. Nectar for honey bees.	Widespread in southern Oregon (Douglas, Josephine, and Jackson) and northeast Oregon (Morrow and Umatilla). Some sites in eastern Oregon and the Willamette Valley.
(5) Knapweeds Diffuse knapweed ( <i>Centaurea diffusa</i> )	B	U.S.	8 million	Mediterranean Region of Europe and Africa, Central Europe and Asia	Biocontrol and control/containment.	Biocontrol, chemical, manual	Rangeland, urban, pasture, wildlife and recreation	Highly competitive for range and wildlife forage. Is a road and right of way invader.	Squarrose at less than 1% of potential in Oregon. All have potential for additional expansion in Oregon.	Forage for deer and bighorn sheep. Nectar and pollen for bees. Some grazing for cattle and sheep.	Squarrose is limited to one site in Grant County. Spotted, diffuse, and Russian limited distribution in western Oregon and are widely distributed in central and eastern Oregon.
Spotted knapweed ( <i>Centaurea maculosa</i> )	B, T				Squarrose: eradication and containment						
Russian knapweed ( <i>Centaurea repens</i> )	B										
Squarrose knapweed ( <i>Centaurea virgata</i> )	A, T										

- Notes:
1. The weeds identified with numbers in parentheses are the 15 for which unique economic models are developed. The weeds identified with an asterisk have case study descriptions in Appendix B.
  2. Refer to "Noxious Weed Policy and Classification System" Oregon Department of Agriculture - Noxious Weed Control Program. 2014. Noxious Weed Control Rating System.
  3. Council for Agricultural Science and Technology. Invasive Plant Species. Issue Paper Number 13. February 2000. <http://www.cast-science.org/download.cfm?PublicationID=2864&File=f030a5f2afb66480223c4b233e6767307816>
  4. Various sources that include monographs and specialized weed publications.
  5. ODA staff.
  6. Various articles in "Biology and Management of Noxious Rangeland Weeds." Edited by Roger L. Sheley and Janet K. Petroff. Oregon State University Press. Corvallis, Oregon. 1999.
  - Westbrooks, R. Invasive plants, changing the landscape of America: Fact book. Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW), Washington, D.C. 109 pp. 1998. [http://www.weedcenter.org/resource\\_guide/Invasive%20Plants%20Factbook.pdf](http://www.weedcenter.org/resource_guide/Invasive%20Plants%20Factbook.pdf)
  7. ODA staff and various Oregon State University Extension publications.

Source: Study.

## **APPENDIX B**

### **Analyzed Noxious Weeds Profiles and Case Studies**

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## **Analyzed Species Profiles**

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## Armenian Blackberry, *Rubus armeniacus*

### Description

Perennial; blooms June to August. Root buds produce trailing reddish stems with sharp spines that can grow more than 20 feet per season. Leaves alternate, palmate and compound with serrate margins. Flowers five pedaled, white to light pink. Fruits aggregate.

### Impacts

Armenian blackberry (another common name is Himalayan blackberry) is the most widespread and economically disruptive of all the noxious weeds in western Oregon. It aggressively displaces native plant species, dominates most riparian habitats, and has a significant economic impact on right-of-way

maintenance, agriculture, park maintenance and forest production. It is a significant cost in riparian restoration projects and physically inhibits access to recreational activities. It

reproduces at cane apices (tips)

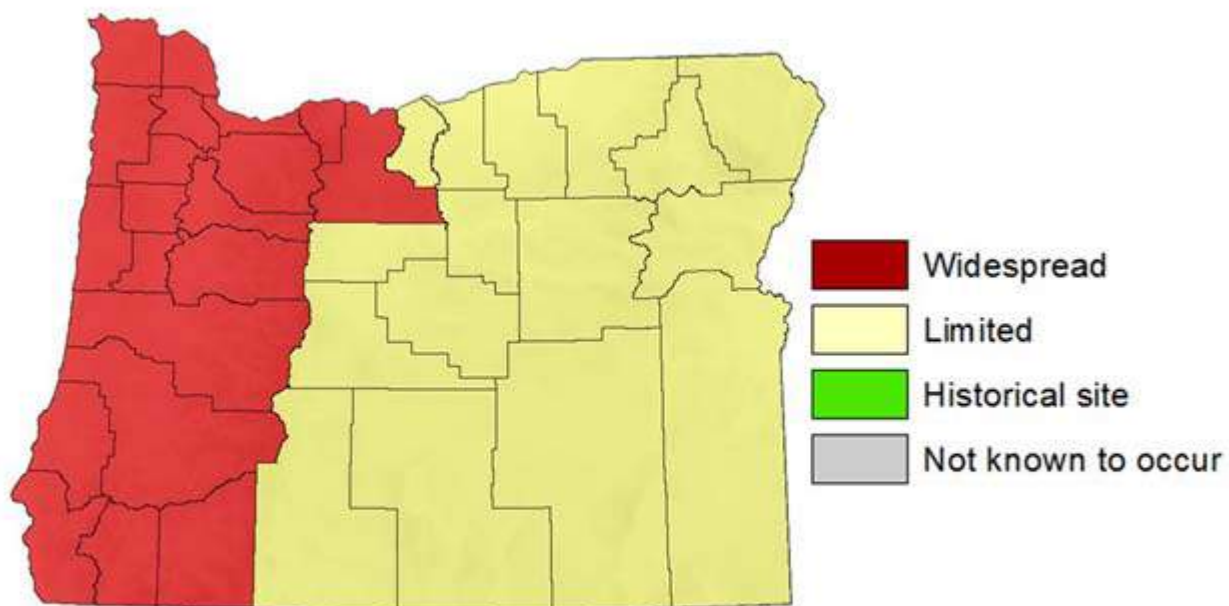
and by seeds, which are carried by birds and animals. This strategy allows it to expand across a landscape or to jump great distances and create new infestations. Any control strategy can be considered short-lived unless projects are planned and funded for the long-term.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
1,638,000	\$40,133,000	10,106,000	\$268,382,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Armenian blackberry was first noted in Oregon in 1922 in Marion County.

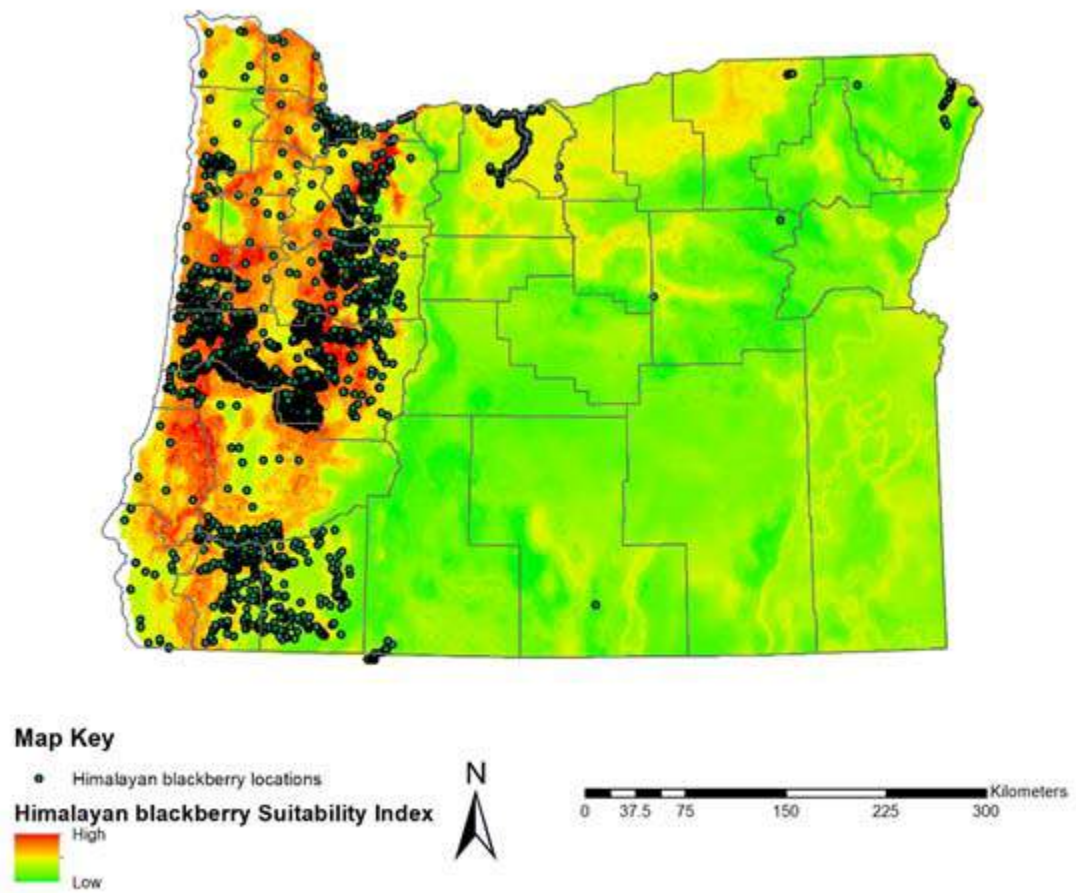
## Current Status in Oregon



2014 Armenian Blackberry



## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Diffuse knapweed, *Centaurea diffusa*

### Description

Biennial; plant forms rosettes in first year, bolts and flowers the next year midsummer to fall. Grows to 3 feet tall. The species is single-stemmed plant with numerous lateral branches and can be quite robust in better soils. Flowers generally white to rose, rarely purplish. Flower heads slender with pointed, fringed bracts. Reproduction is by seed, dispersed by the tumbling of windblown mature plants and by adhering to the fur of animals. Moving water is also a major dispersal agent.

### Impacts

Diffuse knapweed will form dense stands on any open ground, excluding more desirable forage species. Once established, the necessary extensive control measures are often more expensive than the income potential of the land. Grows under a wide range

of conditions, such as riparian areas, sandy river shores, gravel banks, rock outcrops, rangelands and roadsides. There are possible health hazards from absorbing plant juice through bare hand

pulling of plants. It is recommended that gloves are worn while handling plants. Mature plants are scratchy and are host to mites that bite and irritate skin.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
275,000	\$36,000	16,191,000	\$1,379,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

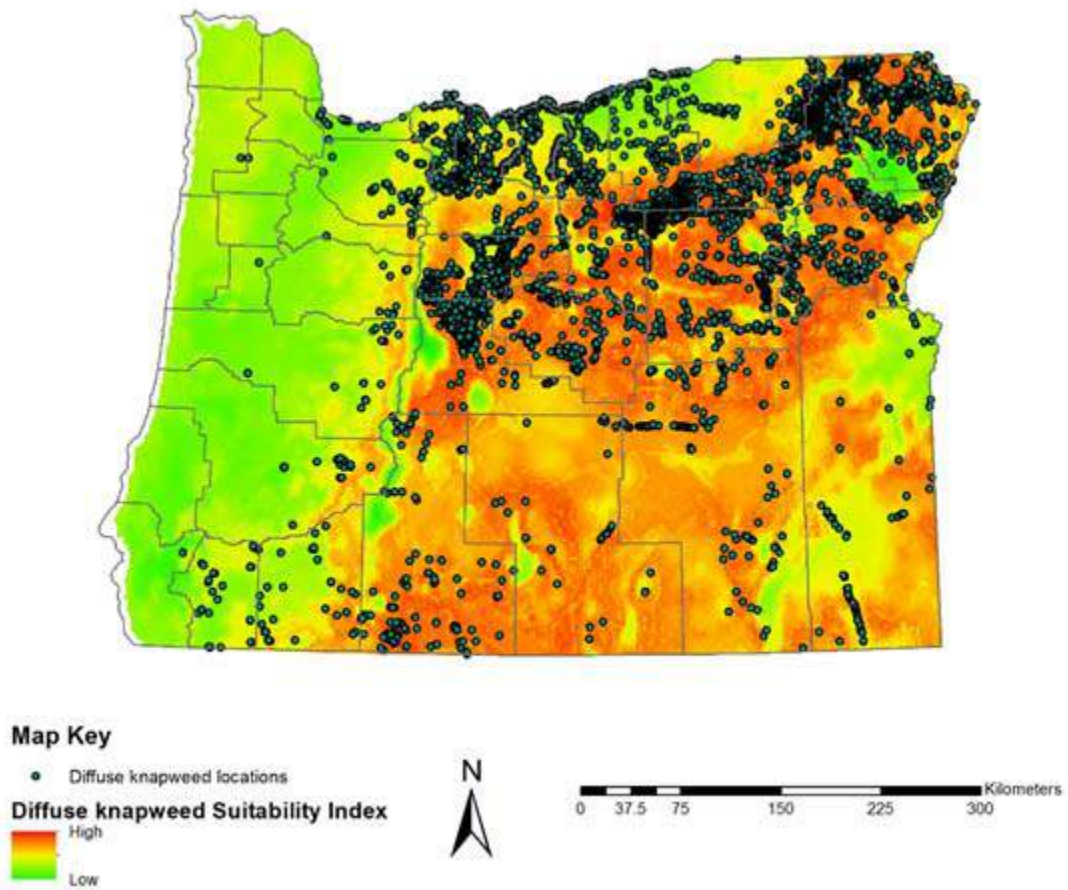
Diffuse knapweed is a member of a large genus of over 400 species, most originating in the Mediterranean region. Diffuse knapweed was first introduced to the Pacific Northwest at the turn of the century as a contaminant in alfalfa seed imported from Turkestan, Turkmenistan or hybrid alfalfa seed from Germany. Diffuse knapweed is a common rangeland invader in every western state in the U.S.

## Current Status in Oregon





## Predicted Suitability Zone and Currently Known Infestations



## Photos





## Giant hogweed, *Heracleum mantegazzianum*

### Description

Perennial; flowers May-July. Grows 10-15 feet tall. Stalk and flower head develop after two to four years, then the plant dies back. Stalks are two to four inches in diameter, hollow, have reddish-purple blotches and pustules with a single erect hair in the center. Flower head is a large umbrella-like inflorescence up to two and one half feet in diameter. Leaves are three to five feet wide, compound and deeply incised. This plant closely resembles native cow parsnip which rarely exceeds six feet with a flower head 8-12 inches wide. Cow parsnip is a common native plant in the northwest and grows in riparian areas and roadsides. Giant hogweed is a member of the carrot or parsley family and its most impressive characteristic is its massive size.

### Impacts

This plant is a health hazard to humans. Because of its invasive nature it soon becomes a pest within the garden and readily escapes. It has naturalized in many of the places where it was introduced, and is one of the most invasive weeds in Europe. This plant is a public health hazard.

Do not expose bare human skin to the plant or breathe the smoke from fires if it is being burned.

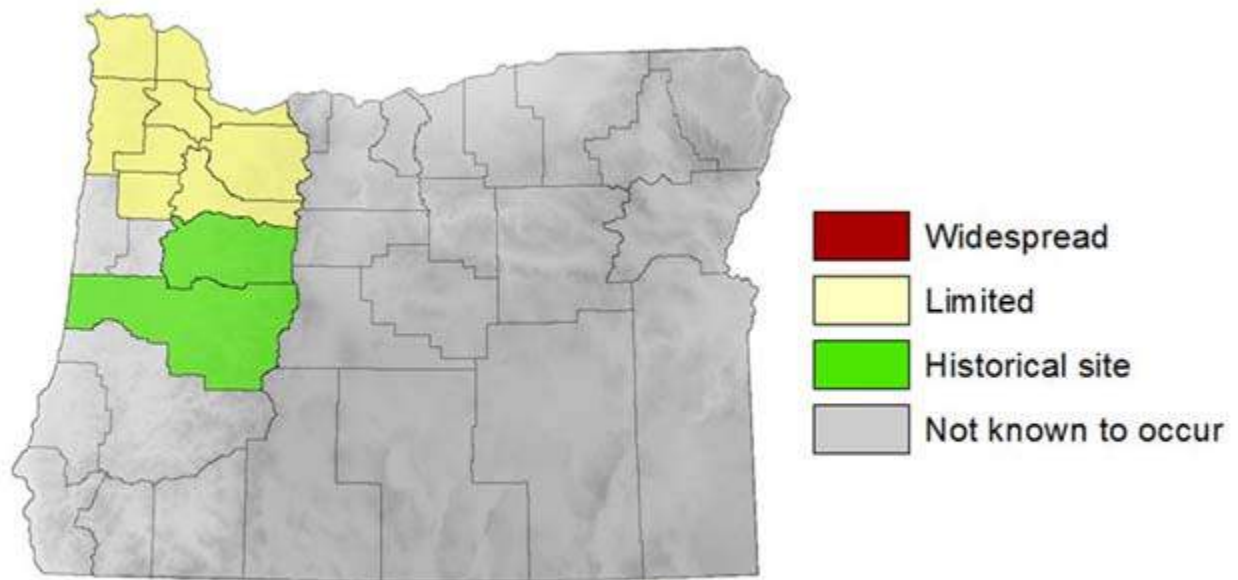
The plant exudes a clear watery sap which sensitizes the skin to ultraviolet radiation. Humans often develop severe burns to the affected areas resulting in blistering and painful dermatitis. Blisters can later develop into purplish or blackened scars.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	<\$500	2,077,000	\$1,071,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Giant hogweed grows as a native in the Caucasus Mountains, a region of Asia between the Black and Caspian seas. Planted as a curiosity in arboretums and private gardens in Europe and North America early in the twentieth century, it soon escaped and naturalized in surrounding areas, especially riparian and urban sites. It is reported to be a problem weed in Europe, England, Scotland, Scandinavia and Germany. In North America it grows in Ontario, British Columbia, Maine, Maryland, New York, Washington and now in Oregon.

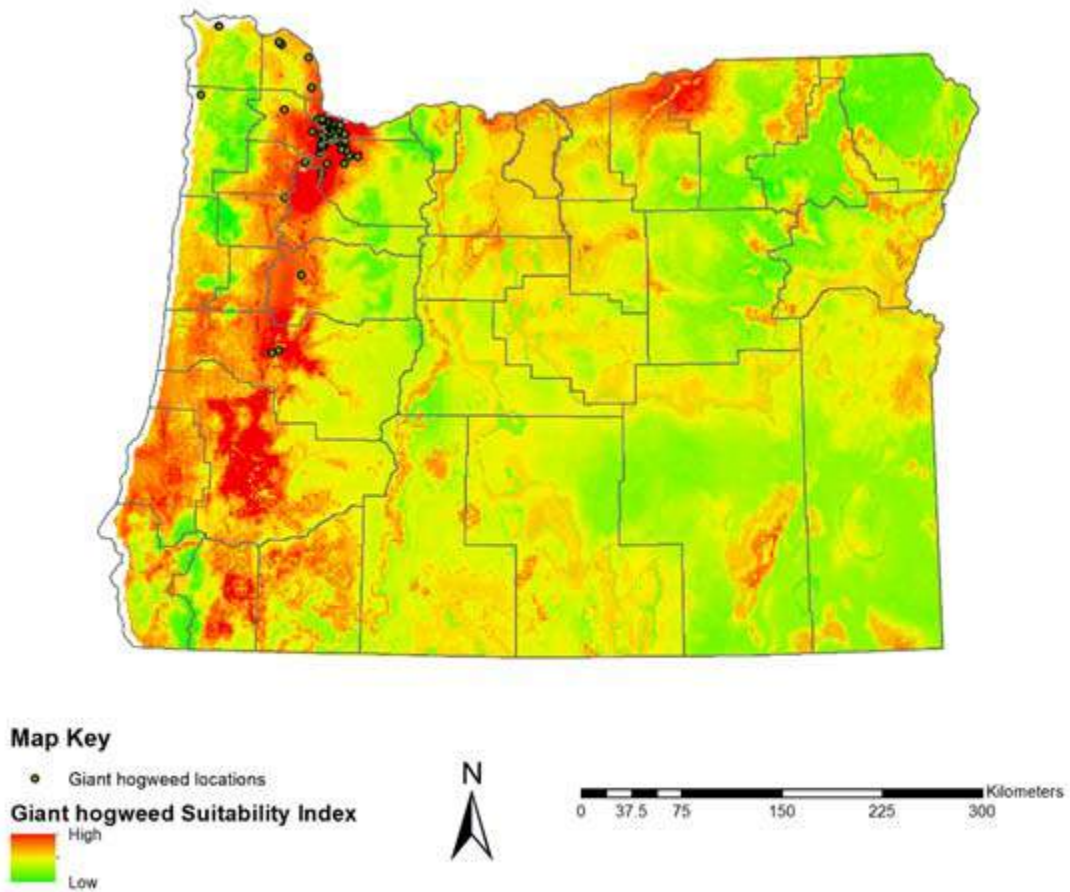
## Current Status in Oregon



2014 Giant hogweed



## Predicted Suitability Zone and Currently Known Infestations



## References For More Information



## Gorse, *Ulex europaeus*

### Description

Perennial, spiny evergreen shrub which blooms March to May. Growing from one to nine feet tall, the stiff, spiny, much-branched shrub forms dense thickets. Branches are dark green, spine-tipped, with clusters of orange-yellow pea-like flowers near the ends. Fruit are more or less covered by long white hairs (Gilkey 1957).

### Impacts

Gorse is a persistent, spinney, pioneer species adapted to a wide range of environmental conditions. Plant growth and stand density increase at a rapid rate, crowding out native and cultivated plants, impacting forest production, inhabiting parklands and pastures, and rendering infested land unusable (ODA 2013, ISSG 2010). Control costs are high and re-infestation is a constant threat. Gorse stands develop a long-lived persistent seed bank requiring long-term management of established sites. High levels of natural oils in the spines make this plant highly flammable and an extreme fire hazard.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
28,000	\$441,000	16,580,000	\$205,576,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

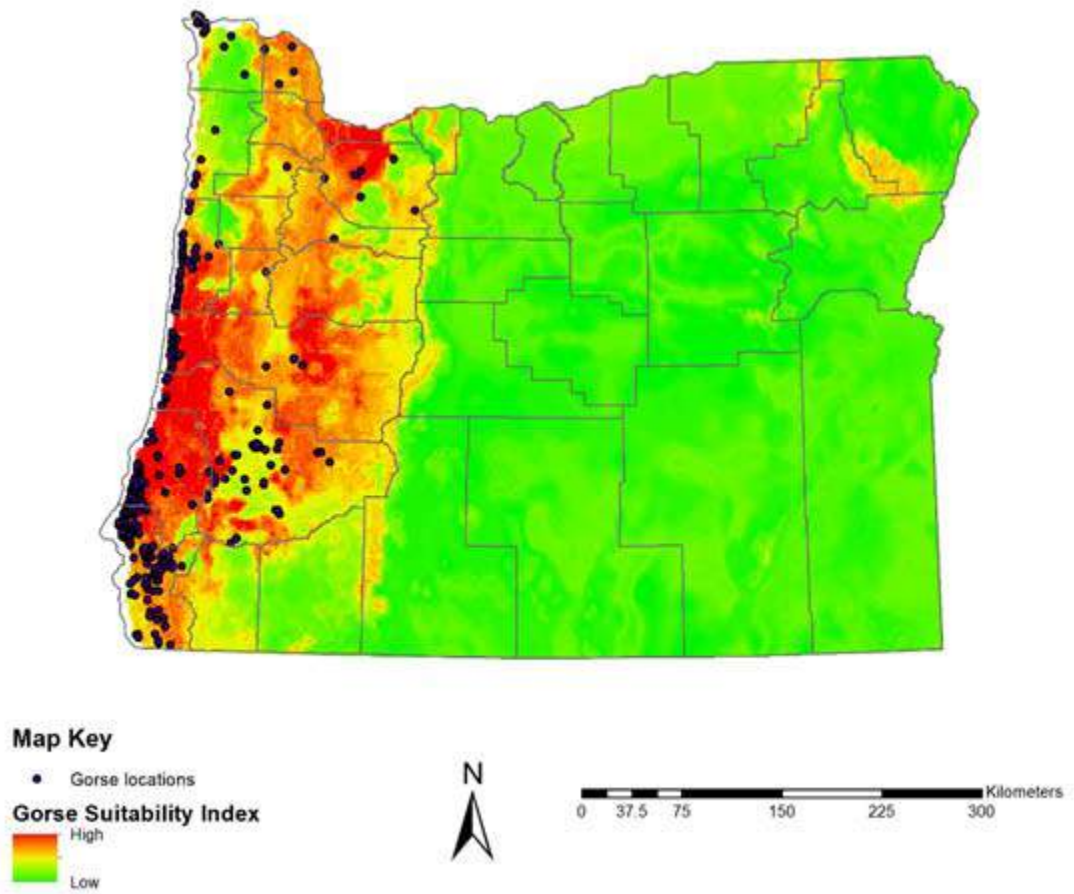
Gorse is a native of Europe, and was originally brought to the United States as an ornamental shrub. Like many invasive species, gorse escaped these cultivated areas and invaded in all three western states of California, Oregon, Washington and the Province of British Columbia. The plant is also a problem species in Eastern seaboard states (USDA 2013).

## Current Status in Oregon





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Orange hawkweed, *Hieracium aurantiacum*

## Meadow hawkweed, *Hieracium pratense*

### Description

Orange hawkweed is a perennial weed with above-ground runners (stolons) that root at the tips. Roots are shallow and fibrous. The plant grows up to 12 inches tall and contains milky juice. The vibrant orange-red colored flowers are clustered at the top of a leafless stem. Stiff, black, glandular hairs cover flower stalks. Leaves are hairy, lance shaped, up to five inches long, and exclusively basal.

Meadow hawkweed has stems and leaves that exudes milky juice when broken. The stems are bristly and usually leafless, although occasionally a small leaf appears near the midpoint. Stems can reach three feet tall and bear up to 30 half inch flower heads near the top. Flowers are yellow and appears in May - July depending on elevation.

### Impacts

Plants of the hawkweed complex produce mats of rosettes preventing desirable plants from establishing or surviving. Hawkweeds dominate sites by outcompeting other species for water and nutrients and by releasing alleopathic compounds from their own decaying leaves. Plants grow well in moist grassy areas but do not tolerate shade well.

Hawkweeds are becoming troublesome in native meadows, prairies, pastures and lawns.

Wilderness areas in the Pacific Northwest are at risk of invasion.

Hawkweed tends to grow in places where there isn't constant grazing such as meadows, roadsides, pastures, lawns, and fields.

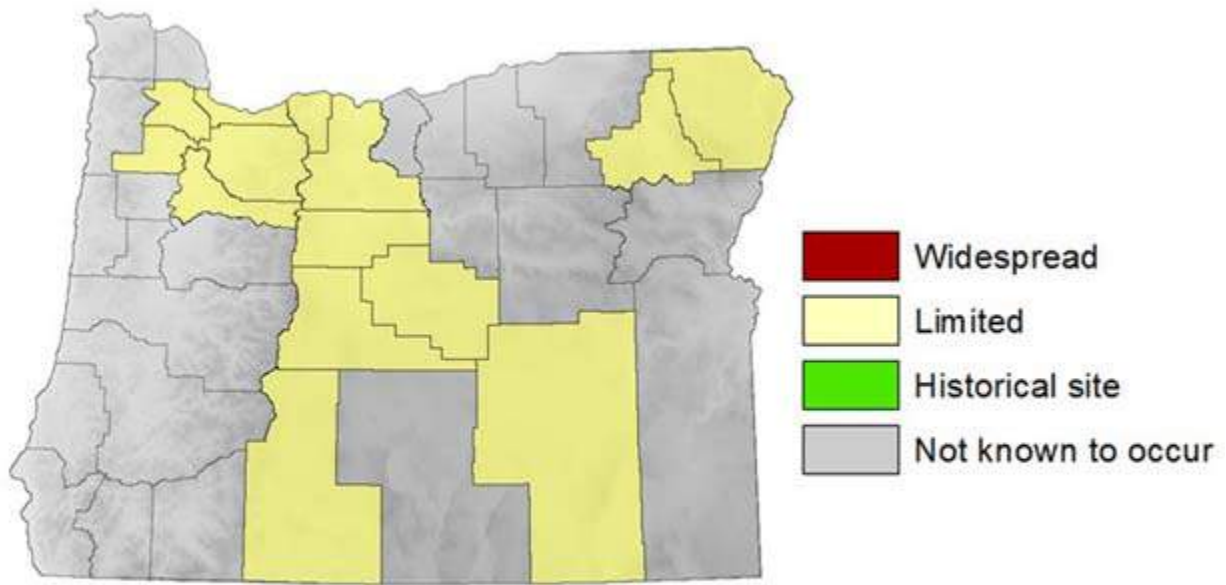
Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
1,000	\$1,000	17,888,000	\$18,448,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Orange hawkweed is found from western Washington to Wyoming and is known to occur in eastern states. Due to its striking flowers, plant enthusiasts have assisted in the distribution of this weed. Meadow hawkweed is known to occur in Wallowa, Hood River and Clackamas counties but has potential to occur in other counties in Oregon.

## Current Status in Oregon

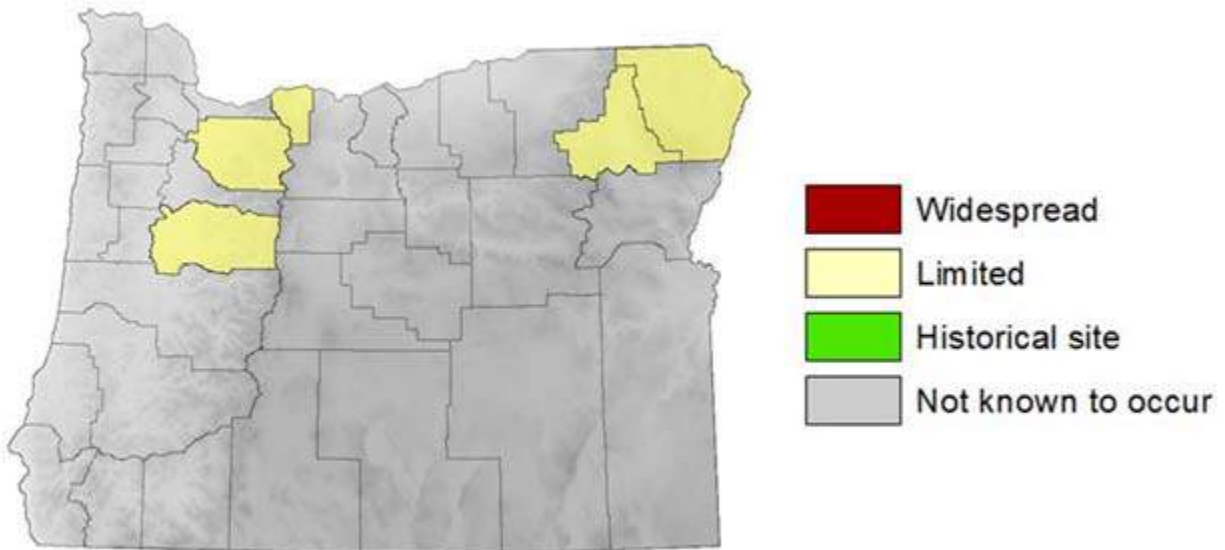
### Orange hawkweed



2014 Orange hawkweed



### Meadow hawkweed

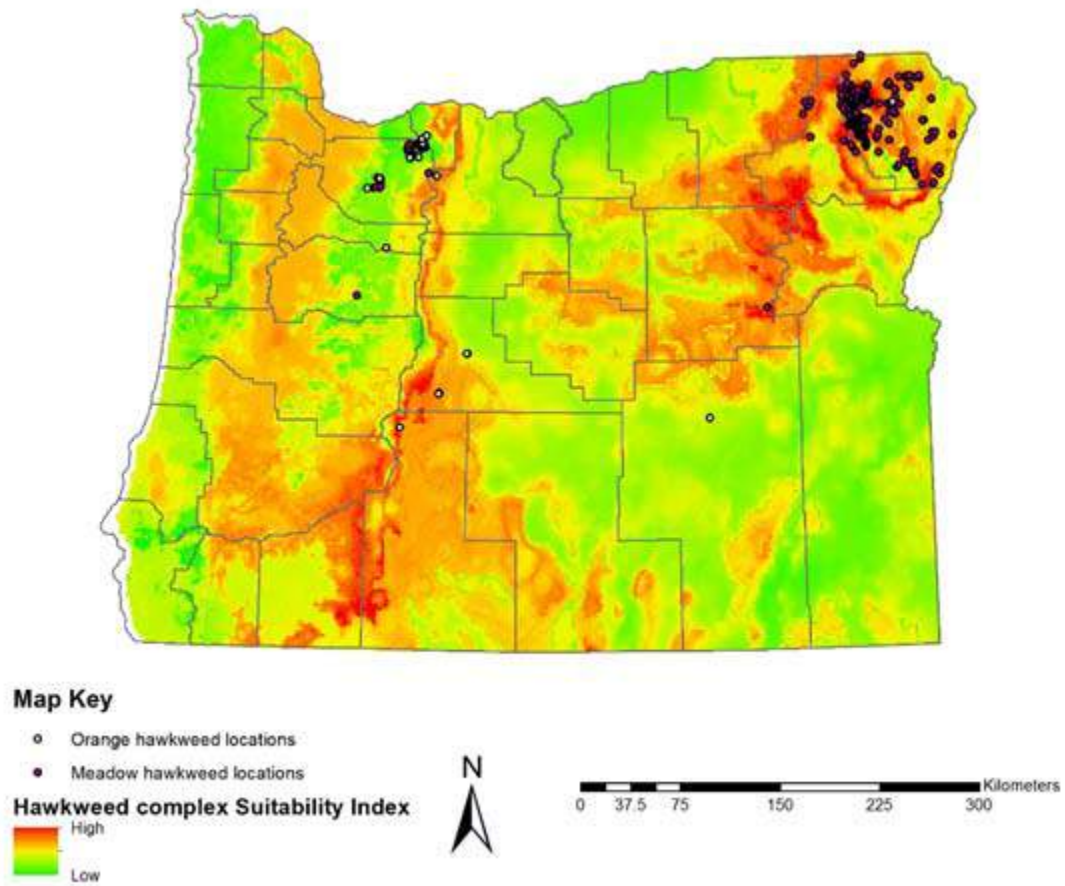


2014 Meadow hawkweed





## Predicted Suitability Zone and Currently Known Infestations



## Photos



Meadow hawkweed



Orange hawkweed

## Japanese knotweed, *Polygonum cuspidatum*

### Description

A herbaceous perennial, stem stout which blooms July to October. It grows four to nine foot tall, woody but dying at the end of the growing season which become hollow and have a pattern of purple speckles (Gilkey 1957, ISSG 2010). Stout reddish-brown stems, nodes slightly swollen. Leaves short stalked, truncate, broadly ovate and 2-6" long by 2-4" wide. Flowers greenish-white to cream in large plume-like clusters at the ends of the stems. It has long creeping rhizomes. Hybridization with giant knotweed is common.

### Impacts

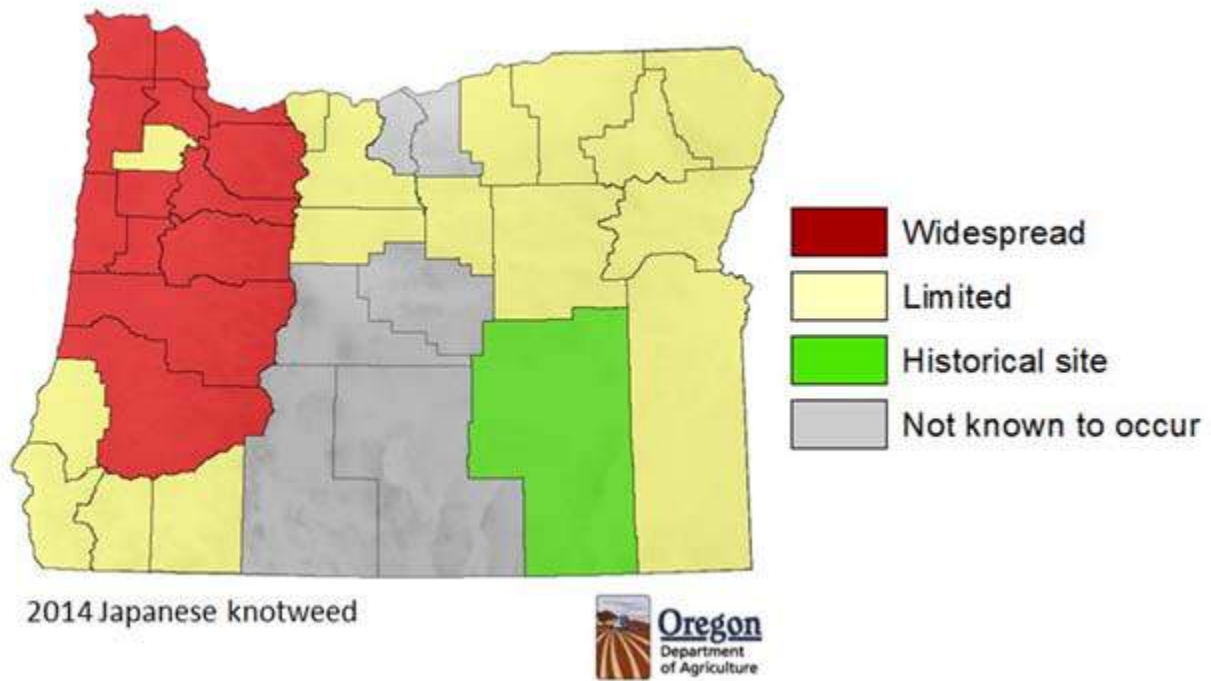
Japanese knotweed grows vigorously along roadsides, waste areas, streams and ditch banks and creates dense colonies that exclude native vegetation and greatly alter natural tree regeneration. Established populations are extremely persistent and do not respond to mowing/cutting. Large infestations can be eliminated with approved herbicides, but treatments are costly and time consuming. It poses a significant threat in riparian areas, where it disperses during flood events rapidly colonizing scoured shorelines, islands and adjacent forestland.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
42,000	\$31,000	1,799,000	\$1,338,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

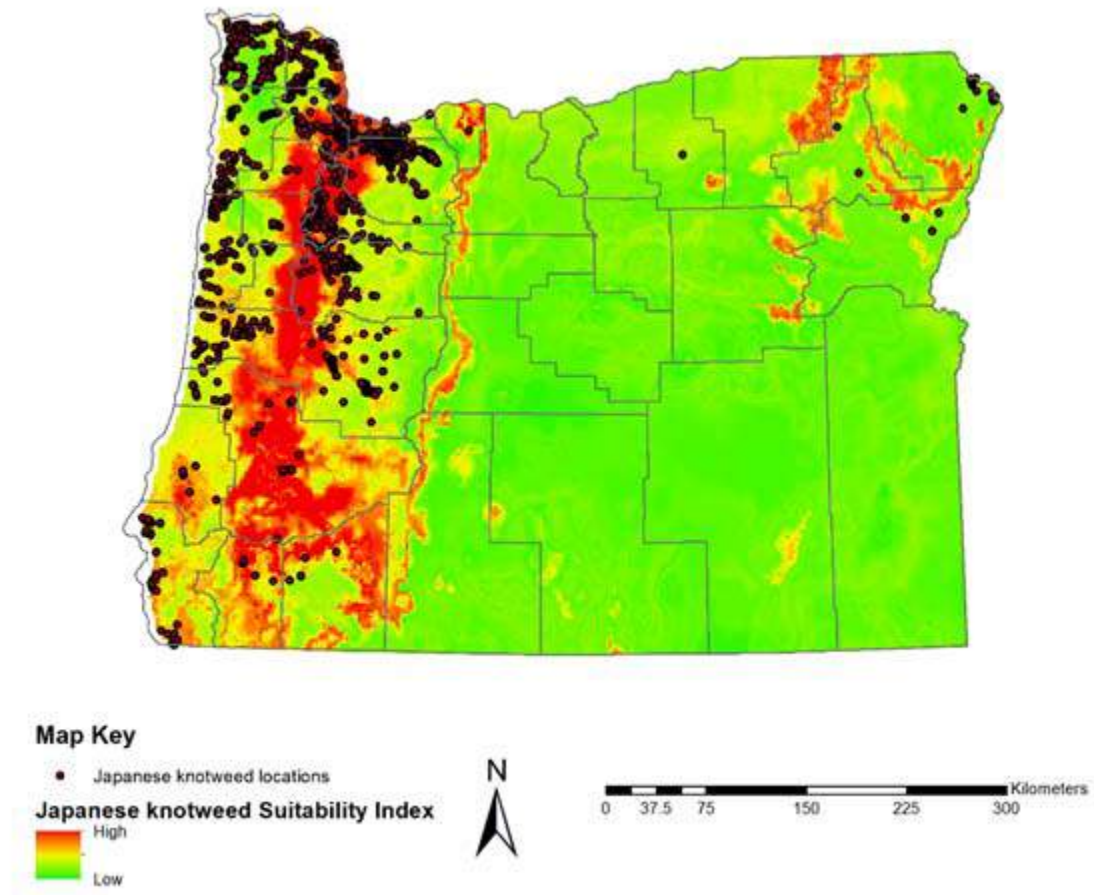
Japanese knotweed is a native of Eurasia and was introduced to the United States as an ornamental. It has become a prolific invader across most of the lower 48 states in the United States and many provinces in Canada (USDA 2013).

## Current Status in Oregon





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## **Kudzu, *Pueraria lobata***

### **Description**

This high climbing vine often completely covers trees, shrubs and man-made structure forming "kudzu sculptures". The leaves are alternate, six to eight inches long, have fuzzy leaflets three to four inches long, oval, lobed or nearly heart shaped. Flowers are large hanging clusters of pea-like, purple to red color, with a grape-like smell and appearing in midsummer. Fruit are dark brown flattened pods in clusters, very hairy and ripens in the fall. Stems are velvety with hairs turning brown. Trunk or vines may reach up to four inches in diameter. Older stems and vines turn brown and smooth and eventually form a fine scaly bark. Vines may extend thirty to one hundred feet in length with stems one half to four inches in diameter. As many as thirty vines may grow from a single root crown. Roots are fleshy massive taproot seven inches or more in diameter, six feet or more in length and weighing as much as four hundred pounds.

### **Impacts**

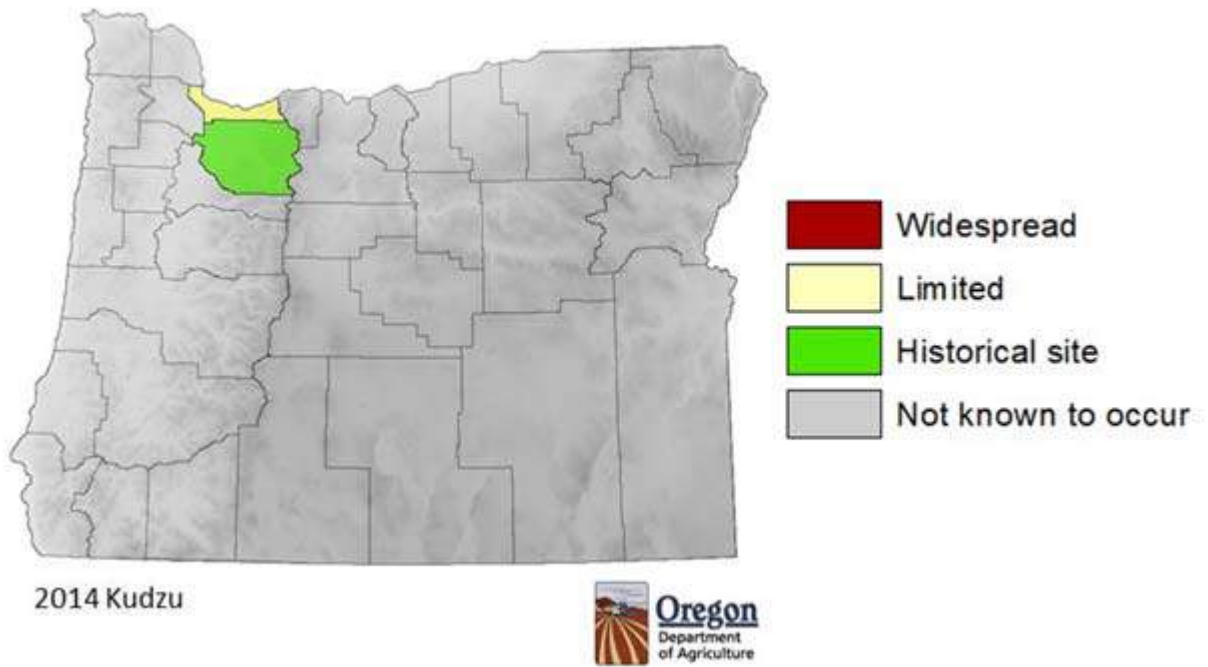
Kudzu kills or degrades native and desirable plants by smothering them under a solid blanket of leaves, by girdling woody stems and tree trunks, and by the sheer force of its weight breaking branches or uprooting entire trees and shrubs. Trees covered by kudzu become damaged by its weight during ice events or die from insufficient light. Once established kudzu grows at a rapid rate extending as much as 60 feet per season at a rate of about one foot per day. Kudzu grows well under a wide range of conditions and soil types. It favors habitats such as forest edges, abandoned fields, roadsides, and disturbed areas where sunlight is abundant. Kudzu grows best where winters are mild, summer temperature are above eighty degrees and annual rainfall is forty inches or more.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	<\$500	7,313,000	\$173,590,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### **Native Area/Arrival in the U.S.**

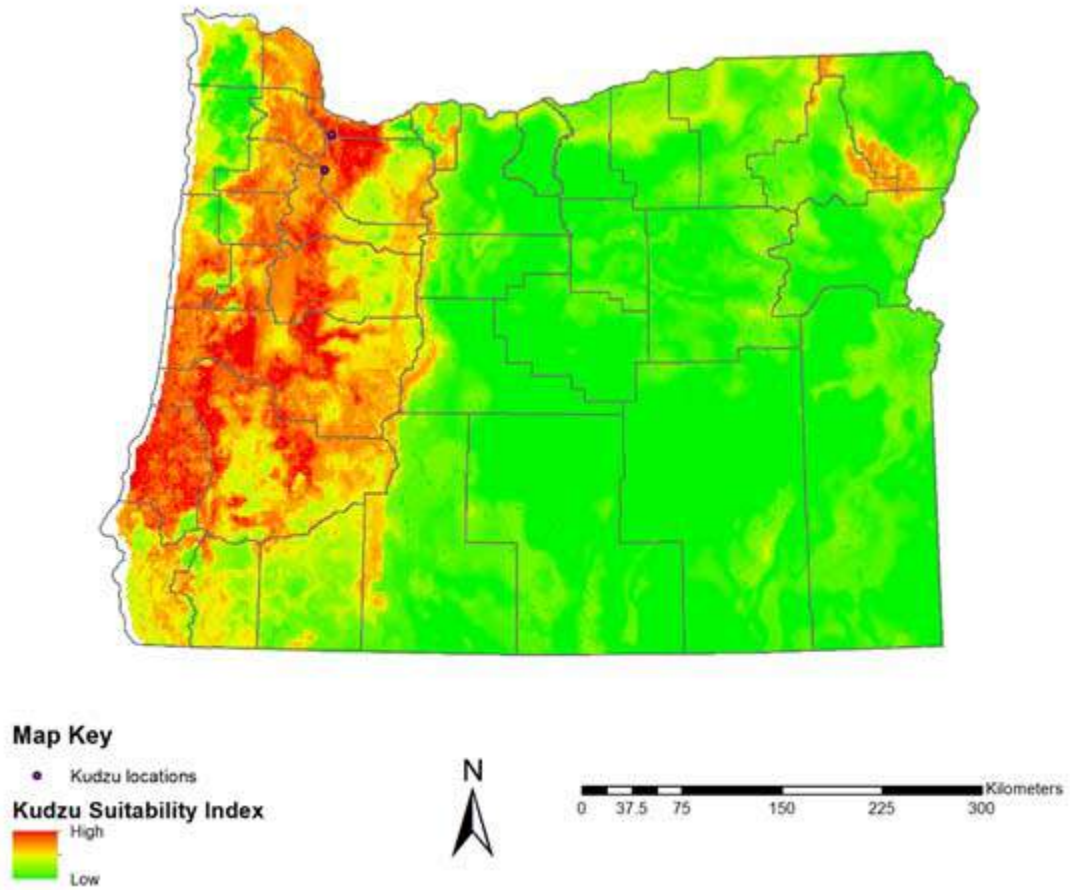
Kudzu was introduced to the United States in 1876 at the Centennial Exposition in Philadelphia, Pennsylvania. At a celebration of 100th birthday of the U.S. the Japanese government constructed a beautiful garden filled with plants from their country. The large leaves and sweet-smelling blooms of kudzu captured the imagination of American gardeners who used the plant for ornamental purposes. During the Great Depression of the 1930's, the Soil Conservation Service promoted kudzu for erosion control later declaring it a noxious weed.

## Current Status in Oregon





## Predicted Suitability Zone and Currently Known Infestations



## Photos





## Leafy spurge, *Euphorbia esula*

### Description

Leafy spurge is an aggressive upright, branching perennial herb reaching two-three feet tall. Tough, woody stems exude a poisonous white latex sap when broken. Leaves are alternate, narrow, somewhat frosted and slightly wavy along the margins. Flowers are minute and borne in greenish-yellow structures surrounded by yellow heart-shaped bracts. The root system is extensive extending down 20 feet below the surface. Rhizomes are woody, brown, sporting numerous buds capable of producing above ground shoots. Leafy spurge tolerates moist to dry soil conditions but is most common in coarse-textured soils where competition from native plants is reduced. Seed production is copious. Dispersal occurs through an explosive rupturing of the seed capsule propelling seeds up to 10 feet.

### Impacts

Leafy spurge is one of the West's most invasive and difficult to control weed species. It invades disturbed sites, prairies, savannas, pastures, abandoned fields and roadsides. It is considered toxic to cattle but sheep and goats readily feed on it following an acclimation period. Carrying capacity of infested rangelands can be reduced by 50 to 75%.

Leafy spurge is very capable of dominating the plant community and habitat and significantly

decreasing the diversity of native species. Leafy spurge also shows allelopathic tendencies. Once established, control is difficult, requiring annual treatments to contain populations. A milky latex exists throughout the plant causing skin irritations in humans, cattle, and horses and may cause permanent blindness if rubbed into the eye.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
8,000	\$17,000	37,277,000	\$65,174,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

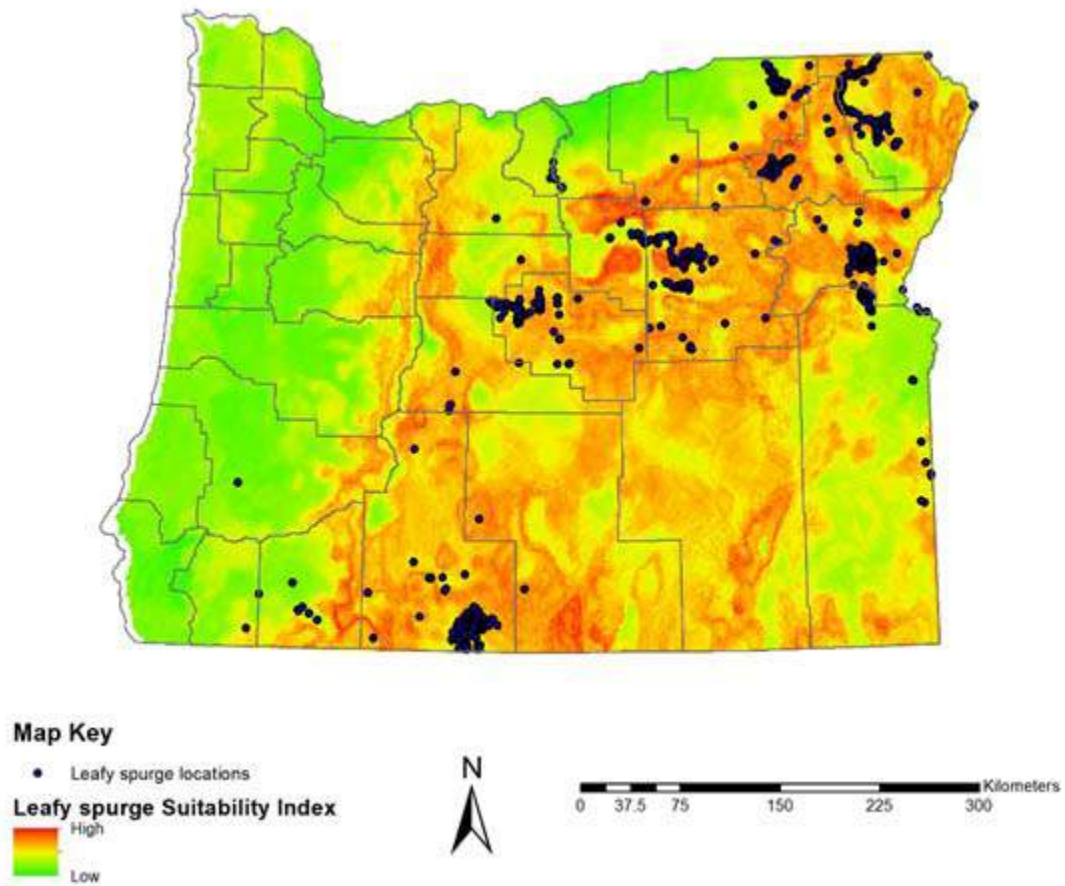
### Native Area/Arrival in the U.S.

Native throughout Europe and Asia, brought to the U. S. from Eurasia about 1897 in contaminated grains. It now occurs across much of the northern states including the Pacific Northwest states. First reported in Oregon in 1930 in Klamath County.

## Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Meadow knapweed, *Centaurea moncktonii*

### Description

Meadow knapweed is a hybrid of black and brown knapweeds and may be difficult to distinguish from the two at a distance. It is one of the more moisture-loving knapweeds more commonly found in Western Oregon though it is increasingly common in NE Oregon. It is very leafy with showy purple blooms in opening midsummer to fall. It grows from woody root crown and up to 3 1/2 feet tall. The lower leaves are long-petioled, upper leaves have no petiol. Stems are many-branched and tipped by a solitary flower head up to one inch wide. Flower heads are pink to reddish purple, oval or almost globe-shaped. A key identifying feature is the fringed bracts on the flower head.

### Impacts

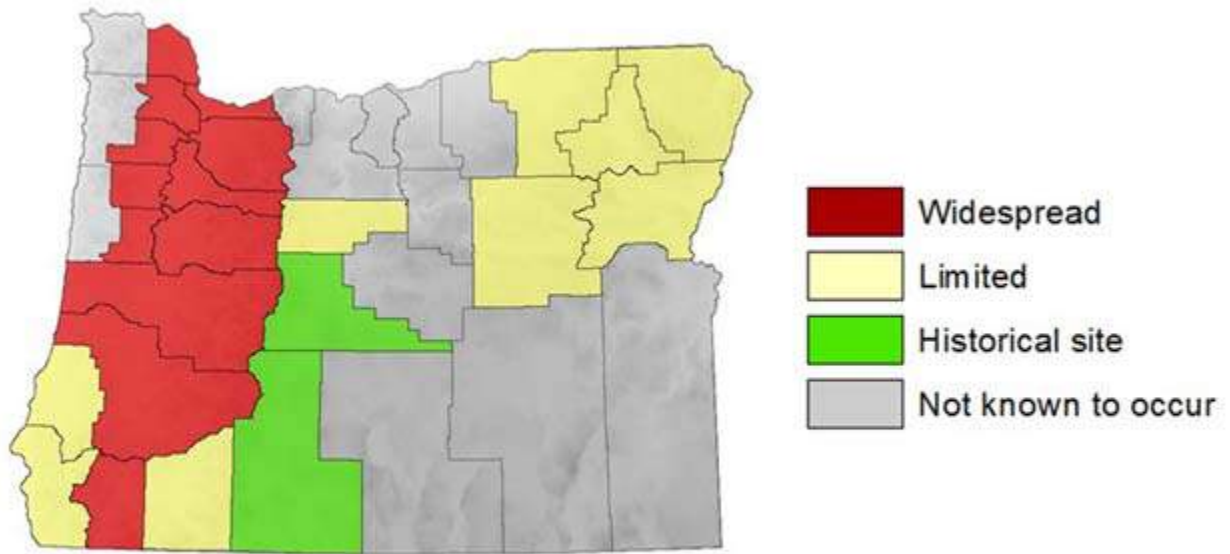
Meadow knapweed out-competes grasses and other pasture species, causing productivity to decline. It is susceptible to herbicide treatments, but control efforts must persist for the long-term. It has the potential to invade native prairie and oak savannah. Meadow knapweed favors moist roadsides, sand or gravel bars, river banks, irrigated pastures, moist meadows, and forest openings. It also can invade industrial sites, tree farms, and grasslands.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
125,000	\$146,000	12,443,000	\$15,070,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Its parent plants are native of Europe. It is well established throughout the Pacific Northwest. First noted in Oregon in 1910. It is not known if hybridization occurred in North America or in Europe.

## Current Status in Oregon

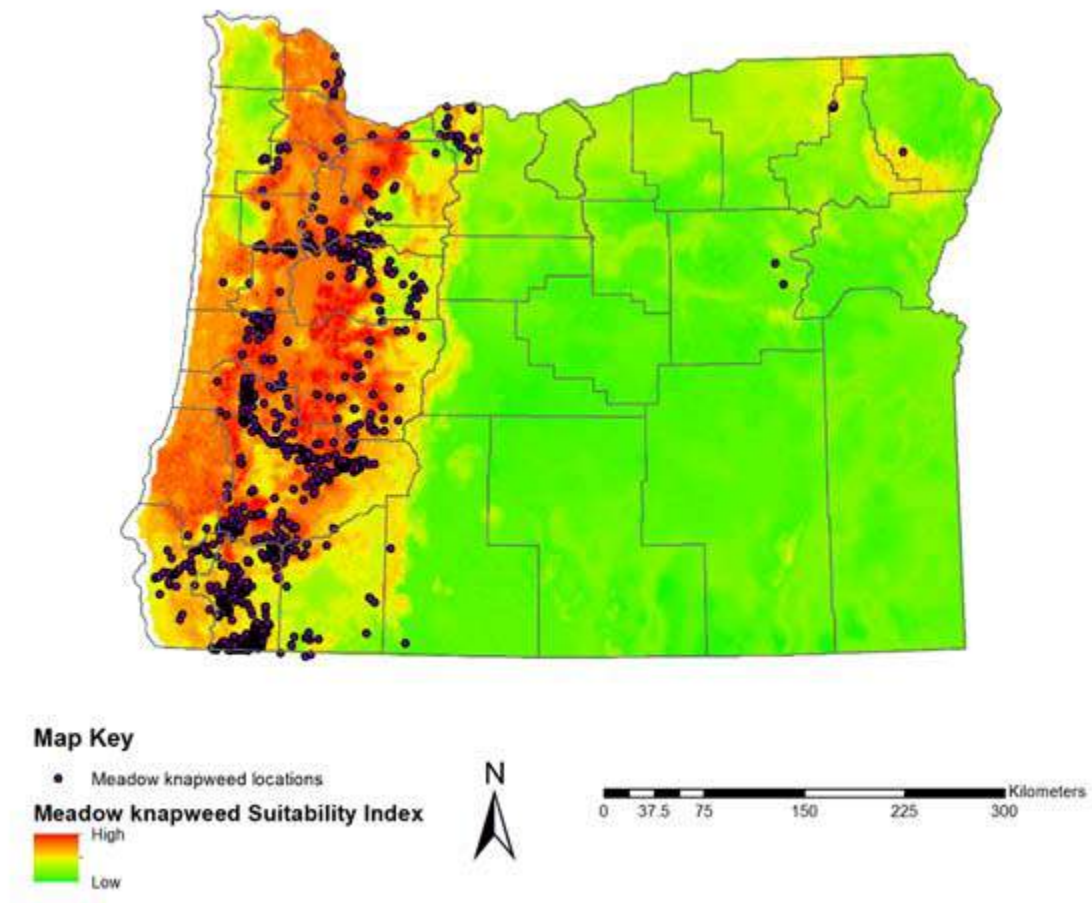


2014 Meadow knapweed





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## **Mediterranean sage, *Salvia aethiopsis***

### **Description**

Mediterranean sage or Med sage for short is a pungent rangeland invader. With a biennial growth habit it produces a large grayish rosette with stout taproot the first growing season and a two to three foot tall flower stalk the second. Blooming occurs June to July. Snapdragon-like flowers are produced one half to one inch long, yellowish-white, forming woolly clusters in a profusely-branched arrangement. When mature, old stalks break off and tumble, spreading seeds throughout. The leaves of the plant have a pungent aroma when crushed.

### **Impacts**

Though not as dominant in range as many other weed species, Mediterranean sage is still a troublesome pest in pastures and rangelands of eastern Oregon, predominantly in the south central part of the state. It is highly competitive replacing

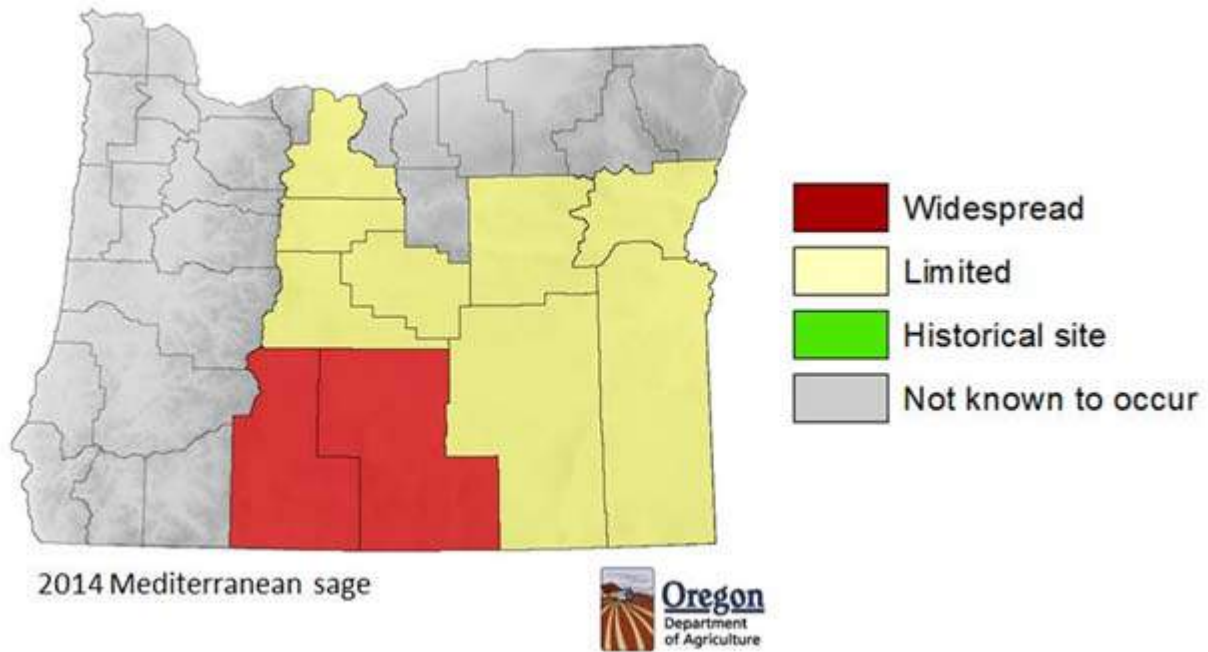
grasses especially when moisture is sparse reducing forage quality and yield. It can also grow well in alfalfa and wheat. Biocontrol insects have aided in limiting the rapid spread of the plant.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
90,000	<\$500	15,410,000	\$1,132,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### **Native Area/Arrival in the U.S.**

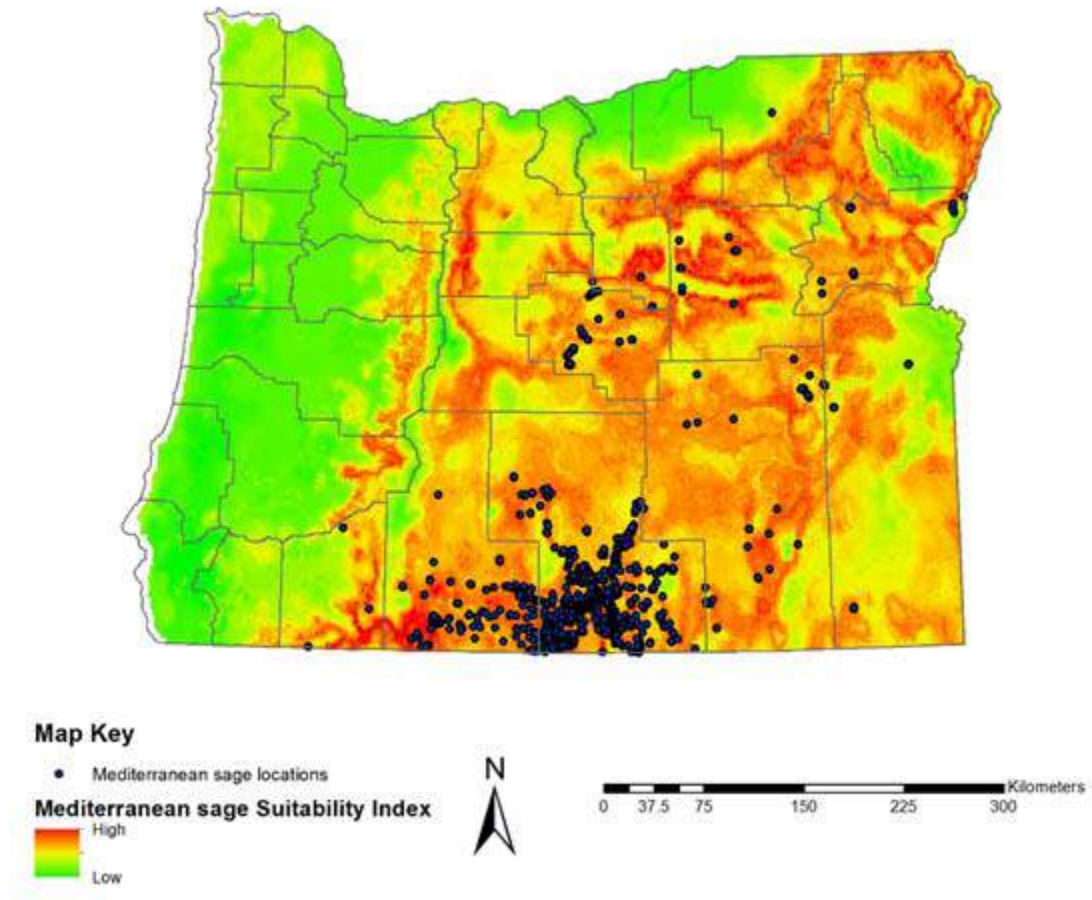
Mediterranean sage is a native of southern and southeastern Europe and was introduced in the United States in 1892 as an alfalfa seed contaminate (Roche and Wilson 1999).

## Current Status in Oregon





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Perennial pepperweed, *Lepidium latifolium*

### Description

Perennial pepperweed is a showy, leafy forb hosting an abundance of small white flowers. Also known as tall whitetop, it blooms May to September. It can grow to 6 feet tall with its basal leaves larger than upper leaves. The lanceolate leaves are bright green to gray green, entire to toothed. Flowers are white, very small, and form dense clusters near the ends of branches. They have a distinctive odor. Seeds are very small, flattened, slightly hairy, and reddish brown. They are easily transported by waterfowl, livestock and in hay shipments.

### Impacts

Perennial pepperweed rapidly colonizes wetlands, moist pastures and estuaries. It degrades bird nesting habitat and displaces desirable species in natural areas and hay meadows. Contaminated hay is of lower quality and it competes heavily

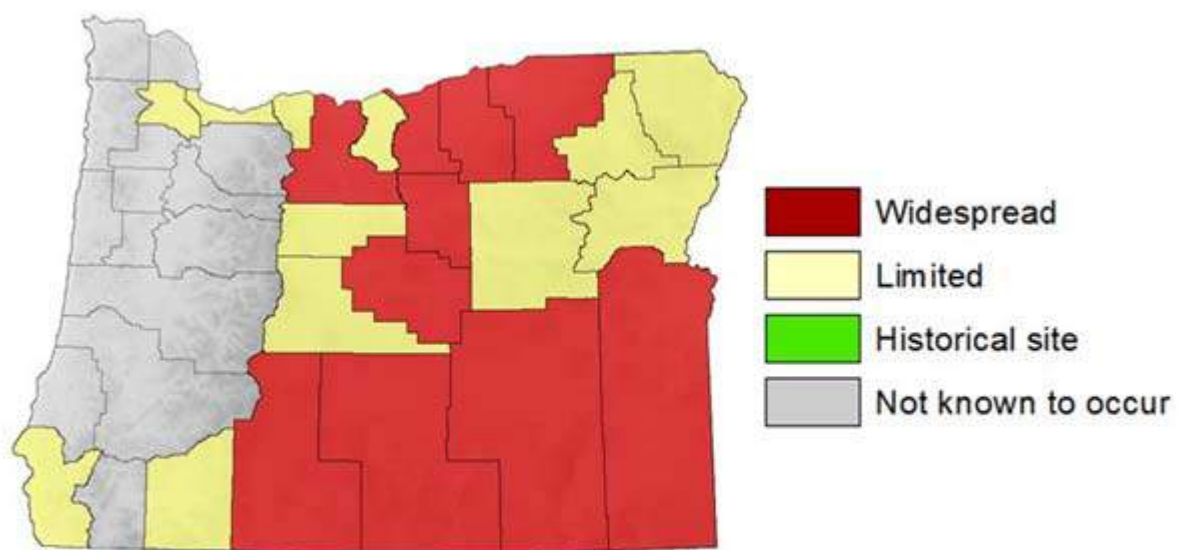
with native grasses, reducing grazing potential. Infestations can be so damaging that they have been known to significantly affect crop land values. The weed can also be found in disturbed areas and farmyards, agricultural land, range, roadside and irrigation ditches. It is salt tolerant and highly adapted to a range of soil conditions.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
89,000	\$110,000	15,992,000	\$5,329,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Perennial pepperweed is native to Southern Europe and Western Asia and now widely distributed throughout the U.S. Introduction into U.S. is thought to result from imported sugar beet seed in the 1930's.

## Current Status in Oregon

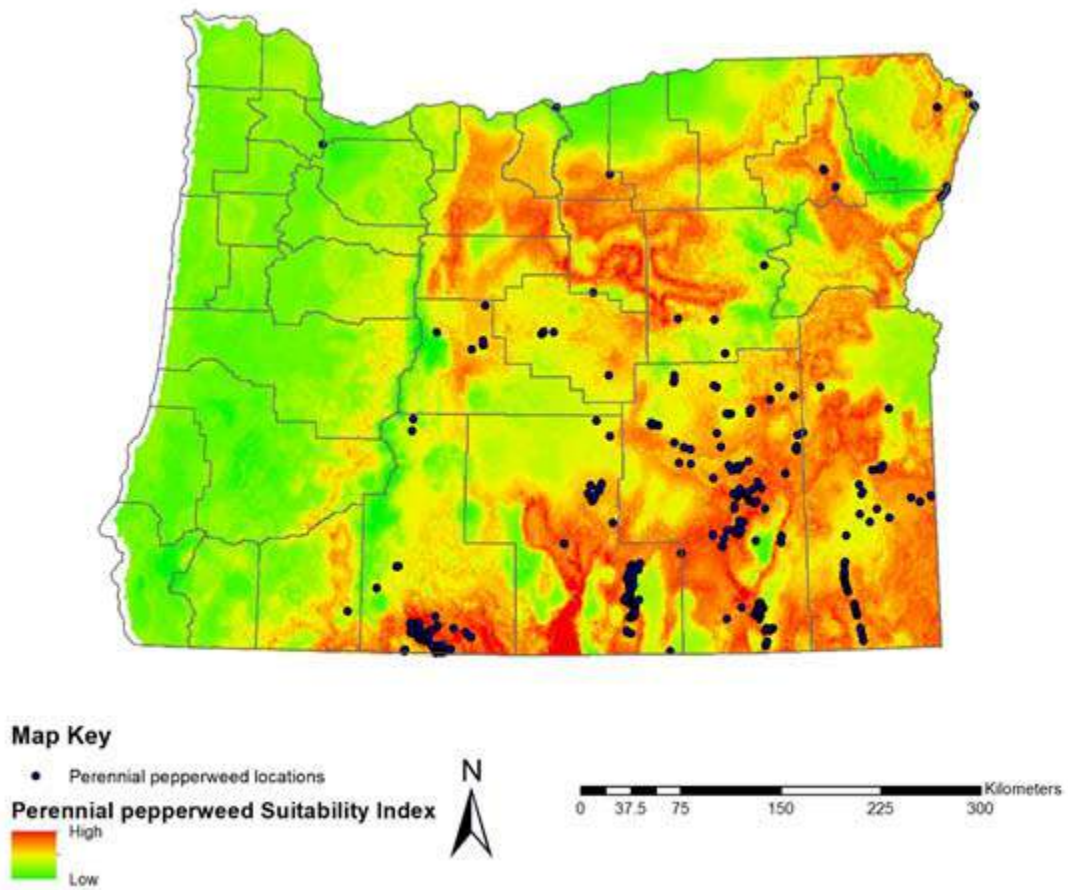


2014 Perennial pepperweed





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Purple starthistle, *Centaurea calcitrapa*

### Description

Purple starthistle is a heavily armored pioneering species that rapidly establishes disturbed sites and open niches. It inhabits fields, roadsides, grasslands, rangelands, waste areas, and open forests. It grows in full sun and does not persist in shade. It prefers fertile alluvial soils of bottomlands. The life cycle of purple starthistle is variable and it can develop as an annual, biennial, or short-lived perennial depending on the environmental conditions. It grows upright to three feet tall as an erect, branched, shrubby herb. Light dusty green in color, the leaves and stems are covered with fine hairs and resin glands giving the plant a dusty appearance. Leaves are divided into narrow elongated segments. Bracts on the flower heads are tipped with sharp rigid spines over one inch long. Flower color is lavender to deep purple and blooms July through October. Rosettes are crowned with a cluster of stiff straw-colored spines in the center; leaves are deeply-lobed with light-colored midribs.

### Impacts

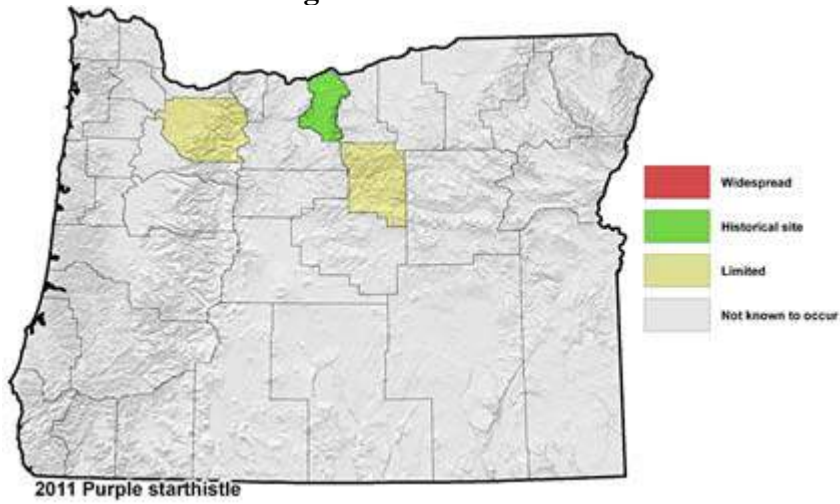
It is highly competitive and displaces desirable plants and forage over a wide range of conditions. The plant can thrive in arid regions of eastern Oregon as well as in high rainfall areas west of the Cascades. It prefers fertile soils and forms dense stands in pasture, range, open forest, and riparian areas. A long taproot provides a competitive advantage over annual and perennial grasses reducing available forage. The rigid spines make it unpalatable and reduce the quality of hay. It restricts access and deters grazing by livestock and wildlife. Infestations can restrict recreational opportunities and degrade the quality of parks and natural areas.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	<\$500	4,017,000	\$4,729,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

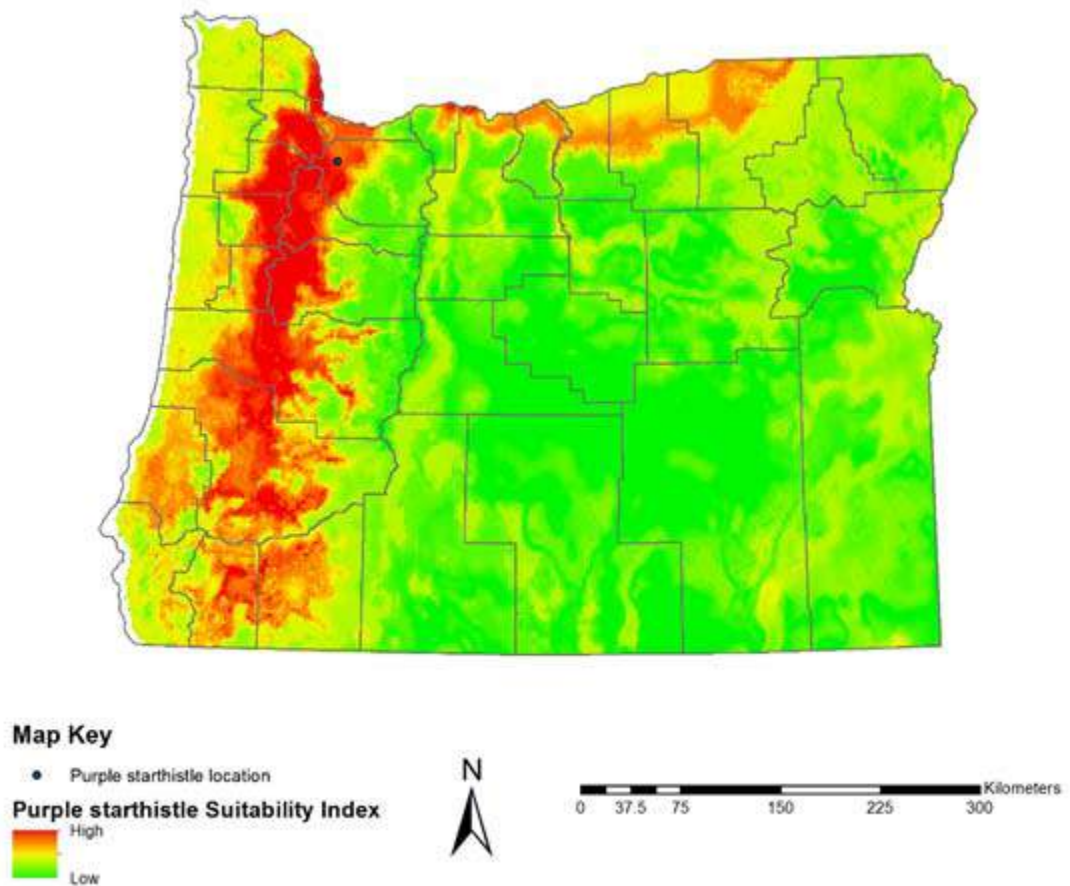
### Native Area/Arrival in the U.S.

Mediterranean Europe and northern Africa. Purple starthistle is prevalent throughout most of California. Populations are documented in the Pacific Northwest (PNW), three recent sites in Oregon and three from Washington.

## Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations





## Photos



## Rush skeletonweed, *Chondrilla juncea*

### Description

Rush skeletonweed is noted for having few sparse leaves and wiry dark-green stems giving it a skeleton appearance. As a member of the sunflower family, its stems exude a white latex sap similar to dandelions. It is a deep-rooted perennial growing 1-4 feet tall that is able to access soil moisture deep within the soil profile late in the season. Small yellow flowers emerge July to September producing small pappus covered seeds that disperse long-distances in the wind. Cultivation increases stand densities by root fragmentation, dispersing them throughout fields. Contaminated grains shipped and planted in other fields also contribute to dispersal.

### Impacts

Rush skeletonweed is an aggressive plant in both rangeland and cropland, particularly in light textured soil and has been the target of large control projects for decades. Skeletonweed infestations can become quite dense outcompeting native vegetation. Cereal grain and potato production areas are at risk from skeletonweed invasion. Impacts include reduced yield due to competition and harvest difficulties when combining due to the latex sap that gums up the machines. Extensive efforts have been made to eradicate or contain outbreaks, but new sites are being found each year in the eastern part of Oregon.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
110,000	\$1,397,000	15,365,000	\$228,219,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

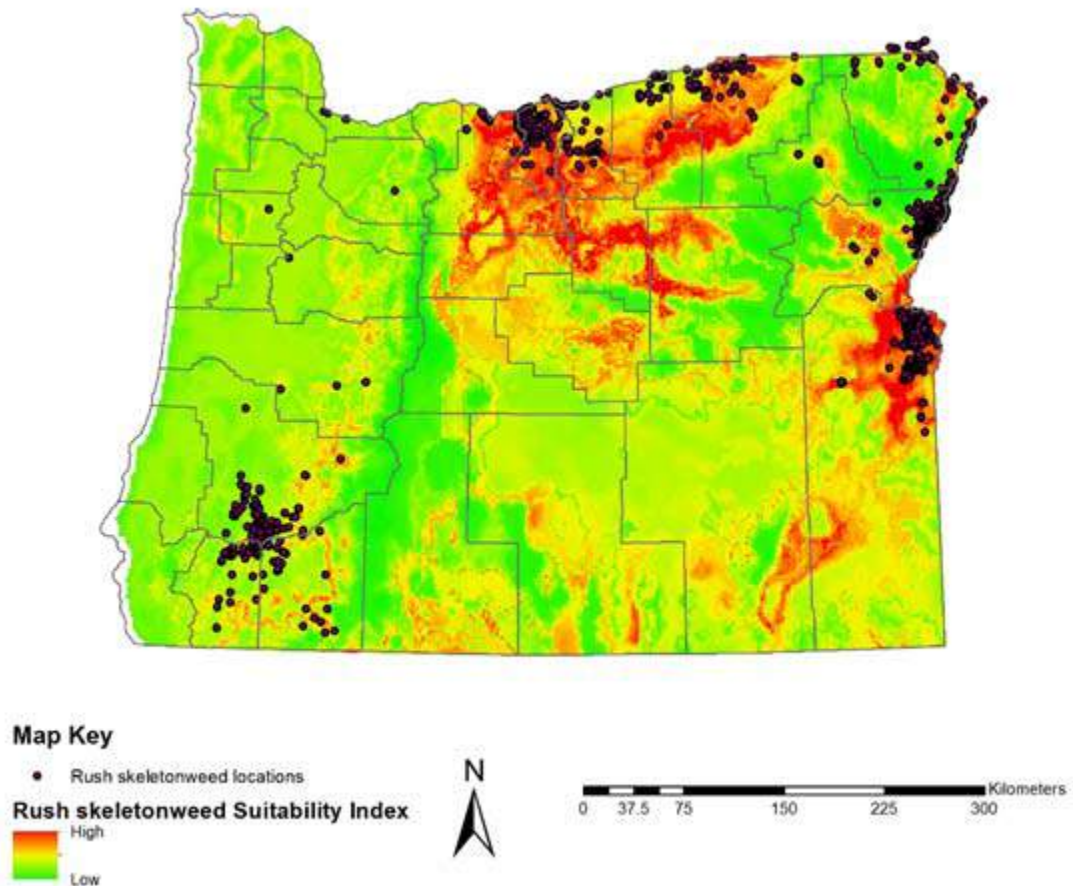
Native to Eurasia, this noxious weed now infests several million acres in the Pacific Northwest and California especially in Idaho. The first documented site (1974) in Oregon was in Douglas County in SW Oregon.



## Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations



## Photos



Photo by:  
Richard Old  
[www.xidservices.com](http://www.xidservices.com)



## Scotch broom or Scot's broom, *Cytisus scoparius*

### Description

Easily the most recognized and disliked weed species in Western Oregon. Scotch broom is a perennial evergreen shrub with many slender, erect, dark green angled branches with small, simple leaves growing up to 8-10 feet tall. Bloom time spans from April to June. Abundant, bright yellow, pea-shaped flowers adorn the plants turning infested hillsides flaming yellow. When the seeds mature in dark black seedpods, they are ejected and thrown several feet away from the parent plant to start new seedlings. It is a pioneer species, complete with root nodules that fix nitrogen in nutrient poor soils. Allergy sufferers hate the plant for its prolific pollen production. Scotch broom can be easily confused with French broom, *Genista monspessulana* (which has smaller flowers and more permanent leaves) or Spanish broom (*Spartium junceum*), (has round stems, very few leaves, and larger yellow flowers). All three species grow in Oregon.

### Impacts

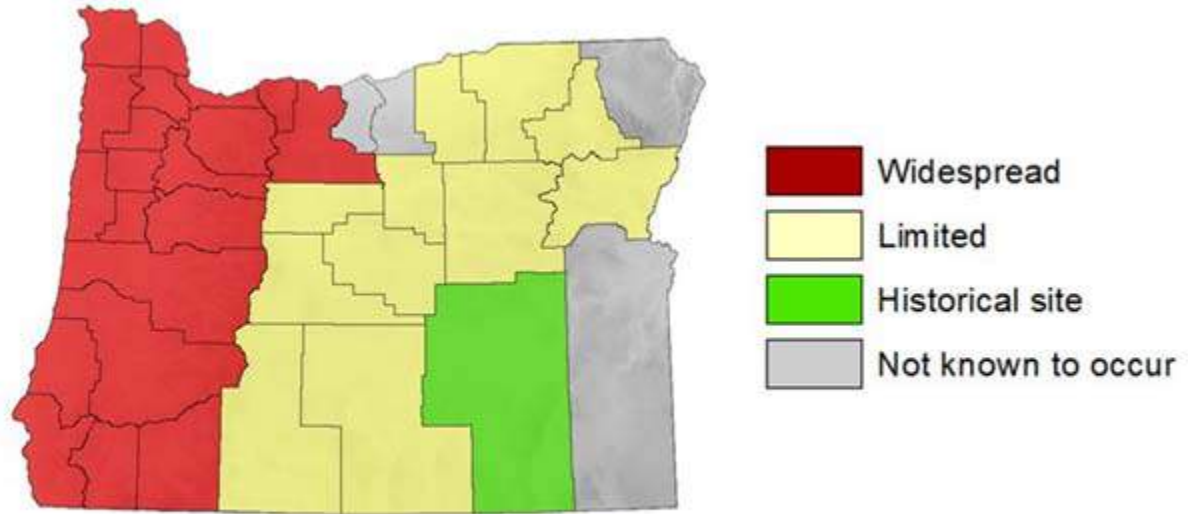
Scotch broom is a pioneer species known to displace native plant species and increase the costs of tree reforestation. It readily invades disturbed sites, natural areas, dunes and forestlands. Scotch broom control on rights-of-way, facilities, parkland and private property costs millions of dollars each year because of rapid growth and persistent nature due to long-lived seeds (50 years plus). Mature plants are prolific seed producers, establishing persistent seed banks requiring long-term commitments to control. The largest costs attributed to Scotch broom come from additional inputs needed to establish trees in commercial and public timberlands.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
1,528,000	\$39,465,000	7,601,000	\$179,838,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Scotch broom is a European native. It was introduced into North America in the 1700's as an ornamental plant. The first documented Oregon site was in Benton County in 1892.

## Current Status in Oregon

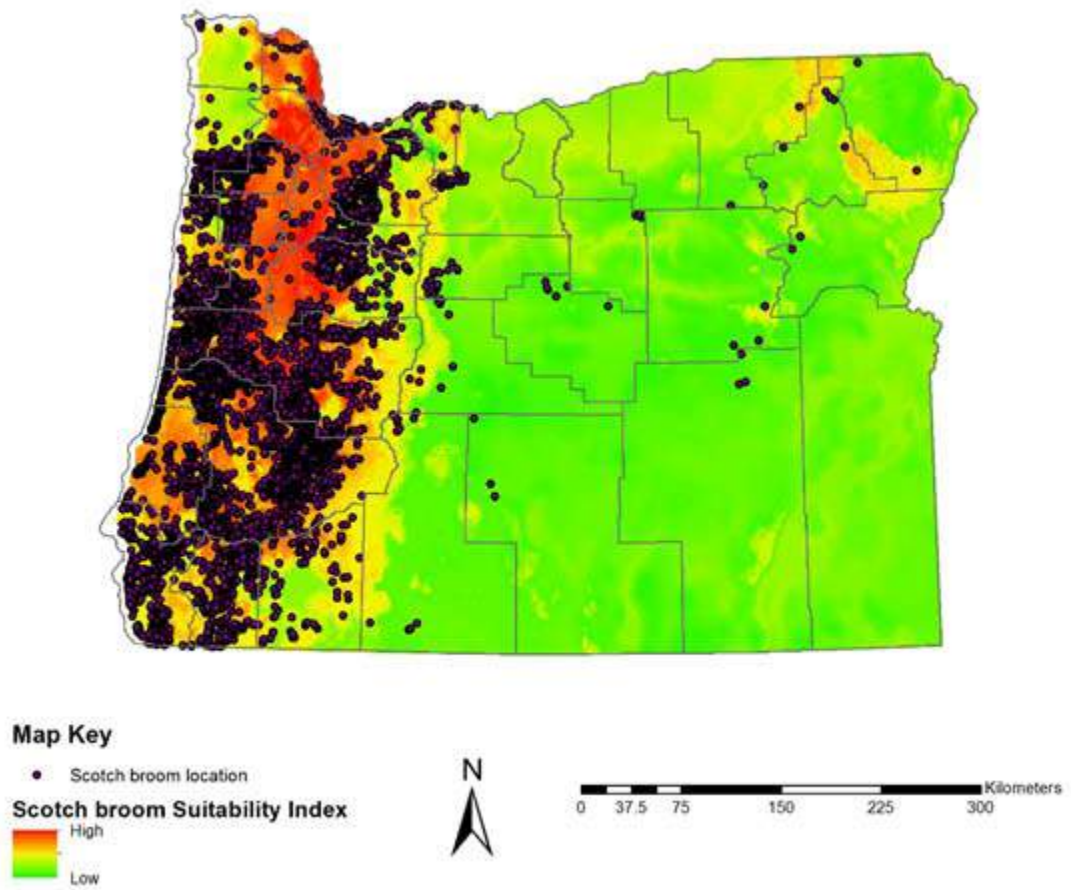


2014 Scotch broom





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Scotch thistle, *Onopordum acanthium*

### Description

Scotch thistle is a robust biennial thistle. It often produces a rosette the first year than bolts in year two, sometimes reaching heights over 10 feet in better soils. Large purple flowers several inches across (blooming May-June) are produced during the second year. It may act as an annual growing 2-4 feet the first year and flowering before dying back. Scotch thistle has a distinctive blue-grey color with large leaves and spiny winged stems. Dense soft white hair on upper leaf surfaces give it its distinctive color. Thistle stands can become quite dense and practically impenetrable because of spiny nature and large size. Spreads by seed. Dispersal primarily by animals, humans and water. Thousands of seeds may be produced per plant. They are large not generally windblown.

### Impacts

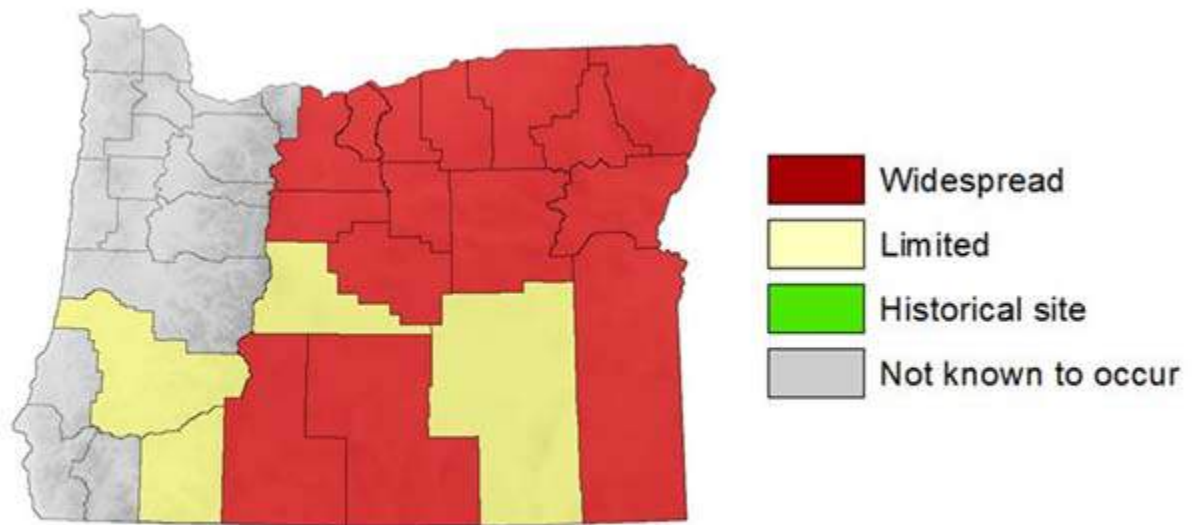
Scotch thistle is a wasteland weed that generally inhabits moist sites or drainages in drier climates. It thrives in right of ways, along irrigation canals and any location with coarse well drained soils not under active management. If not controlled, it invades farmland or forms dense canopies in any area overgrazed or not under intense cultivation. It is a major issue in rangeland management in northeastern Oregon and is expanding rapidly in Central Oregon.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
102,000	\$6,000	19,241,000	\$1,923,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

Scotch thistle is a native thistle of Asia and Europe that was introduced in the 1800's as an ornamental garden plant. It is now found throughout North America.

## Current Status in Oregon

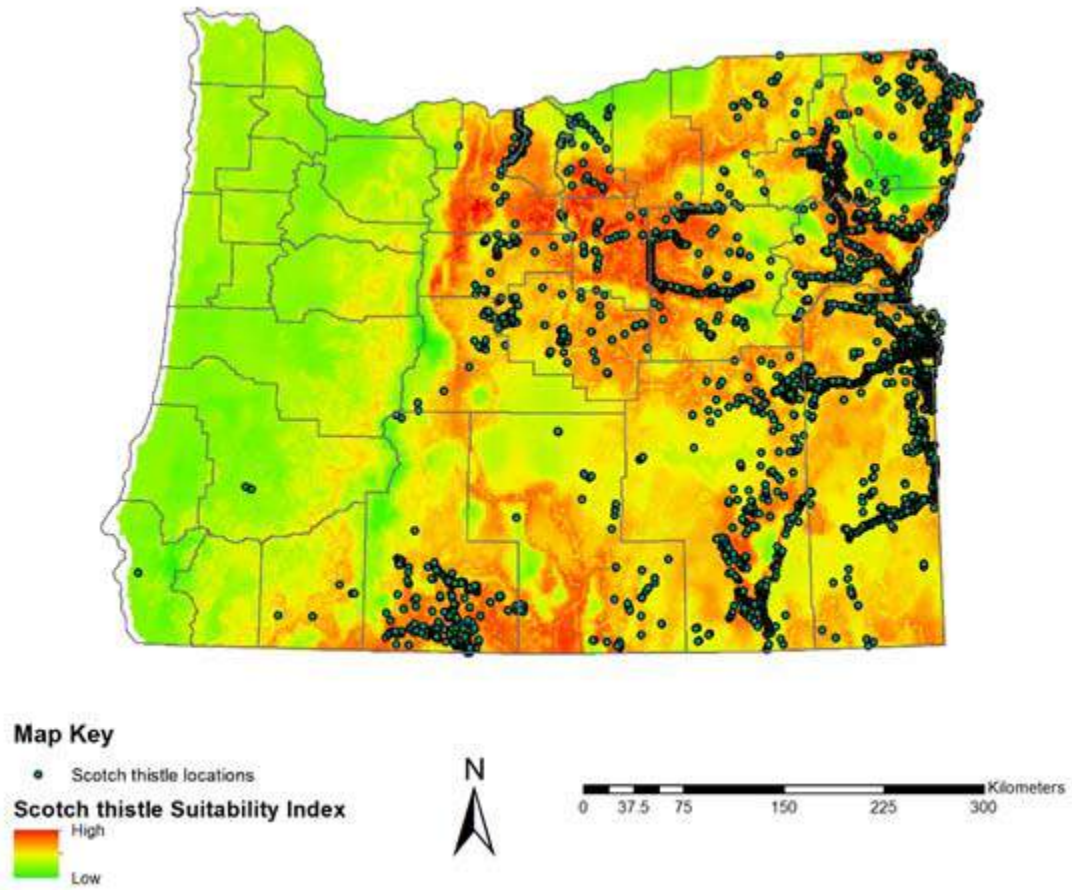


2014 Scotch thistle





## Predicted Suitability Zone and Currently Known Infestations



## Photos





## Spotted knapweed, *Centaurea stoebe* (formerly *maculosa*)

### Description

Often referred to as a short-lived perennial, spotted knapweed plants can survive for many years. It is a multi-stemmed plant growing up to 3 feet tall. Leaves are greyish to greyish-green deeply indented and lacy. Blooming begins in midsummer continuing through the fall with purple flowers or occasional cream colored ones. Tips of flower head bracts are usually black, thus the name "spotted." Seed production is prolific with the seeds dispersed by wind, animals, and people. The root grows as a deep taproot drawing moisture from deeper soils late in the summer. This deep taproot makes manual removal very difficult.

### Impacts

Spotted knapweed is one of the most dominant weed species in the western United States. Millions of acres of prime range and native habitat are infested throughout the northern Rocky Mountain states. Infested acres in Oregon are still limited but gradually increasing. This species will form dense stands on any open ground, excluding more desirable forage species and native plants. Root exudates are known to be allelopathic contributing to its competitive success. On heavily infested range, the control and restoration practices per acre are often more expensive than the income potential derived from grazing. Control success is also hampered by seed longevity. Weeds in the *Centaurea* genus have more negative impacts attributed to them in natural and agricultural ecosystems than any other plant group in the western U.S.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
168,000	\$33,000	37,297,000	\$138,064,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

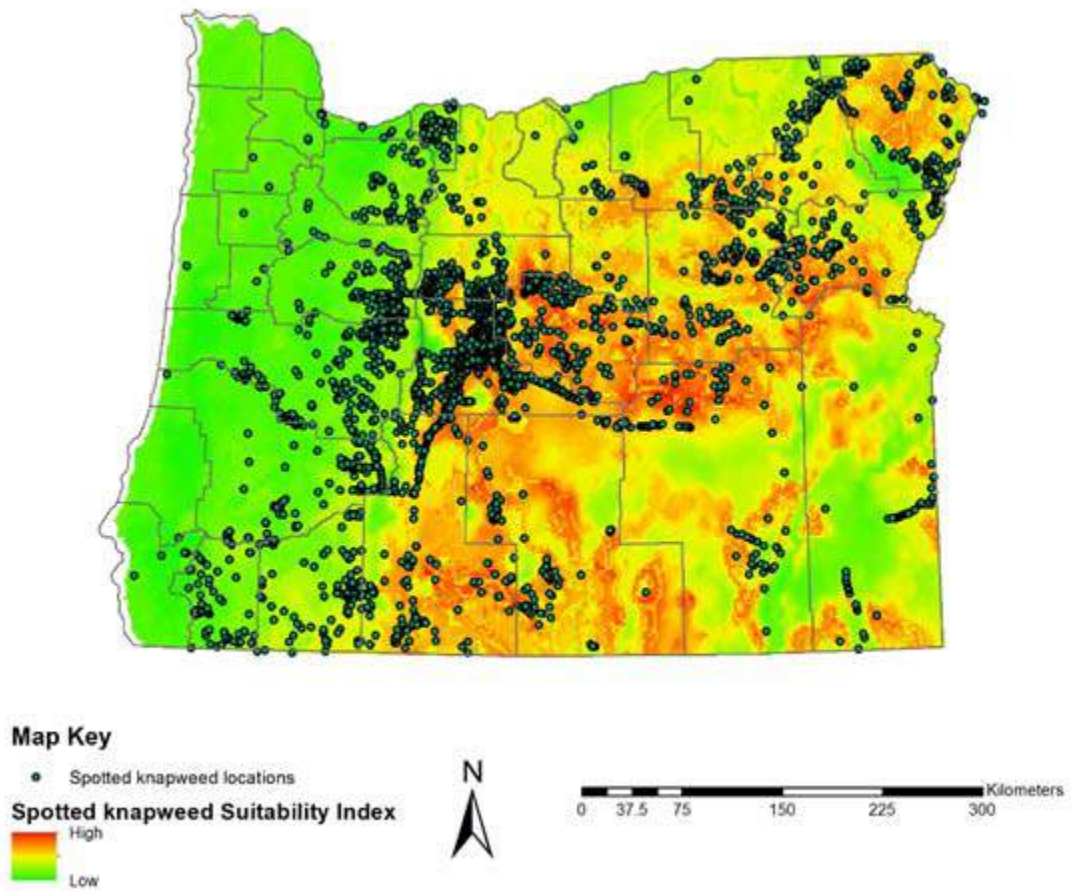
### Native Area/Arrival in the U.S.

Spotted knapweed was accidentally introduced into North America from Europe and western Asia in the late 1800's in contaminated alfalfa and clover seed and in soil used for ship ballast. It is now found in virtually every one of the lower 48 states. It is a serious invader of range especially in Montana.

## Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Squarrose knapweed, *Centaurea virgata* ssp. *squarrosa*

### Description

Squarrose knapweed is a long-lived perennial *Centaurea* species with deep roots and a large crown. Rosettes will grow slowly for a number of years before blooming. The plants morphology is rounded, somewhat like a tumbleweed. Flower heads are smaller than the other knapweeds, showing rose-colored flowers beginning in early to mid June and having up to 8 seeds per head. The terminal bracts around the flower heads are enlarged and recurved. Squarrose knapweed is not a showy plant and may escape detection if found in the presence of other knapweeds. It can be confused with short-growing diffuse knapweed. Seed heads readily detach from the plants when mature, acting as a very effective dispersal mechanism by catching in animal hair and on clothing. Whole plants can also detach and tumble with the wind dropping seed heads as they go. The seed heads do not open at maturity, ensuring that they are dispersed far from the parent plant and slowly shaken out over time. Sheep are heavily implicated in the spread of squarrose knapweed.

### Impacts

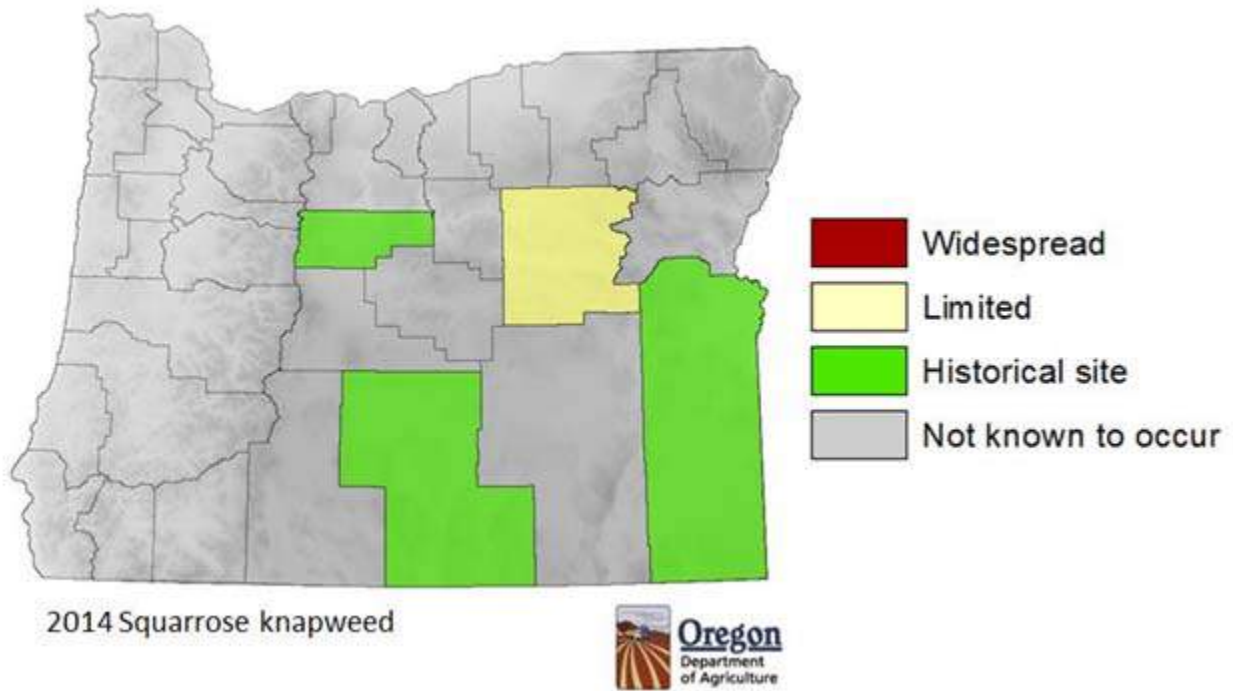
Squarrose knapweed is one of the least common of our invasive *Centaureas* in Oregon, but has the greatest potential for impacting Eastern Oregon's arid to moist rangelands because it can form very dense stands even ruining healthy native bunchgrass communities. The economic and environmental costs of large-scale infestations would be high. Rangeland in Oregon supports the vital livestock industry, as well as providing habitat for sage grouse, antelope and numerous rare plants. Squarrose knapweed quickly re-establishes after a fire, and is said to carry a fire as handily as cheatgrass in dense infestations.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	<\$500	14,003,000	\$2,057,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

### Native Area/Arrival in the U.S.

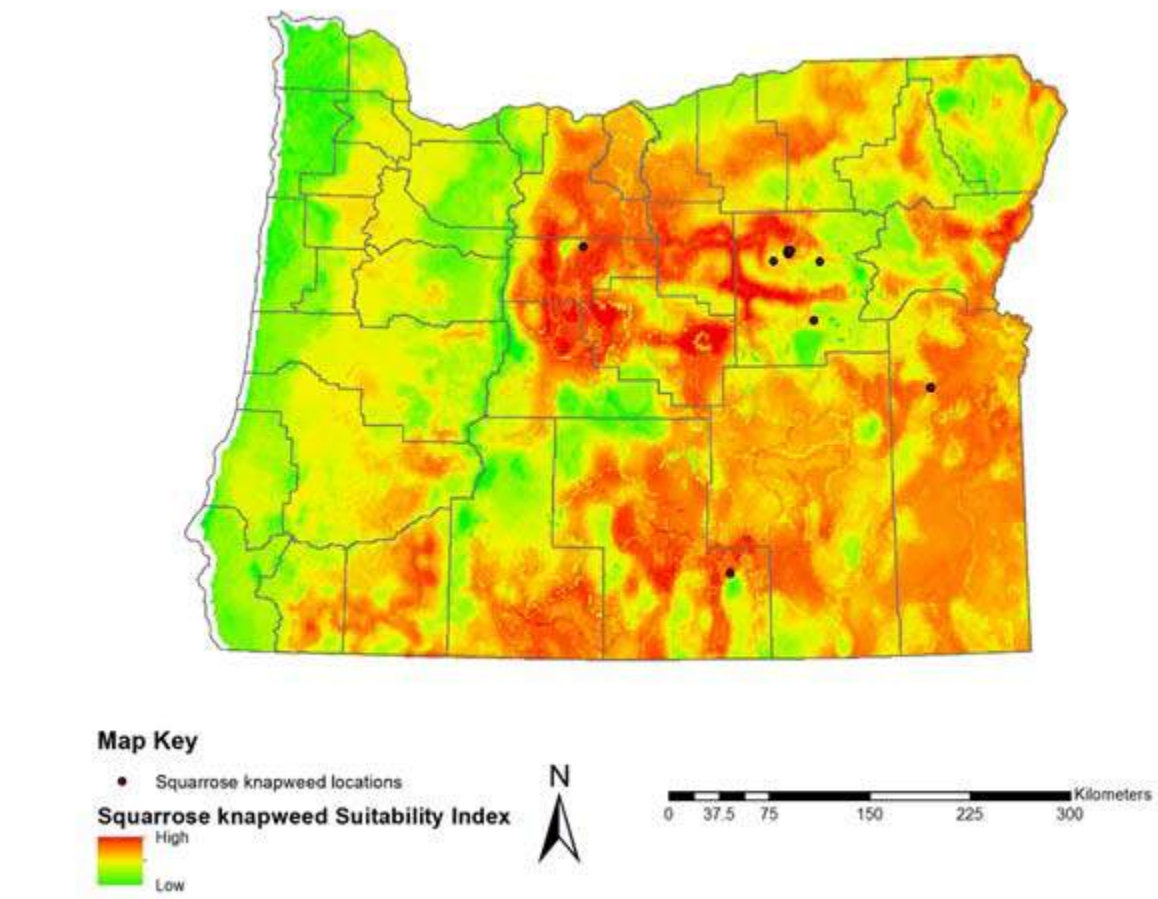
Squarrose knapweed is native to parts of Southern Asia; Bulgaria, Lebanon, Iraq, Iran, Afghanistan, and Turkey and parts of China. In the Western U.S. it can be found in Wyoming, California, Oregon, Nevada and Utah which hosts over 200,000 acres in three counties.

## Current Status in Oregon





## Predicted Suitability Zone and Currently Known Infestations



## Photos



## Dalmatian toadflax, *Linaria dalmatica*

### Description

Perennial; blooms summer to fall. Grows two-three feet tall. Leaves waxy, green, heart-shaped and one-three inches long. Flowers are one inch long and similar to snapdragons. Spreads both by seeds and creeping lateral roots. This hardy, glabrous plant has a vigorous reproductive cycle both vegetatively and by seed. Germinating in the spring and fall, seedlings can rapidly establish 51 cm long taproot within eight weeks and produce two to five stems in the first season that can flower and set seed. In subsequent growing seasons they can reach up to 65 stems per plant. If pollinated, a mature plant can drop up to 500,000 seeds through the fall and winter, with seed a dormancy of 10 years

### Impacts

This deep rooted perennial out-competes desirable forage plants for moisture and nutrients. Thrives in arid rangelands, pastures, and railways. Dalmatian toadflax's ability to outcompete native vegetation impacts forage plants for livestock and reduces endemic plant species densities. It is also somewhat toxic to livestock as it contains a glucoside antirrhinocide, a quinolone alkaloid, and peganine which cattle actively avoid consuming, displacing grazing cattle from areas infested with substantial forage. The sheer density of healthy, established Dalmatian toadflax populations can deter cattle from grazing infested areas as well.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
345,000	\$254,000	31,724,000	\$20,335,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

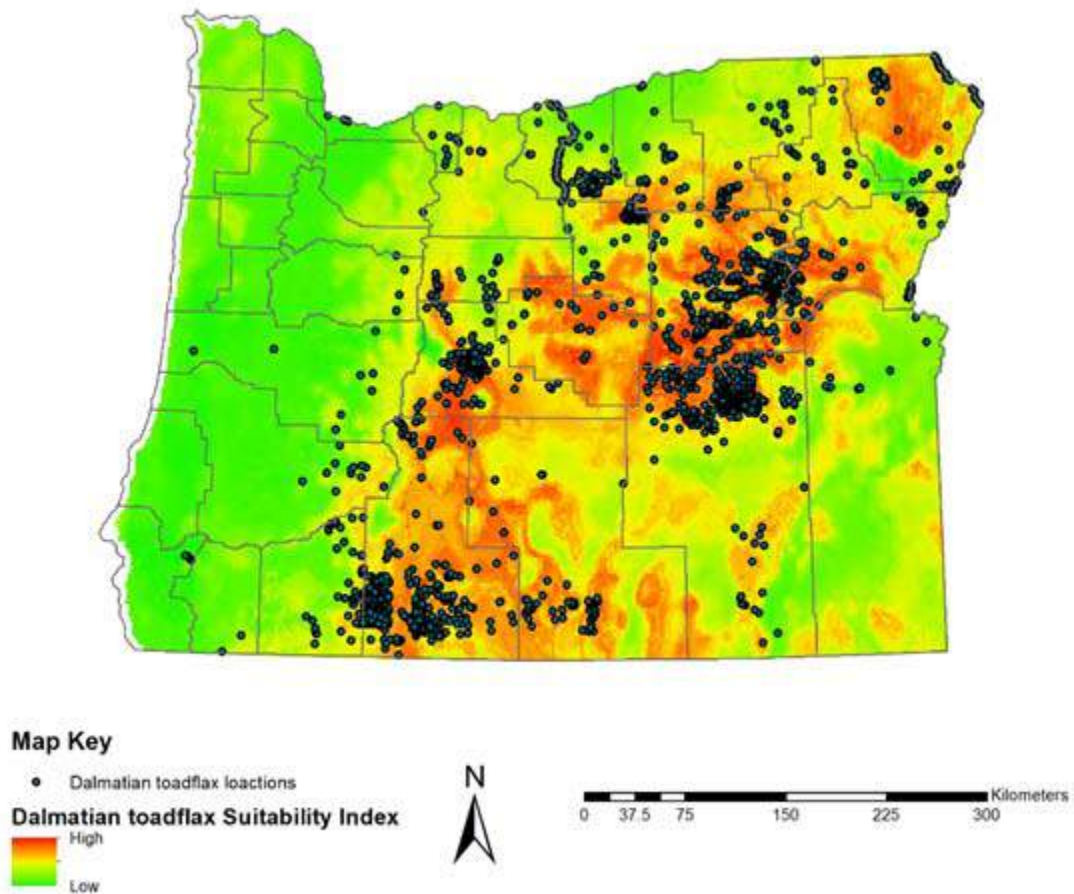
### Native Area/Arrival in the U.S.

Dalmatian Toadflax was introduced in the mid-1800's and is considered an escaped ornamental. It is a native of the Dalmatian Coast of Croatia in the Mediterranean region.

## Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations





## Photos



## Whitetop, *Cardaria draba*

### Description

A perennial species; blooms typically in early May. Grows up to 2 feet tall. Root systems extensive and deep. Lower leaves blue-green and lance shaped; upper leaves have two lobes clasping the stem. Many white flowers growing densely on plant each with four petals, giving plant a white, flat-topped appearance. Three known species, lens-podded, globe-podded, and heart-podded whitetop, identified by different shaped seed pods. Plants usually die back to roots in summer as seeds mature.

### Impacts

Whitetop is a common weed species on alkaline soils, but is not restricted to them. It forms dense patches that can completely dominate sites, restricting the growth of other species. *Cardaria draba* often impacts early season forage growth in pastures. The species is not toxic to livestock but neither is it grazed. Tens of thousands of acres are found in Oregon primarily on the dryer eastern side of the state.

### Native Area/Arrival in the U.S.

Native to southwest Asia, eastern Europe. This invader is now distributed throughout the Pacific Northwest. Probably introduced through the import of contaminated grains in the early 1900's.

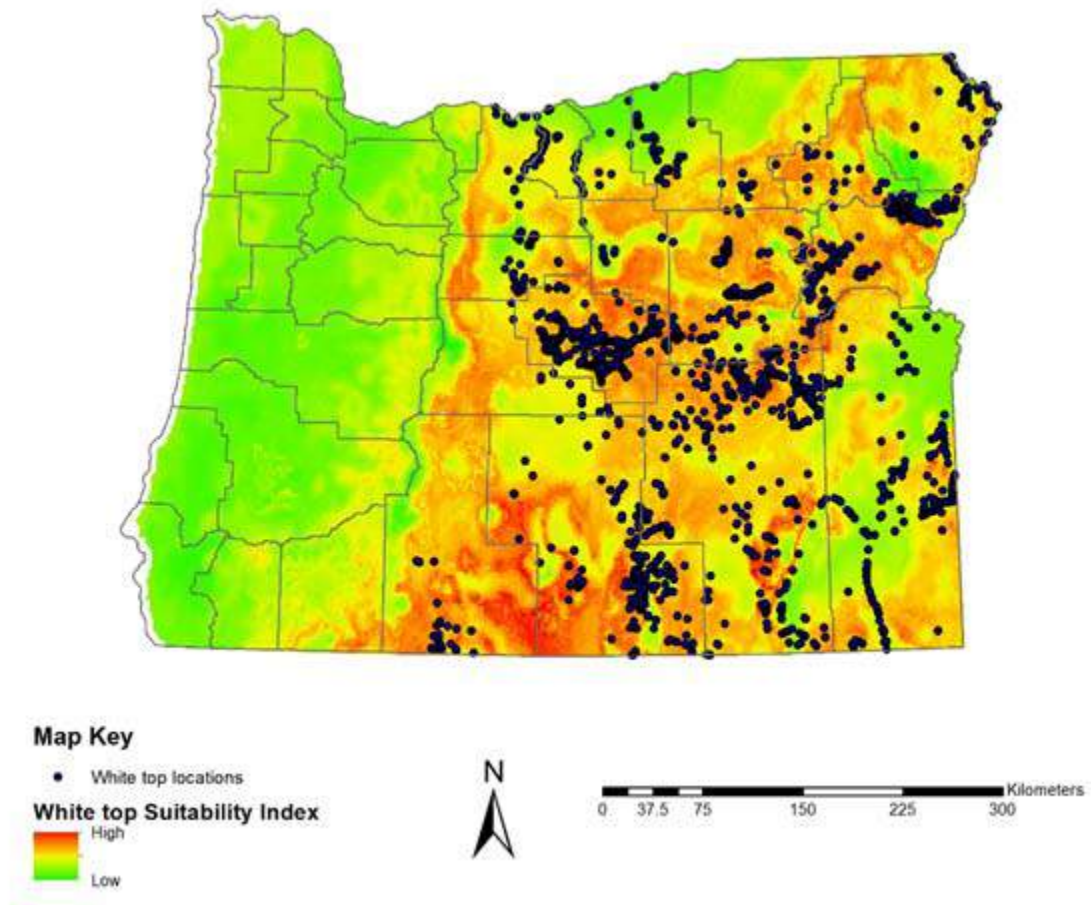
Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
191,000	\$559,000	15,558,000	\$55,263,000

Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.

### Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations



## Photos





## Yellow Starthistle, *Centaurea solstitialis*

### Description

This well-armored *Centaurea* looks more like a thistle and often confused as one. It is a fall-spring germinating annual sporting yellow flowers subtended by long spines. It grows 2 to 3 feet tall with adequate moisture but when under drought stress can bloom when only 2-3 inches tall. The stems are rigid, branching, winged and covered with cottony hairs, they do not contain spines like on thistles. Basal leaves deeply lobed while upper leaves entire and sharply pointed. Flower heads yellow, located singly on the ends of branches and armed with thorns up to 3/4 inch long. Some seeds have parachute hairs and some don't, resulting in a distribution that produces dense stands and rapid spreading.

### Impacts

Yellow starthistle will grow wherever cheatgrass grows, in addition to growing in canyon grasslands, rangelands, pastures, edges of cropland, roadsides, and disturbed areas. It is an aggressive, adaptable weed that inhibits the growth of desirable plants in pasture, rangeland, and wasteland. This plant may become a problem in ground where the grass stand is weak.

Yellow starthistle has been found in wheat crops where seed pressure is high. Yellow Starthistle is toxic to horses causing "chewing disease". It also can injure upland-game hunting dogs causing eye injury and infestations. Infested hunting grounds should be avoided.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
376,000	\$774,000	18,596,000	\$27,911,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

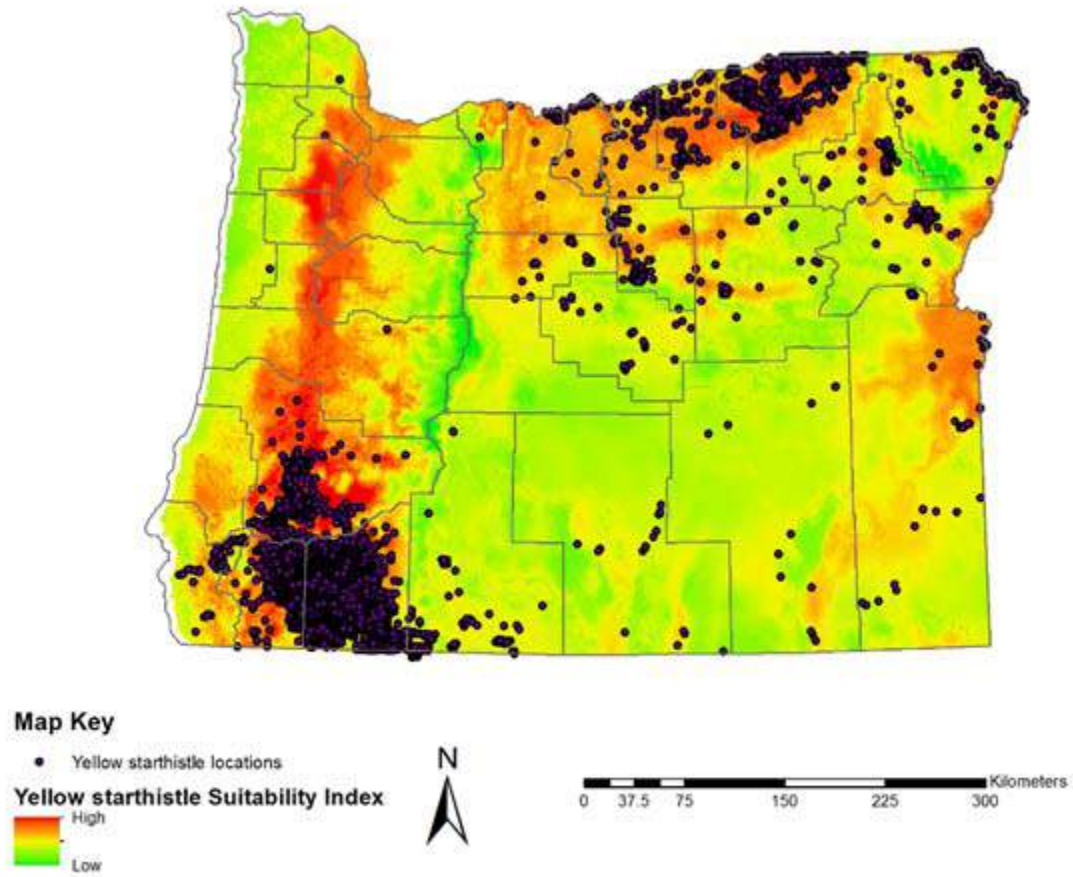
### Native Area/Arrival in the U.S.

Introduced from the Mediterranean regions, yellow starthistle will grow wherever poorly competitive environments exist, predominantly in dry slopes, grasslands, overgrazed rangelands, pastures, edges of cropland, roadsides, and disturbed areas. It has adapted to a wide range of habitats and environmental conditions, mostly in California, Oregon, Washington and Idaho. The first documented site in Oregon was 1933 in Deschutes County, probably introduced into North America in contaminated seeds or on imported livestock.

## Current Status in Oregon



## Predicted Suitability Zone and Currently Known Infestations



## Photos



## **Case Study Species**

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## **Paterson's Curse**

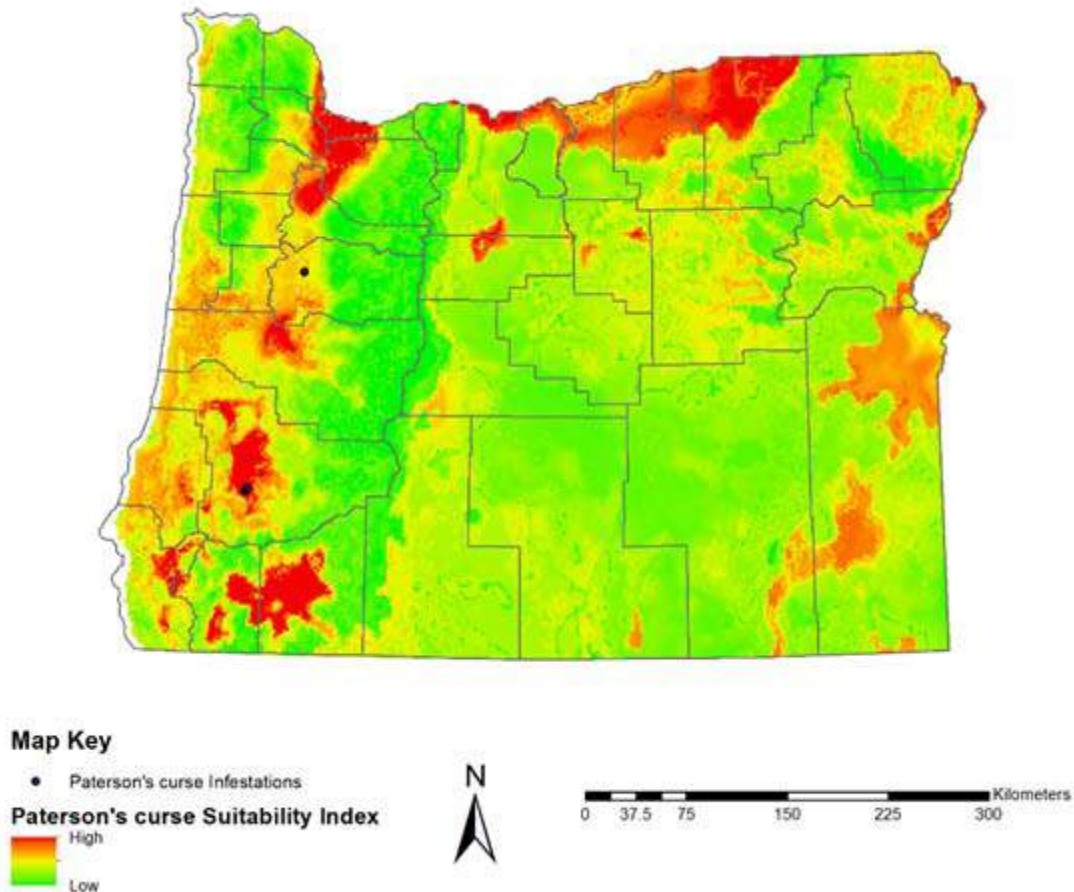
### **Introduction**

Despite a beautiful appearance, this annual invader is truly a curse. The biggest indicator of potential impacts in Oregon is realized in Australia where Paterson's curse infests millions of acres (Agriculture Today, 2011). Paterson's curse is extremely toxic to livestock and dramatically reduces forage quality and quantity (Muyt, 2001). Production of copious amounts of tiny seeds results in extensive and persistent stands that threaten valued native habitats (Burton, 2004). Once widely established, human health concerns include allergic reaction and skin irritation from contact with the rough hairy texture of the leaves and stems (Weed Risk Mgt. Guide, 2008).

### **Current Status and Distribution**

A farmer in Linn County, familiar with the plant from travels to Australia, was the first to detect Paterson's curse in Oregon in 2013. A year later, ODA staff confirmed a second larger site in Douglas County. It is suspected that a wildflower mix is the source of at least one of these infestations. Since detection, both sites have been under intensive treatment. The infestation in Linn County has been reduced by 90% to 1/10<sup>th</sup> of an acre spread over two gross acres. In Douglas County, net acreage has dramatically decreased from 100 to 13 acres spread over a 300 gross acre area.





Known infestations of purple loosestrife (dots) and predicted vulnerable areas (shaded) based on known habitat features and requirements (Weedmapper 2013).

## Control and Management Options

Australians rely on an integrated approach in attempt to merely manage Paterson's curse across an infested landscape. Integrated weed management methods have included: competitive plantings, grazing management, herbicide, spray grazing, slashing, hand weeding, and biological control (NSW Dept. Primary Industries, 2014). Paterson's curse is susceptible to most herbicides and mechanical treatments (Ensby, 2004). In sheep grazing areas, the "spray-graze" technique of spraying early with 2,4-D preserves valued pasture legumes while Paterson's curse plants elongate allowing intense grazing to be more effective (Pearce, 1972). From 1972 to 2001, Australia allocated \$14 million towards the development of a Paterson's curse biological control program (Nordblom, 2001). Biological control is an option when eradication is not possible.



Early detection in Oregon initiated a rapid containment and eradication campaign. Herbicide and manual removal techniques are proving effective in Linn County. In Douglas County initial aerial and boom herbicide treatments reduced populations to levels that are now effectively addressed by a backpack spray crew.

## Economics

Paterson's curse's ability to adapt to a wide range of environmental conditions is already evident in Oregon. This species tolerates the wet conditions of the Willamette Valley, as well as, the drier hillside pastures of Douglas County. Drought tolerance is significant with prolonged flowering and new flushes of seedlings produced all summer long. Due to phenomenal

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	<\$500	19,737,000	\$176,765,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

adaptability and phenotypic plasticity (Sharma and Esler 2008), the potential range of Paterson's curse would expand greatly if no control efforts were employed.

Economic losses in Oregon have been limited to control expenses due to Paterson curse's limited range in the state. If allowed to spread, increased costs associated with grazing management and chemical controls would be realized. Impacts to native woodland and prairie habitats would be dramatic. Anything short of an aggressive eradication campaign would result in impacts to the livestock industry.

In the southern hemisphere, Paterson's curse dominates pastures reducing both forage quality and quantity (Landcare Notes, 2007). Field and confined feeding trials have demonstrated that sheep feeding on Paterson's curse put on less weight and produce less wool. In areas completely inundated by this curse, operations have switched from cattle to sheep grazing, completely altering the land use (NSW Dept. Primary Industries, 2014). Annual losses for livestock producers in Australia are estimated in excess of \$100 million annually (Nugent, 2011). An Australian Risk Assessment determined that control costs add to farm operating budgets and eventually result in decreased land values (Weed Risk Mgt Guide, 2008).



Infestation in Australia, where millions of acres curse the countryside.  
Photos from Australia's NSW Department of Primary Industries.

## Conclusion

The rapid expansion of Paterson's curse in western Oregon has not been realized due to ODA's early detection and rapid response. Invasion of native oak woodland habitat across state, federal and private boundaries has been prevented. Had this tenacious invader been left unchecked, the 'curse' would have greatly expanded into prime agricultural ground in Linn and Douglas Counties. Spread to neighboring counties would have been inevitable. Preventing the spread of Paterson's curse in Oregon is a prime example of the value of maintaining a strategic and comprehensive statewide weed program.

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## Purple loosestrife

### Introduction

Purple loosestrife, *Lythrum salicaria* Lythraceae, is an exotic invasive plant from Eurasia that infests wetlands and riparian zones in North America. After its arrival in the early 1800's, and without natural enemies to keep it in check, it has since spread across much of the middle and northern latitudes of the U.S. (Thompson et al. 1987, Mullin 1999, Piper et al. 2004). The plant reproduces by seed and fragmentation of plants, allowing infestations to proliferate and spread.

### Identification

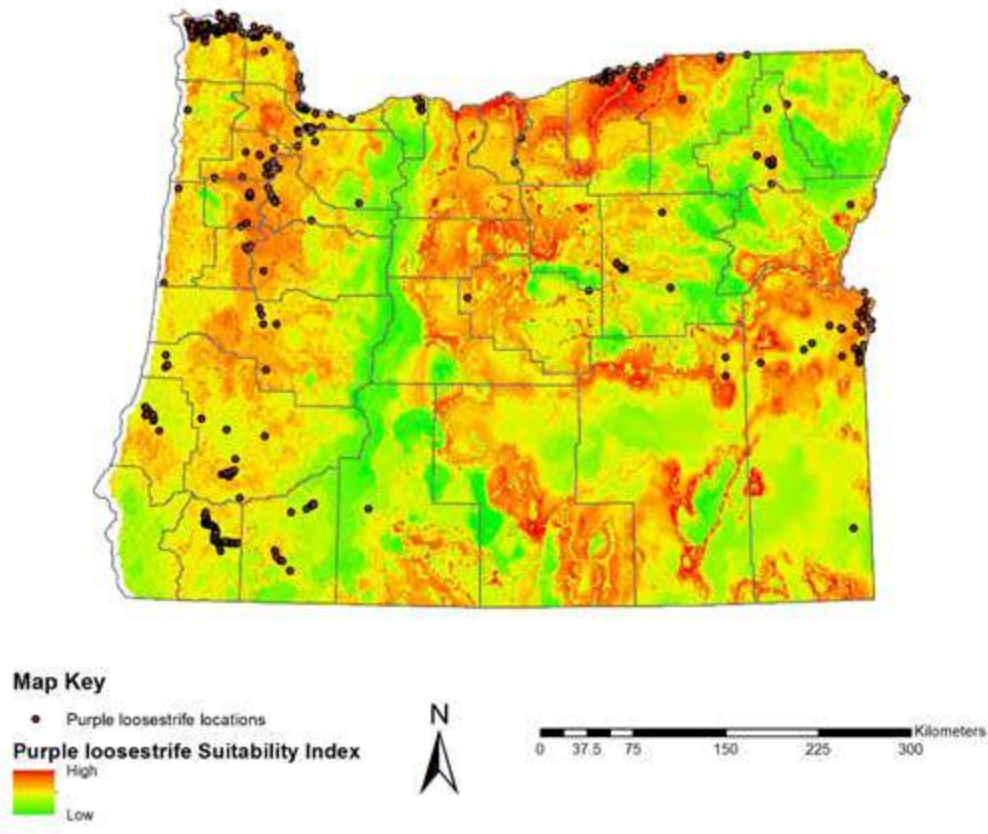
Purple loosestrife is a semi-woody herbaceous plant with long showy spikes made of showy purple flowers consisting of 5-6 petals. The seeds are very small, and large plants can produce over one million seeds. Stems are four to six sided and leaves are lance-shaped with smooth margins. Plants can be 3-10 feet tall, and have a single flowering spike or many, depending on age and habitat.



Purple loosestrife flower (L) and infestation at Horseshoe Lake, Marion County (R).

### Current Status & Distribution

Purple loosestrife is widely established in Oregon, occurring along rivers, streams, ponds, marshes, wetlands, seeps and wet meadows. Sites where the native wetland vegetation have been disturbed and created wetlands lacking natural wetland flora are particularly vulnerable to loosestrife infestation.



Known infestations of purple loosestrife (dots) and predicted vulnerable areas (shaded) based on known habitat features and requirements (Weedmapper 2013).

## Control and Management Options

Because purple loosestrife inhabits wetlands and riparian zones, control options are often limited because of the sensitive nature of the infested habitats. Intensive management of purple loosestrife can be a difficult problem, in that water quality can be severely impacted, threatening ecosystem function and services. For small infestations ( $<0.1A$ ), manual control may be sufficient. Some chemical control has been implemented using a limited number of approved aquatic herbicides can be sporadically effective, but reinfestation from seeds is often the result, along with loss of susceptible plant species. For most sites more than  $0.25A$ , biological control (the use of four beetles which are host specific natural enemies) has been the priority control measure in Oregon since 1992. Successful control of purple loosestrife was manifested as early as 1997 at multiple sites in eastern and western Oregon, especially in areas that have less than one foot of standing water during the flood season. Purple loosestrife in tidally influenced rivers and marshes (i.e. lower Columbia and Umpqua rivers and Coos Bay tidal marshlands), and in streams that experience high intensity and short duration flooding in the spring (Rogue and Umpqua rivers and selected tributaries) are not as suitable for biological control.

## Economics

The primary economic impacts of purple loosestrife occur when infestations interfere with ecosystem products and services (i.e. water quality, hunting, fishing, species diversity of wetlands, etc.). Purple loosestrife has a low ecological amplitude when compared to its potential

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
7,000	\$12,000	15,276,000	\$28,444,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

distribution in Oregon.

Once entrenched, purple loosestrife can form thick stands that exclude desirable flora and its important associated fauna (Schooler et al. 2009). Loosestrife infestations can also negatively impact the cycling of nutrients in

aquatic systems (Schooler et al. 2006). The implementation of biological control may well prevent purple loosestrife from ever achieving its full biological potential in Oregon, saving millions of dollars in ecological and socioeconomic impacts and improving water quality in the state.

## Conclusion

Purple loosestrife is a difficult weed to control by nature of the unique and vulnerable habitats in which it occurs in Oregon. Small infestations are best handled with intensive control measures like manual and chemical control. Once infestations are too large for intensive control measures, biological control is the best option, achieving 50-95% control ability at inland sites. Coastal sites in tidal zones are especially difficult, and experiments are continuing to develop nursery sites in the upper elevational zones to maintain colonies of biocontrol agents.

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Compiled by Eric M. Coombs, Oregon Department Agriculture  
12/16/2013 V1.1

# Spartina

## Introduction

*Spartina densiflora*, *S. alterniflora*, and *S. patens* are three of 14 to 17 different species in the genus *Spartina*. With its great capacity for reducing tidal wave energy, mitigating erosion and trapping sediments, *S. alterniflora* has been widely introduced in many coastal and estuarine regions of the world as a species for ecological engineering (Wang et al. 2010). The negative impacts of *Spartina*'s include the replacement of native marsh species, colonization and elimination of mudflats leading to severe reductions of food and shelter for juvenile fish, crabs, migratory shorebirds and habitat for shellfish.

Although relatively free of these species, Oregon has several *Spartina* infestations located on the lower Columbia River, Siuslaw Estuary and Coos Bay Estuary. Large infestations in adjacent states, place Oregon at risk for additional introductions.

## Identification

"*Spartina* species are robust, perennial grasses with stout, upright, densely spaced stems and thick mats of roots and rhizomes. They are prolific seed producers. Vegetatively spread by rhizomes, they can rapidly expand the area covered by a clone (Sytsma and Morgan, 2010)". *Spartina patens* is a lower growing, fine-leaved species with a distinctive lime-green color. One of the limiting differences between the species is that *Spartina*'s have varying optimal and survival elevations within the intertidal zone depending on the species (Qan et al., 2007). *Spartina alterniflora* and *densiflora* dominate the regularly flooded marsh ("low marsh") while *S. patens* occurs in the irregularly flooded marsh ("high marsh").

## Current Status and Distribution

Oregon *Spartina* distribution:

*Spartina patens*: Cox Island, Siuslaw River Estuary: At its peak, Cox Island contained over 3 acres of *Spartina patens*. Since that time all patches have been covered with geotextile fabric.

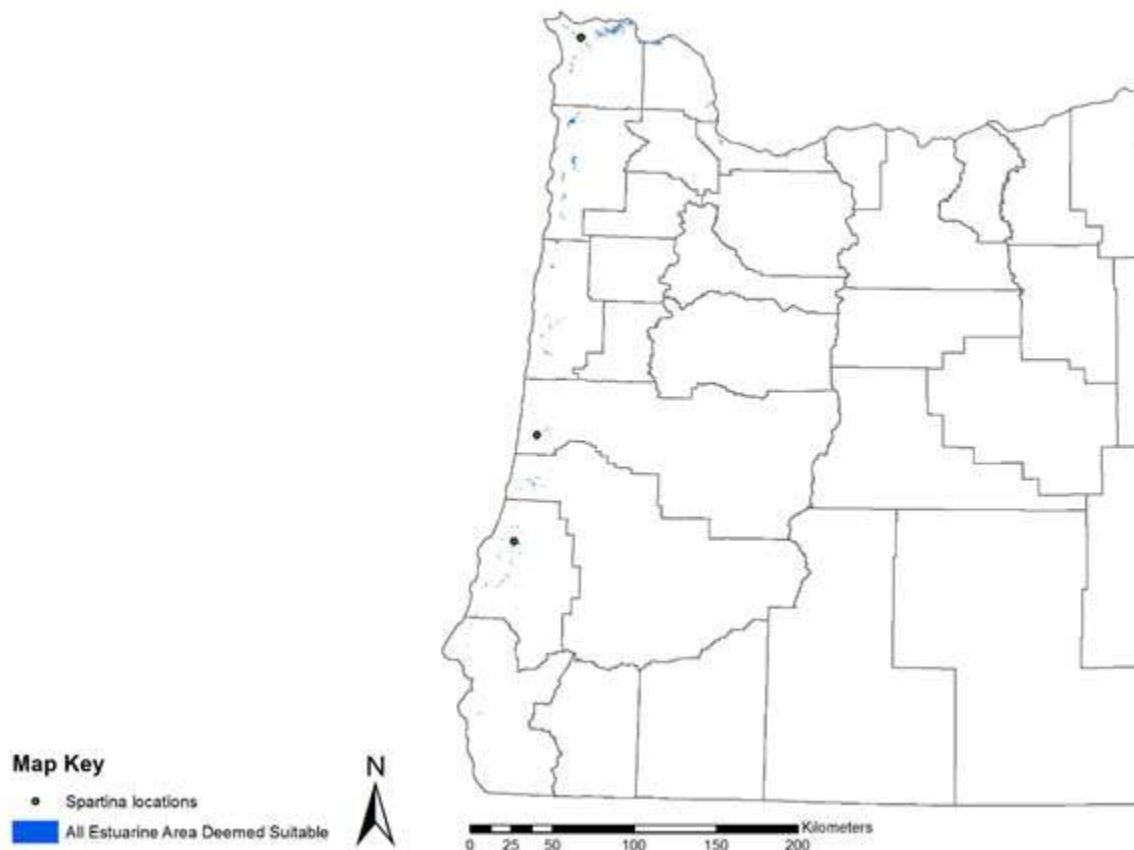
*Spartina alterniflora*, Siuslaw River: Two patches of *S. alterniflora* were identified in 1990 by Portland State University staff. After the discovery, the patches were removed by the originator of the planting upon request. In 2005 a single plant was relocated by PSU staff at the Siuslaw location and an additional site was located in the Coos Bay Estuary, also the result of the original plantings. These sites have been eradicated.

Warrenton, Lower Columbia River: The only



naturally introduced *Spartina alterniflora* infestation in Oregon was located on the Columbia River near the mouth of the Skipanon River at Warrenton. Portland State University's staff, discovered the infestation during a helicopter flyover in 2008. The seed source for the infestation was likely to have originated in Willapa Bay, Washington, less than 30 miles north of the site. The infestation is now eradicated.

*Spartina densiflora*: Coos Bay Estuary. The first Oregon discovery occurred in 2013. This difficult-to-control species has not been found adjacent to the Oregon border but is located distantly in Puget Sound, Washington and Humbolt Bay, California. Ten plants have been identified and removed during a boat survey organized by Weed Control Program and Portland State University staff.



Known infestations of purple loosestrife (dots) and predicted vulnerable areas (shaded) based on known habitat features and requirements (Weedmapper 2013).

## Control and Management Options

The species have been controlled successfully using three methodologies. Herbicides have been used on the *S. alterniflora* patches. Products include glyphosate wiped on cut stems and foliar applications of imazapyr. The *Spartina patens* infestations



have been controlled using geotextile fabric, held in place for two years. *Spartina densiflora*, known to be the hardest to control of the three, was removed by digging. Severed roots are a significant source of re-establishment so yearly examination of the infestation will be important.

## Economics

Estuaries on the Pacific coast of North America evolved into large very flat shallow structures with limited vegetative growth. This shallow open environment encourages the growth of dense populations of mollusks, worms and crustaceans that provide a rich supply of food for commercially important species and wildlife. These mudflats also offer an excellent substrate for commercial shellfish production, primarily oysters. Juvenile Dungeness crabs by the millions also utilize the eelgrass beds for refuge and provide the stock for the multi-million dollar crab fishery. *Spartina*'s change this dynamic. Rapid colonization of mudflats allow for the

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	\$1,000	40,000	\$40,223,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

accumulation of sediments to occur at a much higher rate.

Elevations of the former mudflats are raised causing channelization, creating much faster tidal flow rates. Invertebrate beds disappear creating significant losses in food for migrating shorebirds and

waterfowl. Refuge for juvenile crabs and fish become restricted creating a loss of stock for commercial fisheries. Habitat for commercial shellfish production also becomes restricted causing reductions in harvest and a loss of economic activity in coastal communities. In direct costs, the impact to commercial fisheries in Oregon would be in the millions of dollars.

## Conclusion

Oregon has been fortunate, escaping the complications of large-scale *Spartina* populations that have plagued all other Pacific Coast states and British Columbia. The Weed Control Program, the Center for Lakes and Reservoirs at Portland State University and the Nature Conservancy recognized early the threat posed to Oregon estuaries by these invasive plants. A *Spartina* action plan was formulated outlining the need for yearly surveys to identify outbreaks and a rapid response to eliminate them. The Weed Control Program has annually funded the Center for Lakes and Reservoirs to carry out much of the survey work that has yielded most of the discoveries. Recent surveys have been cooperative with staff of both programs involved, yielding the recent find of *Spartina densiflora* at Coos Bay and providing off-site control of *Spartina patens* in the Siuslaw Estuary. Add to this the work of the Nature Conservancy on Cox Island against *Spartina patens*, Oregon can now boast control or eradication of all known sites.

The expansion of boat-based surveys in additional estuaries will continue insuring a *Spartina* free Oregon for years to come.

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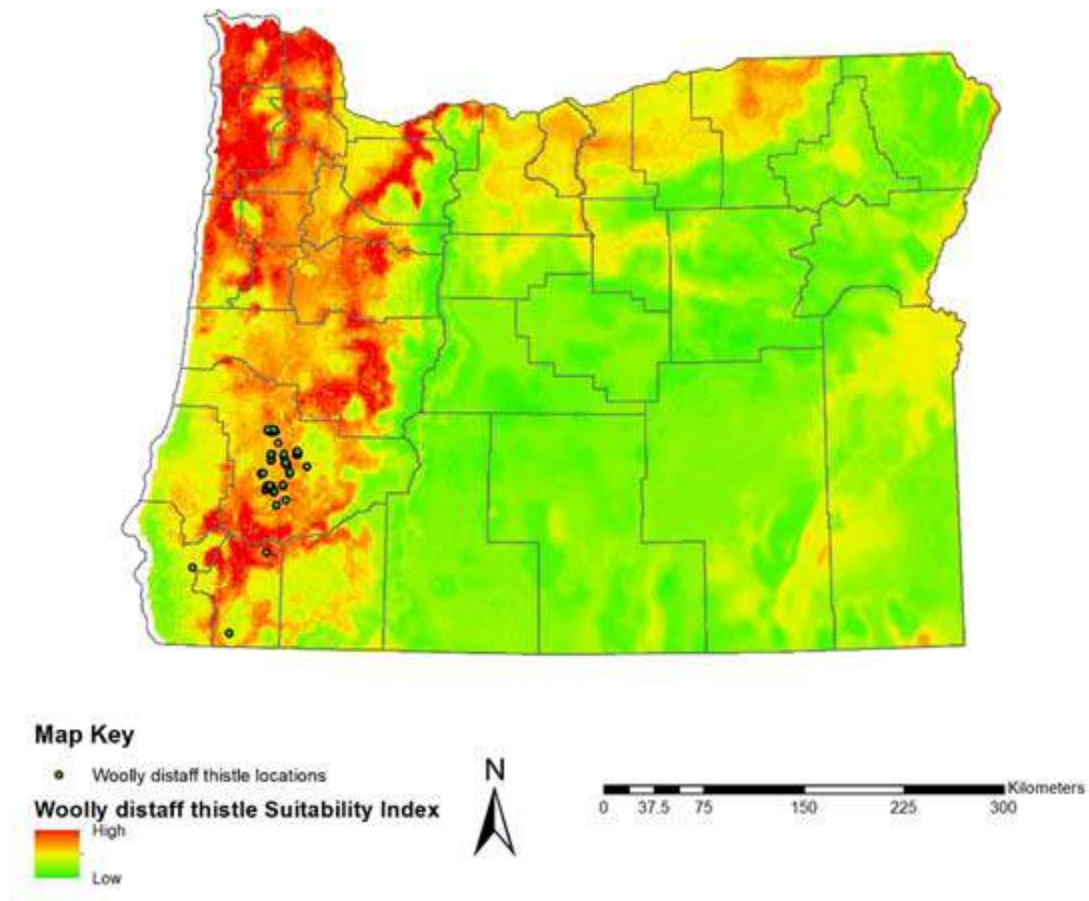
## Woolly distaff thistle

### Introduction

Woolly distaff thistle, *Carthamus lanatus*, is a federally listed noxious weed and is considered one of the worst pasture weeds in North America and Australia (Burrill, 1994). It is a highly adaptable member of the aster family, heavily armed with spines and produces an abundance of long-lived seeds. In dense infestations, it imposes significant impediments to forage production and quality meanwhile creating physical barriers to grazing access (Burrill, 1992). First reported in California in 1891, it has since become widespread in that region where it infests thousands of acres of seasonally dry hillside pasture (DiTomaso, 2013). In Oregon, the first infestation was identified in 1987, with infestations now occurring in three counties in southwest Oregon.

### Current Status & Distribution

Distaff thistle infests acreage across 40 ownerships in 21 locations in Oregon. Eighteen of these locations are in Douglas County, two in the northern reaches of Josephine County, and one in Curry County. Woolly distaff thistle has been reduced by 97% from historic levels, from 123 net acres to less than 3.5. Since 2009, the population has fluctuated between 2.5 and 3.5 net acres. No new sites have been discovered since 2006; helicopter surveys are conducted periodically to rule out potential detection gaps.



Known infestations of Woolly Distaff Thistle (dots) and predicted vulnerable areas (shaded) based on known habitat features and requirements (Weedmapper 2013).

## Control and Management Options

Elimination of seed production and seeds banked in the soil are key when battling an annual thistle. Early season applications with a selective herbicide or manual methods before flowering are effective in controlling distaff thistle (Peachey et. al). Mowing can be effective under dry soil conditions if done just prior to flowering. Mowing in wetter soils is only minimally effective as plants re-grow and flower. Distaff thistle is easier to control when immature, however individual plants are often hard to see until the surrounding forage starts to dry. Intense grazing management can be effective under certain conditions. Healthy grass stands make areas less susceptible to invasion. Woolly distaff thistle is so closely related to safflower that it is often confused with the commercially produced plant when located in a field (Abrams and Ferris, 1961). The genetic similarities between the two species are so great that biological control has not been pursued in the United States.



## Economics

Woolly distaff thistle can drastically decrease forage availability for wildlife and grazing animals where heavy infestations occur (Burrill, L.C. 1994; DiTomaso 2006). Mature dead plants stay rigid and spiny after they mature and senesce, rendering vast acreage unusable and more prone to catastrophic wildfire (Grace 2002; Sindel, 1991). In Australia woolly distaff thistle reduces cereal grain yields, clogs harvesting equipment, and increases seed cleaning costs (Fromm,

1990). Distaff thistle spines are also known to result in contamination and downgrading of wool (Grace, 2002).

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
<500	<\$500	18,627,000	\$163,800,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			





Woolly distaff thistle's devastating impact to rangelands in Australia (left) and California (right)  
*Photos by Dennis Isaacson (left) and Joseph M. DiTomaso, UCCE (right)*

## Conclusion

Biologically distaff thistle represents the perfect case study of why a sustained, statewide weed eradication campaign is necessary. Distaff thistle, like yellow starthistle, is a classic long-lived winter annual. It germinates early and develops a long taproot that can draw water from deep in the soil profile, allowing flowering and seed-set after annual grasses have become dormant (Burrill, 1994). Seeds can lay dormant in the soil until conditions are ideal for seedling survival resulting in a slow distribution over time (Grace et. al., 2002). To complicate matters, distaff thistles is not exceptionally showy and new populations may establish and expand for years before they are located. Lastly, unmanaged distaff populations in California present a consent reintroduction threat to Oregon. In the late 1980's the ODA Weed Program made a calculated decision to protect Oregon from invasion by yet another aggressive thistle. The success of this longstanding eradication effort is undeniable, less than four net acres infested in the entire state.

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## Tansy Ragwort

### Introduction

Tansy ragwort, *Senecio jacobaea* (*Jacobaea vulgaris*) Asteraceae, is a poisonous exotic biennial invasive plant from Europe that primarily infests pastures, clearcuts, roadsides and waste places in the Pacific Northwest west of the Cascade Range (Coombs et al. 1999 & 2004). Tansy was first reported in North America around 1900. It reproduces by seed. By the 1950's, it had become a serious pest in the Western Oregon, Washington, and Northern California, causing millions of dollars in agricultural losses (Coombs et al. 1996).

### Identification

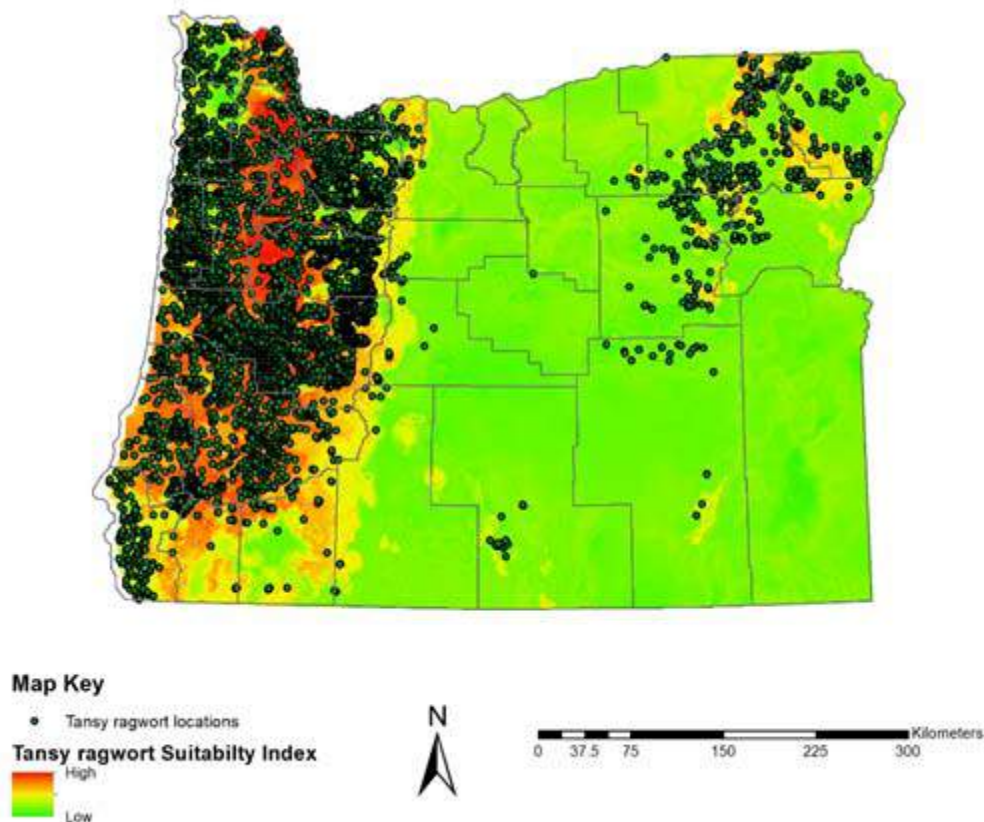
Tansy ragwort is an herbaceous plant with showy yellow daisy-like flowers that often consist of 13 yellow petals. Leaves when crushed emit a disagreeable odor. Seeds small, brownish and tufted with a hairy pappus that aids in local wind dissemination. Stems may be single or severally branched, with purplish base in the summer and grow 1.5 to 4 feet tall. Leaves are dark green, deeply divided and 2-5 inches long. A single plant can produce up to 150,000 seeds that can remain viable for up to 10 years.



Tansy ragwort plant (L) and infestation in Marion County (R).

### Current Status and Distribution

Tansy ragwort in Oregon is primarily west of the Cascades at elevations of 4,000 feet to just above sea level. It occurs mostly in areas where bare soil has been exposed through localized perturbations such as overgrazing, floods, fire, construction, roads, and rodent outbreaks. Infestations can be as high as 10 plants per square yard. Scattered infestations in the mountains in Eastern Oregon are often associated with spike camps where hunters have brought in infested hay from Western Oregon. Many sites in Eastern Oregon have been eradicated through intensive control measures over the past several decades.



Known infestations of tansy ragwort (dots) and predicted vulnerable areas (shaded) based on known habitat features and requirements (Weedmapper 2014).

## Control and Management Options

In areas where short-term and intensive control area warranted, selective herbicides can control outbreaks of tansy ragwort, particularly at small infestations in Eastern Oregon and localized outbreaks in pastures on the west side. Infestations are most vulnerable to treatment during the rosette stage. Large infestations in Western Oregon are primarily targeted with biological control through the introduction and management of three insects, which are natural enemies of tansy ragwort. Prevention of infestations in Eastern Oregon is now primarily through the regulation of only importing certified weed-free hay. Prevention in Western Oregon is through education of land owners and managers to promote healthy and competitive plant communities and avoid overgrazing and other disturbances that heavily impact intact plant communities.

## Economics

Before biological control was implemented, tansy ragwort caused over \$5 million in annual economic losses, primarily in livestock poisoning and contaminated hay (Radtke 1993). The successful implementation of biological control has lead to a steady benefit of \$5 million per year and cattle losses are now rare (Coombs et al. 1996). Incipient outbreaks occasionally occur

in areas where tansy was once under control, however if the sites are not continuously overgrazed, the biocontrol agents naturally build up and control the site within a couple of years.

Current Infestation		Susceptible Infestation	
Acres	Economic Impact	Acres	Economic Impact
125,000	\$115,000	11,384,000	\$12,661,000
Notes: The susceptible acres are from the KRESS model environmental variables using the "mean" statistical assumptions. Annual economic impact is measured by personal income in 2012 dollars and includes the "multiplier" effect.			

## Conclusion

Tansy ragwort is not a difficult plant to control, except when the acreages are large or occur in areas where conventional control is difficult to implement. Gross acreages in Western Oregon remain steady, however net acreages remain low with occasional transient outbreaks in disturbed areas. Biological control in the western part of the state remains the primary control option. East of the Cascades tansy ragwort is targeted for eradication and intensive control. Biological control of tansy ragwort is heralded as Oregon's most successful control program.

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 2/4/2014 V1.2

## **APPENDIX C**

### **Economic Analysis Model Assumptions, Algorithms, and Dependencies**

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Table C.1a  
Economic Assessment Model Drivers for Current Study - Variables Independent of Species

Model Type and Variable Name	Model Inputs			Source
	REI			
	Sales	Income	Jobs	
<u>1. Livestock</u>				
AUM production per acre				
a. Production is land type dependent	0.14 to 4.0			TRG (2000)
b. Grazing months per year	3			Pratt and Rasmussen (2001)
c. AUM's per cow	15			Radtke (December 2013)
Livestock losses				
d. Herd replacement value per cow	\$1,000.00			
e. I/O model response coefficient		0.58		IMPLAN 2011
<u>2. Agriculture</u>				
Cattle				
a. Sales per AUM (calf value / 15 AUM)	\$38.13			Radtke (December 2013)
b. I/O model response coefficient		0.58		IMPLAN 2011
c. Grazing fee per AUM	\$13.50			Bioeconomics, Inc. (2011)
Wheat				
d. Bushels per acre	45			OSU's Extension Service Budgets
e. Sales per bushel	\$7.00			USDA National Agricultural Statistics Service
f. I/O model response coefficient		0.64		IMPLAN 2011
Bentgrass				
g. Pounds per acre	1,250			TRG (2000)
h. Sales per pound	\$0.60			USDA National Agricultural Statistics Service
i. I/O model response coefficient		0.64		IMPLAN 2011
Aquaculture				
j. Oyster production per acre	\$220.00			Radtke (December 2013)
k. I/O model response coefficient		1.48		TRG (September 2013)
<u>3. Timber</u>				
a. Growth of mbf per year per acre	0.25			Oregon Forest Resources Institute (2012)
b. Sales per mbf	\$500.00			Oregon Forest Resources Institute (2012)
c. I/O model response coefficient		0.88		Oregon Forest Resources Institute (2012)
<u>4. Wildlife</u>				
Hunting				
a. Cow-deer equivalency	4.5			Ruyle and Ogden (1993)
b. \$73.66/day, 15.2 days/deer, 30% harvest	\$335.89			ODFW (2003)
c. I/O model response coefficient		0.75		ODFW (2003)
Fishing				
d. Adult salmonids production/stream mile	2.5			NOAA Fisheries (2014)
e. Exploitation rate	50%			
f. Value per fish				
i. Commercial ex-vessel	\$100			TRG (September 2013)
ii. Recreational @ \$100/day, 4 days/fish	\$400			TRG (July 2013)
g. I/O model response coefficient				
i. Commercial		1.48		TRG (September 2013)
ii. Recreational		0.41		Southwick Associates, Inc. (2007)
Boating (bays and lakes)				
h. Bay expend. per party boat day	\$172.84			Chang and Jackson (2003)
i. Boat party days per acre	15			Oregon State Marine Board (2009)
j. I/O model response coefficient		0.77		National Marine Manufacturers Assoc. (2014)
<u>5. Jobs</u>				
a. Full-time and part-time net earnings for employees and proprietors	\$45,021			U.S. Bureau of Economic Analysis

Table C.1a (cont.)

- Notes:
1. Some prices and expenditures required adjusting to 2012 dollars using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis.
  2. Variables are shown in shading where inputs are functional, and no shading where they are calculated.
  3. Some parameters for the previous study, such as prices, I/O response coefficients, etc., have been adjusted to current year economic conditions. The economic activity extent and production function methodology have been preserved.

Source: Study.



Table C.1b  
Economic Assessment Model Drivers for Current Study - Variables Associated With Species

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI		Current Acres	REI	
		Sales	Income		Sales	Income
Group 1 - Tansy Ragwort						
1. Livestock (rangeland)	156,480	\$6,781	\$3,907	0	\$0	\$0
a. Plant cover/impact per area	96%	\$43.33	\$24.97			
b. Degradation - livestock mortal	10%					
c. AUM production per acre		1.30				
2. Agriculture						
Component A (rangeland)	156,480	\$2,327	\$1,341	9,194	\$137	\$79
a. Plant cover/impact per area	96%	\$14.87	\$8.57			
b. Degradation	30%					
c. AUM production per acre		1.30				
Component B (farmland, bentgrass)	6,520	\$587	\$377	0	\$0	\$0
a. Plant cover/impact per area	4%	\$90.00	\$57.78			
b. Degradation	12%					
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	156,480	\$65	\$48	115,626	\$48	\$36
a. Plant cover/impact per area		\$0.41	\$0.31			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$65	\$48			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	163,000	\$9,759	\$5,673	124,819	\$185	\$115
Group 2 - Yellow Starthistle and Japanese Knotweed						
1. Livestock (rangeland)	94,707	\$410	\$236	228,485	\$990	\$571
a. Plant cover/impact per area	10%	\$4.33	\$2.50			
b. Tansy ragwort index	0.1					
2. Agriculture						
Component A (rangeland)	947,068	\$3,463	\$1,995	68,570	\$251	\$144
a. Plant cover/impact per area	100%	\$3.66	\$2.11			
b. Degradation	70%					
c. AUM production per acre		0.14				
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	947,068	\$948	\$704	121,102	\$121	\$90
a. Plant cover/impact per area		\$1.00	\$0.74			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$915	\$684			
d. Degradation - fishing	100%	\$33	\$21			
e. Degradation - boating						
5. Total economic impact (\$000)	947,068	\$4,822	\$2,936	418,157	\$1,362	\$805

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI		Current Acres	REI	
		Sales	Income		Sales	Income
Group 3 - Distaff Thistle and Paterson's Curse						
1. Livestock (rangeland)				12	\$0	\$0
a. Plant cover/impact per area		\$4.33	\$2.50			
2. Agriculture						
Component A (rangeland)	1	\$0	\$0	0	\$0	\$0
a. Plant cover/impact per area	10%	\$6.58	\$3.79			
b. Yellow starthistle index	1.8					
Component B	0	\$0	\$0	1	\$0	\$0
a. Plant cover/impact per area		\$90.00	\$57.78			
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	1	\$0	\$0	0	\$0	\$0
a. Plant cover/impact per area		\$1.74	\$1.30			
b. Yellow starthistle index	1.8					
c. Degradation - hunting		\$0	\$0			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	10	\$0	\$0	13	\$0	\$0
Group 4 - Scotch Broom						
1. Livestock (rangeland)				0	\$0	\$0
2. Agriculture						
Component A (rangeland)	750,000	\$4,290	\$2,472	0	\$0	\$0
a. Plant cover/impact per area	50%	\$5.72	\$3.30			
b. Degradation	30%					
c. AUM production per acre		0.50				
3. Timber (forestland)	750,000	\$23,438	\$20,625	1,434,036	\$44,814	\$39,436
a. Plant cover/impact per area	50%	\$31.25	\$27.50			
b. Production degradation	25%					
4. Wildlife (rangeland and wildland)	750,000	\$311	\$232	94,105	\$39	\$29
a. Plant cover/impact per area		\$0.41	\$0.31			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$311	\$232			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	1,500,000	\$28,038	\$23,329	1,528,141	\$44,853	\$39,465

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI		Current Acres	REI	
		Sales	Income		Sales	Income
Group 5 - Knapweeds and Kudzu						
1. Livestock (rangeland)				394,794	\$0	\$0
2. Agriculture						
Component A (rangeland)	907,796	\$4,742	\$2,732	18,254	\$95	\$55
a. Plant cover/impact per area	50%	\$5.22	\$3.01			
b. Degradation	100%					
c. AUM production per acre		0.14				
3. Timber (forestland)	907,796	\$28,369	\$24,964	0	\$0	\$0
a. Plant cover/impact per area	50%	\$31.25	\$27.50			
4. Wildlife (rangeland and wildland)	907,796	\$1,253	\$936	155,466	\$215	\$160
a. Plant cover/impact per area		\$1.38	\$1.03			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$1,253	\$936			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	1,815,591	\$34,363	\$28,633	568,514	\$310	\$215
Group 6 - Gorse and Armenian Blackberry (Himalayan)						
1. Livestock (rangeland)				0	\$0	\$0
2. Agriculture						
Component A (rangeland)	15,677	\$90	\$52	42,264	\$242	\$139
a. Plant cover/impact per area	50%	\$5.72	\$3.30			
b. Degradation						
Component B (farmland)				28,993	\$2,609	\$1,675
a. Plant cover/impact per area		\$90.00	\$57.78			
3. Timber (forestland)	15,677	\$490	\$431	1,373,399	\$42,919	\$37,768
a. Plant cover/impact per area	50%	\$31.25	\$27.50			
4. Wildlife (rangeland and wildland)	15,677	\$111	\$70	221,694	\$1,577	\$991
a. Plant cover/impact per area		\$7.11	\$4.47			
c. Degradation - hunting		\$6	\$5			
d. Degradation - fishing	100%	\$105	\$65			
e. Degradation - boating						
5. Total economic impact (\$000)	31,354	\$691	\$553	1,666,350	\$47,346	\$40,573

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI		Current Acres	REI	
		Sales	Income		Sales	Income
Group 7 - Leafy Spurge						
1. Livestock (rangeland)	732	\$3	\$2	4,461	\$19	\$11
a. Plant cover/impact per area	10%	\$4.33	\$2.50			
b. Tansy ragwort index	0.1					
2. Agriculture						
Component A (rangeland)	7,324	\$140	\$80	229	\$4	\$3
a. Plant cover/impact per area	100%	\$19.07	\$10.99			
b. Degradation	100%					
c. AUM production per acre		0.50				
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	7,324	\$10	\$8	3,524	\$5	\$4
a. Plant cover/impact per area		\$1.39	\$1.04			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$10	\$8			
d. Degradation - fishing	100%	\$0	\$0			
e. Degradation - boating						
5. Total economic impact (\$000)	7,324	\$153	\$90	8,214	\$29	\$17
Group 8 - Rush Skeletonweed and Giant Hogweed						
1. Livestock (rangeland)				96,543	\$0	\$0
2. Agriculture						
Component A (rangeland)	30,000	\$286	\$165	0	\$0	\$0
a. Plant cover/impact per area	50%	\$9.53	\$5.49			
b. Degradation	50%					
c. AUM production per acre		0.50				
Component B (farmland, wheat)	30,000	\$4,725	\$3,033	13,821	\$2,177	\$1,397
a. Plant cover/impact per area	50%	\$157.50	\$101.11			
b. Degradation	50%					
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	30,000	\$21	\$15	5	\$0	\$0
a. Plant cover/impact per area		\$0.69	\$0.52			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$21	\$15			
d. Degradation - fishing	100%	\$0	\$0			
e. Degradation - boating						
5. Total economic impact (\$000)	60,000	\$5,032	\$3,214	110,369	\$2,177	\$1,397

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net	REI		Current	REI	
	Acres	Sales	Income	Acres	Sales	Income
Group 9 - Purple Loosestrife						
1. Livestock (rangeland)				0	\$0	\$0
2. Agriculture						
Component A (rangeland)				0	\$0	\$0
a. Plant cover/impact per area	100%					
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	2,230	\$7	\$4	6,684	\$20	\$12
a. Plant cover/impact per area		\$3.00	\$1.86			
c. Degradation - hunting						
d. Degradation - fishing	100%	\$7	\$4			
e. Degradation - boating						
5. Total economic impact (\$000)	2,230	\$7	\$4	6,684	\$20	\$12
Group 10 - White Top, Perennial Pepperweed, and Dalmatian Toadflax						
1. Livestock (rangeland)				333,686	\$0	\$0
a. Plant cover/impact per area						
2. Agriculture						
Component A (rangeland)	1,125,110	\$21,450	\$12,360	13,607	\$259	\$149
a. Plant cover/impact per area	95%	\$19.07	\$10.99			
b. Degradation	100%					
c. AUM production per acre		0.50				
Component B (farmland, hay)	59,216	\$5,329	\$3,421	8,605	\$774	\$497
a. Plant cover/impact per area	5%	\$90.00	\$57.78			
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	1,125,110	\$1,553	\$1,160	268,568	\$371	\$277
a. Plant cover/impact per area		\$1.38	\$1.03			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$1,553	\$1,160			
d. Degradation - fishing	100%	\$0	\$0			
e. Degradation - boating						
5. Total economic impact (\$000)	1,184,326	\$28,333	\$16,942	624,467	\$1,405	\$924

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net	REI		Current	REI	
	Acres	Sales	Income	Acres	Sales	Income
Group 11 - Scotch Thistle						
1. Livestock (rangeland)				96,874	\$0	\$0
a. Plant cover/impact per area						
2. Agriculture						
Component A (rangeland)	526,800	\$2,752	\$1,586	0	\$0	\$0
a. Plant cover/impact per area	100%	\$5.22	\$3.01			
b. Degradation	100%					
c. AUM production per acre		0.14				
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	526,800	\$727	\$543	5,518	\$8	\$6
a. Plant cover/impact per area		\$1.38	\$1.03			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$727	\$543			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	526,800	\$3,479	\$2,129	102,391	\$8	\$6
Group 12 - Mediterranean Sage						
1. Livestock (rangeland)				90,120	\$0	\$0
2. Agriculture						
Component A (rangeland)	250,000	\$1,306	\$752	0	\$0	\$0
a. Plant cover/impact per area	100%	\$5.22	\$3.01			
b. Degradation	100%					
c. AUM production per acre		0.14				
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	250,000	\$345	\$258	0	\$0	\$0
a. Plant cover/impact per area		\$1.38	\$1.03			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$345	\$258			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	250,000	\$1,651	\$1,010	90,120	\$0	\$0

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI		Current Acres	REI	
		Sales	Income		Sales	Income
Group 13 - Purple Starthistle						
1. Livestock (rangeland)				1	\$0	\$0
2. Agriculture						
Component A (rangeland)	0.1	\$0	\$0	0	\$0	\$0
a. Plant cover/impact per area		\$6.58	\$3.79			
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	0.1	\$0	\$0	0	\$0	\$0
a. Plant cover/impact per area		\$0.97	\$0.72			
b. AUM production per acre		0.14				
c. Degradation - hunting		\$0	\$0			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	1	\$0	\$0	1	\$0	\$0
Group 14 - Hawkweeds						
1. Livestock (rangeland)				0	\$0	\$0
2. Agriculture						
Component A (rangeland)	95	\$2	\$1	0	\$0	\$0
a. Plant cover/impact per area	95%	\$19.07	\$10.99			
b. Degradation	100%					
c. AUM production per acre		0.50				
Component B (farmland, wheat)				0	\$0	\$0
a. Plant cover/impact per area						
b. Degradation						
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	95	\$0	\$0	1,074	\$1	\$1
a. Plant cover/impact per area		\$1.38	\$1.03			
b. AUM production per acre		0.14				
c. Degradation - hunting	10%	\$0	\$0			
d. Degradation - fishing						
e. Degradation - boating						
5. Total economic impact (\$000)	100	\$2	\$1	1,074	\$1	\$1

Table C.1b (cont.)

Model Type and Variable Name	Model Inputs			Economic Impacts		
	Net Acres	REI		Current Acres	REI	
		Sales	Income		Sales	Income
Group 15 - Spartina						
1. Livestock (rangeland)				0	\$0	\$0
2. Agriculture						
Component B (oysters)	1	\$0	\$0	0	\$0	\$0
a. Plant cover/impact per area	100%	\$220.00	\$325.60			
b. Degradation	100%					
3. Timber (forestland)				0	\$0	\$0
4. Wildlife (rangeland and wildland)	1	\$1	\$1	1	\$1	\$1
a. Plant cover/impact per area		\$1,296.32	\$998.17			
c. Degradation - hunting						
d. Degradation - fishing						
e. Degradation - boating	50%	\$1	\$1			
5. Total economic impact (\$000)	1	\$2	\$1	1	\$1	\$1

- Notes: 1. Some prices and expenditures required adjusting to 2012 dollars using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis.
2. Variables are shown in shading where inputs are functional, and no shading where they are calculated.
3. For some weed groups, the table may show current acres without corresponding economic activity model inputs. For example, Group 8 has acres for the livestock economic activity model with blank inputs. It is assumed in these situations that the economic impacts are insignificant.

Source: Study.



Table C.2  
Economic Assessment Model Algorithms

<u>Economic Model</u>	<u>1 - Tansy Ragwort</u>	<u>2 - Yellow Starthistle</u>	<u>3 - Distaff Thistle</u>
<u>Livestock</u>			
REI			
Sales	$A1d / A1b * B1a * B1b * B1c * \text{area}$	$t. \text{ ragwort sales per area} * B1a * B1b * \text{area}$	
Income	$\text{sales} * A1e$	$\text{sales} * A1e$	
<u>Agricultural</u>			
Component A			
REI			
Sales	$A2a * B2a * B2b * B2c * \text{area}$	$A2a * B2a * B2b * B2c * \text{area}$	$y. \text{ starthistle sales per area} * B2a * B2b * \text{area}$
Income	$\text{sales} * A2b$	$\text{sales} * A2b$	$y. \text{ starthistle income per area} * B2a * B2b * \text{area}$
Component B			
REI			
Sales	$A2g * A2h * B2a * B2b * \text{area}$		$t. \text{ ragwort (sales per area} * B2a) * \text{area}$
Income	$\text{sales} * A2i$		$t. \text{ ragwort (income per area} * B2a) * \text{area}$
<u>Timber</u>			
REI			
Sales			
Income			
<u>Wildlife, Fish, Recreation</u>			
REI			
Sales			
hunting	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$	$y. \text{ starthistle sales per area} * B2a * B4b * \text{area}$
comm. fish		$A4d * \text{stream miles} / 2 * A4e * A4fi * B2a * B4d$	
rec. fish		$A4d * \text{stream miles} / 2 * A4e * A4fii * B2a * B4d$	
boating			
Income			
hunting	$\text{sales} * A4c$	$\text{sales} * A4c$	$\text{sales} * A4c$
comm. fish		$\text{sales} * A4gi$	
rec. fish		$\text{sales} * A4gii$	
boating			

Table C.2 (cont.)

<u>Economic Model</u>	<u>4 - Scotch Broom</u>	<u>5 - Knapweeds</u>	<u>6 - Gorse</u>
<u>Livestock</u>			
REI			
Sales			
Income			
<u>Agricultural</u>			
Component A			
REI			
Sales	$A2a * B2a * B2b * B2c * \text{area}$	$A2a * B2a * B2b * B2c * \text{area}$	$S. \text{ broom sales per area} * B2a * \text{area}$
Income	$\text{sales} * A2b$	$\text{sales} * A2b$	$\text{sales} * A2b$
Component B			
REI			
Sales			
Income			
<u>Timber</u>			
REI			
Sales	$A3a * A3b * B3a * B3b * \text{area}$	$S. \text{ broom sales per area} * B3a * \text{area}$	$S. \text{ broom sales per area} * B3a * \text{area}$
Income	$\text{sales} * A3c$	$S. \text{ broom income per area} * B3a * \text{area}$	$S. \text{ broom income per area} * B3a * \text{area}$
<u>Wildlife, Fish, Recreation</u>			
REI			
Sales			
hunting	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$	$S. \text{ broom sales per area} * B2a * \text{area}$
comm. fish			$A4d * \text{stream miles} / 2 * A4e * A4fi * B2a * B4d$
rec. fish			$A4d * \text{stream miles} / 2 * A4e * A4fii * B2a * B4d$
boating			
Income			
hunting	$\text{sales} * A4c$	$\text{sales} * A4c$	$\text{sales} * A4c$
comm. fish			$\text{sales} * A4gi$
rec. fish			$\text{sales} * A4gii$
boating			

Table C.2 (cont.)

<u>Economic Model</u>	<u>7 - Leafy Spurge</u>	<u>8 - Rush Skeletonweed</u>	<u>9 - Purple Loosestrife</u>
<u>Livestock</u>			
REI			
Sales	t. ragwort sales per area * B1a * B1b * area		
Income	sales * A1e		
<u>Agricultural</u>			
Component A			
REI			
Sales	A2a * B2a * B2b * B2c * area	A2a * B2a * B2b * B2c * area	
Income	sales * A2b	sales * A2b	
Component B			
REI			
Sales		A2d * A2e * B2a * B2b * area	
Income		sales * A2f	
<u>Timber</u>			
REI			
Sales			
Income			
<u>Wildlife, Fish, Recreation</u>			
REI			
Sales			
hunting	A4a * A4b * B2a * B2b * B4b * B4c * area / A1c	A4a * A4b * B2a * B2b * B4b * B4c * area / A1c	
comm. fish	A4d * stream miles / 2 * A4e * A4fi * B2a * B4d	A4d * stream miles / 2 * A4e * A4fi * B2a * B4d	A4d * stream miles / 2 * A4e * A4fi * B2a * B4d
rec. fish	A4d * stream miles / 2 * A4e * A4fii * B2a * B4d	A4d * stream miles / 2 * A4e * A4fii * B2a * B4d	A4d * stream miles / 2 * A4e * A4fii * B2a * B4d
boating			
Income			
hunting	sales * A4c	sales * A4c	
comm. fish	sales * A4gi	sales * A4gi	sales * A4gi
rec. fish	sales * A4gii	sales * A4gii	sales * A4gii
boating			

Table C.2 (cont.)

<u>Economic Model</u>	<u>10 - White Top and Perennial Pepperweed</u>	<u>11 - Scotch Thistle</u>	<u>12 - Mediterranean Sage</u>
<u>Livestock</u>			
REI			
Sales			
Income			
<u>Agricultural</u>			
Component A			
REI			
Sales	$A2a * B2a * B2b * B2c * \text{area}$	$A2a * B2a * B2b * B2c * \text{area}$	$A2a * B2a * B2b * B2c * \text{area}$
Income	$\text{sales} * A2b$	$\text{sales} * A2b$	$\text{sales} * A2b$
Component B			
REI			
Sales	$t. \text{ ragwort sales per area} * B2a * \text{area}$		
Income	$t. \text{ ragwort income per area} * B2a * \text{area}$		
<u>Timber</u>			
REI			
Sales			
Income			
<u>Wildlife, Fish, Recreation</u>			
REI			
Sales			
hunting	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$	$A4a * A4b * B2a * B2b * B4b * B4c * \text{area} / A1c$
comm. fish	$A4d * \text{stream miles} / 2 * A4e * A4fi * B2a * B4d$		
rec. fish	$A4d * \text{stream miles} / 2 * A4e * A4fii * B2a * B4d$		
boating			
Income			
hunting	$\text{sales} * A4c$	$\text{sales} * A4c$	$\text{sales} * A4c$
comm. fish	$\text{sales} * A4gi$		
rec. fish	$\text{sales} * A4gii$		
boating			

Table C.2 (cont.)

<u>Economic Model</u>	<u>13 - Purple Starthistle</u>	<u>14 - Hawkweeds</u>	<u>15 - Spartina</u>
<u>Livestock</u>			
REI			
Sales	d. thistle (sales per area * B2a) * area		
Income	d. thistle (income per area * B2a) * area		
<u>Agricultural</u>			
Component A			
REI			
Sales		A2a * B2a * B2b * B2c * area	
Income		sales * A2b	
Component B			
REI			
Sales			A2j * B2a * B2b * area
Income			sales * A2k
<u>Timber</u>			
REI			
Sales			
Income			
<u>Wildlife, Fish, Recreational</u>			
REI			
Sales			
hunting	y. starthistle sales per area * d. thistle B2a * area	A4a * A4b * B2a * B2b * B4b * B4c * area / A1c	
comm. fish			
rec. fish			
boating			A4h * A4i * B2a * B4e * area
Income			
hunting	sales * A4c	sales * A4c	
comm. fish			
rec. fish			
boating			sales * A4j

Notes: 1. "A" refers to Table C.1a, and "B" refers to Table C.1b.

Source: Study.

Table C.3  
Economic Activity Model Inputs for Infestation Area, Degradation, and Plant Coverage, and Resultant Regional Economic Impacts Per Acre

Economic Activity	Previous Study Weeds										
	(1) Tansy Ragwort	(2) Yellow Starthistle	(3) Distaff Thistle	(4) Scotch Broom	(5) Knapweeds	(6) Gorse	(7) Leafy Spurge	(8) Rush Skel- etonweed	(9) Purple Loosestrife	(10) White Top/ Per. Pepp.	(11) Scotch Thistle
Net infestation area	163,000	947,068	10	1,500,000	1,815,591	31,354	7,324	60,000	2,230	1,184,326	526,800
Livestock (rangeland)											
Plant coverage share	96%	10%					10%				
Degradation (mortality)/3ix	10%	10%					10%				
REI	\$ 3,907,325	\$ 236,484					\$ 1,829				
REI per acre /3iv	\$ 24.97	\$ 2.50					\$ 2.50				
Ag-A (rangeland)											
Plant coverage share /3ii	96%	100%	10%	50%	50%	50%	100%	50%	100%	95%	100%
Degradation /3x	30%	70%	70%	30%	100%	30%	100%	50%		100%	100%
REI	\$ 1,340,877	\$ 1,995,362	\$ 4	\$ 2,471,826	\$ 2,732,314	\$ 51,668	\$ 80,461	\$ 164,788		\$ 12,360,337	\$ 1,585,581
REI per acre /3v	\$ 8.57	\$ 2.11	\$ 3.79	\$ 3.30	\$ 3.01	\$ 3.30	\$ 10.99	\$ 5.49		\$ 10.99	\$ 3.01
Ag-B (farmland)											
Plant coverage share /3i	4%		4%					50%		5%	
Degradation /3xi	12%		12%					50%		12%	
REI	\$ 376,713		\$ 23					\$ 3,033,348		\$ 3,421,403	
REI per acre /3vi	\$ 57.78		\$ 57.78					\$ 101.11		\$ 57.78	
Timber (forestland)											
Plant coverage share				50%	50%	50%					
Degradation /3xii				25%	25%	25%					
REI				\$ 20,625,000	\$ 24,964,376	\$ 431,118					
REI per acre /3vii				\$ 27.50	\$ 27.50	\$ 27.50					
Wildlife (rangeland and wildland)											
Plant coverage share /3iii	96%	100%	10%	50%	50%	50%	100%	50%	100%	95%	100%
Degradation											
Hunting /3xiii	10%	10%	10%	10%	10%	10%	10%	10%		10%	10%
Fishing		100%				100%	100%	100%	100%	100%	
Boating											
REI	\$ 48,412	\$ 704,399	\$ 1	\$ 232,038	\$ 936,193	\$ 70,046	\$ 7,619	\$ 15,469	\$ 4,152	\$ 1,160,452	\$ 543,279
REI per acre /3viii	\$ 0.31	\$ 0.74	\$ 1.30	\$ 0.31	\$ 1.03	\$ 4.47	\$ 1.04	\$ 0.52	\$ 1.86	\$ 1.03	\$ 1.03
Hunting	\$ 0.31	\$ 0.72	\$ 1.30	\$ 0.31	\$ 1.03	\$ 0.31	\$ 1.03	\$ 0.52		\$ 1.03	\$ 1.03
Fishing		\$ 0.02				\$ 4.16	\$ 0.01	\$ -	\$ 1.86	\$ 0.00	
Boating											
All Activity Types											
REI	\$ 5,673,327	\$ 2,936,245	\$ 28	\$ 23,328,865	\$ 28,632,883	\$ 552,832	\$ 89,909	\$ 3,213,606	\$ 4,152	\$ 16,942,192	\$ 2,128,860

Table C.3 (cont.)

Economic Activity	Previous Study Weeds (cont.)				Weeds New to Current Study /4i					
	(12) Mediterranean Sage	(13) Purple Starthistle	(14) Hawk- weeds	(15) Spartina	Armenian Blackberry	Dalmatian Toadflax	Giant Hogweed	Japanese Knotweed	Kudzu	Paterson's Curse
Net infestation area	250,000	1	100	1						
Livestock (rangeland)										
Plant coverage share										
Degradation (mortality)/3ix								10%		10%
REI										
REI per acre /3iv								\$ 2.50		\$ 2.50
Ag-A (rangeland)										
Plant coverage share /3ii	100%	10%	95%							
Degradation /3x	100%	70%	100%		30%	100%	50%	70%	100%	70%
REI	\$ 752,459	\$ 0	\$ 1,044							
REI per acre /3v	\$ 3.01	\$ 3.79	\$ 10.99		\$ 3.30	\$ 10.99	\$ 5.49	\$ 2.11	\$ 3.01	\$ 3.79
Ag-B (farmland)										
Plant coverage share /3i				100%						
Degradation /3xi				100%	12%	12%	50%			12%
REI				\$ 326						
REI per acre /3vi				\$ 325.60	\$ 57.78	\$ 57.78	\$ 101.11			\$ 57.78
Timber (forestland)										
Plant coverage share										
Degradation /3xii					25%				25%	
REI										
REI per acre /3vii					\$ 27.50				\$ 27.50	
Wildlife (rangeland and wildlife)										
Plant coverage share /3iii	100%	10%	95%	100%						
Degradation										
Hunting /3xiii	10%	10%	10%		10%	10%		10%	10%	10%
Fishing					100%	100%	100%	100%		
Boating				50%						
REI	\$ 257,820	\$ 0	\$ 98	\$ 998						
REI per acre /3viii	\$ 1.03	\$ 0.72	\$ 1.03	\$ 998.17	\$ 4.47	\$ 1.03	\$ 0.52	\$ 0.74	\$ 1.03	\$ 1.30
Hunting	\$ 1.03	\$ 0.72	\$ 1.03		\$ 0.31	\$ 1.03	\$ 0.52	\$ 0.72	\$ 1.03	\$ 1.30
Fishing					\$ 4.16	\$ 0.00	\$ -	\$ 0.02		
Boating				\$ 998.17						
All Activity Types										
REI	\$ 1,010,279	\$ 0	\$ 1,142	\$ 1,324						

Table C.3 (cont.)

- Notes: 1. REI is measured (includes the "multiplier effect") by personal income in 2012 dollars.
2. The plant coverage share of the net infestation area is the area for which an economic activity model applies.
3. Some weed species use the plant coverage of another weed species or a different economic activity model type for the same weed species.
- i.* Distaff thistle agriculture Component B uses plant coverage from tansy ragwort Component B.
  - ii.* Purple starthistle agriculture Component A uses plant coverage from distaff thistle agriculture Component A.
  - iii.* All species wildlife uses plant coverage from agriculture Component A, except distaff thistle and spartina. Spartina wildlife boating component uses plant coverage from agriculture Component B.
- Some weed species use the REI per acre of another weed species or a different economic activity model type for the same weed species.
- iv.* Yellow starthistle and leafy spurge livestock use tansy ragwort REI per acre.
  - v.* Distaff thistle and purple starthistle agriculture Component A use yellow starthistle REI per acre with a factor, and gorse uses Scotch broom REI per acre.
  - vi.* Distaff thistle agriculture Component B uses tansy ragwort REI per acre.
  - vii.* Knapweeds and gorse timber use Scotch broom REI per acre.
  - viii.* Distaff thistle and purple starthistle wildlife hunting component use yellow starthistle REI per acre with an index applied, and gorse uses Scotch broom REI per acre.
- Some weed species use the degradation of another weed species or a different economic activity model type for the same weed species.
- ix.* Yellow starthistle and leafy spurge livestock uses tansy ragwort degradation.
  - x.* Distaff thistle and purple starthistle agriculture Component A degradation use yellow starthistle, and gorse uses Scotch broom.
  - xi.* Distaff thistle and white top/perennial pepperweed agriculture Component B degradation use tansy ragwort.
  - xii.* Knapweeds and gorse timber degradation use Scotch broom.
  - xiii.* Distaff thistle and purple starthistle wildlife hunting use yellow starthistle, and gorse uses Scotch broom. All species wildlife hunting also use agriculture Component A degradation in addition to the shown degradation.
4. Species new to the current study use REI per acre from similar species from the previous study that have economic activity models.
- i.* Armenian blackberry uses gorse economic activity models, except for agriculture Component B that uses white top/perennial pepperweed. Dalmatian toadflax uses perennial pepperweed. Giant hogweed uses rush skeletonweed. Japanese knotweed uses yellow starthistle. Kudzu uses Russian knapweed. Paterson's curse uses distaff thistle, except for livestock economic activity model uses leafy spurge.
5. Colored shading: no shading - economic activity model developed, current study areas (current and susceptible) are non-zero; green - economic activity model developed, current study areas are zero; purple - economic activity model assumes no impacts for current study non-zero areas; orange - economic activity model is developed, current study areas are zero, susceptible acres are not zero.



## **APPENDIX D**

### **Analyzed Noxious Weed Habitat Suitability Determinations**

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Table D.1  
Noxious Weed Infestation Current Area by Land Type

Invasive Species	Area Type	Remote Sensed	Adjust-ment	Acres (thousands)																Total
				Agriculture		Rangeland		Urban		Riparian		Pasture		Forestry		Estuarine		Wildland		
				Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	
1 Armenian blackberry (Himalayan)	est.	1,637,857	100%	29	1%	0	0%	125	9%	83	4%	41	0%	1,360	6%	0	0%	0	0%	1,638
2 Cordgrass	actual	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
3 Dalmatian toadflax	est.	1,378,483	25%	0	0%	98	0%	10	1%	10	0%	0	0%	0	0%	0	0%	227	1%	345
4 Giant hogweed	actual	5	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
5 Gorse	est.	81,409	35%	0	0%	0	0%	4	0%	0	0%	1	0%	14	0%	0	0%	9	0%	28
6 Japanese knotweed	est.	169,177	25%	0	0%	0	0%	30	2%	12	1%	0	0%	0	0%	0	0%	0	0%	42
7 Kudzu	actual	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
8 Leafy spurge	est.	410,678	2%	0	0%	4	0%	0	0%	0	0%	0	0%	0	0%	0	0%	3	0%	8
9 Hawkweeds (meadow and orange)	est.	107,384	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	0%	1
10 Mediterranean sage	est.	186,418	50%	0	0%	90	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	90
11 Paterson's curse	actual	10	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
12 Perennial pepperweed	est.	111,365	80%	0	0%	59	0%	0	0%	22	1%	8	0%	0	0%	0	0%	0	0%	89
13 Purple loosestrife	est.	66,836	10%	0	0%	0	0%	0	0%	2	0%	0	0%	0	0%	0	0%	4	0%	7
14 Purple starthistle	actual	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
15 Rush skeletonweed	est.	147,153	75%	14	0%	97	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	110
16 Scotch broom	est.	3,056,282	50%	0	0%	0	0%	94	7%	0	0%	0	0%	1,434	7%	0	0%	0	0%	1,528
17 Scotch thistle	est.	1,023,911	10%	0	0%	97	0%	6	0%	0	0%	0	0%	0	0%	0	0%	0	0%	102
18 Tansy ragwort	est.	2,496,389	5%	0	0%	0	0%	0	0%	0	0%	9	1%	0	0%	0	0%	116	0%	125
19 White top (Hoary cress)	est.	763,018	25%	9	0%	176	1%	0	0%	0	0%	6	0%	0	0%	0	0%	0	0%	191
20 Woolly distaff thistle	actual	3	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
21 Yellow starthistle	est.	751,726	50%	0	0%	228	1%	79	5%	0	0%	69	4%	0	0%	0	0%	0	0%	376
22 Knapweeds - Diffuse	est.	1,100,201	25%	0	0%	252	1%	17	1%	0	0%	6	0%	0	0%	0	0%	0	0%	275
23 Knapweeds - Meadow	est.	501,860	25%	0	0%	0	0%	9	1%	0	0%	8	1%	0	0%	0	0%	108	0%	125
24 Knapweeds -Spotted	est.	671,987	25%	0	0%	143	1%	21	1%	0	0%	4	0%	0	0%	0	0%	0	0%	168
25 Knapweeds -Squarrose	actual	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0

- Notes: 1. Current estimated infestation area is determined through a combination of Geographic Information System (GIS) analysis, and expert knowledge of the species distribution. When infestation area is equal to or less than 10 acres, the infestation extent is known intimately by ODA staff and the estimated area can be accepted as "actual." For the other noxious weeds, known geographic location of each was converted to a generic area of 973 acres that would be further utilized in the modeling process. This arbitrary area often overestimated the extent of the weed infestations, thus the error was mitigated utilizing expert knowledge as an adjustment factor determined by ODA staff. The total amount column is a sum across land types after the correction factor was applied.
2. Susceptible agricultural areas were generated using the Kinetic Resource and Environmental Spatial System (KRESS). Generated models were overlaid on agricultural zones derived from remotely sensed data. Impacted areas were accepted if the invasive species reached its mean ecological amplitude. The mean was chosen as to improve precision across all models analyzed, while negating the natural inclination of fitting models to data thus reducing human error. These models are an approximation of the susceptible habitable zone based on their current distributions. The models were found to be statistically significant utilizing the Receiver Operating Characteristic (ROC) analysis. The susceptible percent areas represent the share that could be impacted if the weed were to reach its mean ecological amplitude.

Table D.1 (cont.)

3. The selection criteria applied for the different land types relied on a weed location dataset from different land management agencies. (There were different agency collection protocols and assessments occurred at different dates.)

<u>Land Types</u>	<u>Selection Criteria</u>
1. Agriculture	utilized for crop production.
2. Rangeland	habitats that have historically been grazed for livestock production.
3. Urban	designated to be in urban areas, including parks and roadways in Oregon.
4. Riparian	designated to be waterways, or adjacent waterways in Oregon.
5. Pasture	designated to be irrigated for grazing purposes.
6. Forestry	designated to be harvestable standing timber.
7. Estuarine	influenced heavily by saline water along the coast.
8. Wildland	under the management of federal and state agencies.

Sources: Coombs et al. (2013), OBIC (2010), and Johnson et al. (2005).

Table D.2  
Noxious Weed Infestation Susceptible Mean Area by Land Type

Invasive Species	Acres (thousands)															
	Agriculture		Rangeland		Urban		Riparian		Pasture		Forestry		Estuarine		Wildland	
	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction
1 Armenian blackberry (Himalayan)	1,968	60%	0	0%	1,022	71%	821	38%	1,102	67%	9,891	47%	0	0%	0	0%
2 Cordgrass	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	40	100%	0	0%
3 Dalmatian toadflax	0	0%	12,008	61%	182	13%	896	42%	0	0%	0	0%	0	0%	18,638	55%
4 Giant hogweed	0	0%	0	0%	1,117	77%	960	45%	0	0%	0	0%	0	0%	0	0%
5 Gorse	0	0%	0	0%	969	67%	0	0%	1,094	66%	10,981	52%	0	0%	8,752	26%
6 Japanese knotweed	0	0%	0	0%	1,024	71%	775	36%	0	0%	0	0%	0	0%	0	0%
7 Kudzu	0	0%	0	0%	1,039	72%	0	0%	0	0%	11,949	56%	0	0%	0	0%
8 Leafy spurge	0	0%	15,515	79%	0	0%	1,133	53%	381	23%	0	0%	0	0%	20,248	60%
9 Hawkweeds (meadow and orange)	0	0%	0	0%	784	54%	1,047	49%	0	0%	0	0%	0	0%	16,058	47%
10 Mediterranean sage	0	0%	15,034	76%	0	0%	0	0%	376	23%	0	0%	0	0%	0	0%
11 Paterson's curse	2,503	76%	5,586	28%	1,050	73%	0	0%	1,236	75%	0	0%	0	0%	9,363	28%
12 Perennial pepperweed	0	0%	14,584	74%	0	0%	1,019	47%	389	24%	0	0%	0	0%	0	0%
13 Purple loosestrife	0	0%	0	0%	0	0%	1,240	58%	0	0%	0	0%	0	0%	14,036	41%
14 Purple starthistle	0	0%	2,770	14%	0	0%	0	0%	1,247	76%	0	0%	0	0%	0	0%
15 Rush skeletonweed	2,257	69%	13,108	67%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
16 Scotch broom	0	0%	0	0%	1,073	74%	0	0%	0	0%	12,433	59%	0	0%	0	0%
17 Scotch thistle	0	0%	18,359	93%	371	26%	0	0%	512	31%	0	0%	0	0%	0	0%
18 Tansy ragwort	0	0%	0	0%	0	0%	0	0%	1,106	67%	0	0%	0	0%	10,278	30%
19 White top (Hoary cress)	885	27%	14,296	73%	0	0%	0	0%	377	23%	0	0%	0	0%	0	0%
20 Woolly distaff thistle	2,522	77%	4,621	24%	1,090	75%	0	0%	1,265	77%	0	0%	0	0%	9,128	27%
21 Yellow starthistle	0	0%	7,034	36%	1,163	80%	0	0%	1,281	78%	0	0%	0	0%	9,118	27%
22 Knapweeds - Diffuse	0	0%	15,586	79%	223	15%	0	0%	382	23%	0	0%	0	0%	0	0%
23 Knapweeds - Meadow	0	0%	0	0%	1,068	74%	0	0%	1,131	68%	0	0%	0	0%	10,244	30%
24 Knapweeds -Spotted	0	0%	14,310	73%	218	15%	0	0%	335	20%	8,182	39%	0	0%	18,138	54%
25 Knapweeds -Squarrose	0	0%	13,029	66%	442	31%	0	0%	532	32%	0	0%	0	0%	0	0%

Notes. 1. Notes and sources for Table D.1 apply.

Table D.3  
Noxious Weed Infestation Susceptible Upper Bound Area by Land Type

Invasive Species	Acres (thousands)																
	Agriculture		Rangeland		Urban		Riparian		Pasture		Forestry		Estuarine		Wildland		Total
	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount
1 Armenian blackberry (Himalayan)	2,958	90%	0	0%	1,297	90%	1,333	62%	1,388	84%	12,895	61%	0	0%	0	0%	19,870
2 Cordgrass	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	40	0%	0	0%	40
3 Dalmatian toadflax	0	0%	16,570	84%	328	23%	1,256	58%	0	0%	0	0%	0	0%	24,619	73%	42,774
4 Giant hogweed	0	0%	0	0%	1,252	87%	1,477	69%	0	0%	0	0%	0	0%	0	0%	2,729
5 Gorse	0	0%	0	0%	1,235	85%	0	0%	1,323	80%	13,102	62%	0	0%	15,707	46%	31,367
6 Japanese knotweed	0	0%	0	0%	1,224	85%	1,118	52%	0	0%	0	0%	0	0%	0	0%	2,341
7 Kudzu	0	0%	0	0%	1,166	81%	0	0%	0	0%	16,003	76%	0	0%	0	0%	17,169
8 Leafy spurge	0	0%	16,957	86%	0	0%	1,372	64%	396	24%	0	0%	0	0%	26,170	77%	44,895
9 Hawkweeds (meadow and orange)	0	0%	0	0%	1,011	70%	1,282	59%	0	0%	0	0%	0	0%	21,234	63%	23,527
10 Mediterranean sage	0	0%	18,010	92%	0	0%	0	0%	418	25%	0	0%	0	0%	0	0%	18,427
11 Paterson's curse	2,883	88%	12,337	63%	1,223	85%	0	0%	1,492	90%	0	0%	0	0%	18,798	55%	36,733
12 Perennial pepperweed	0	0%	18,280	93%	0	0%	1,295	60%	438	27%	0	0%	0	0%	0	0%	20,014
13 Purple loosestrife	0	0%	0	0%	0	0%	1,539	71%	0	0%	0	0%	0	0%	21,162	62%	22,701
14 Purple starthistle	0	0%	6,509	33%	0	0%	0	0%	1,304	79%	0	0%	0	0%	0	0%	7,813
15 Rush skeletonweed	3,112	95%	17,374	88%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	20,485
16 Scotch broom	0	0%	0	0%	1,245	86%	0	0%	0	0%	14,208	67%	0	0%	0	0%	15,453
17 Scotch thistle	0	0%	19,055	97%	421	29%	0	0%	538	33%	0	0%	0	0%	0	0%	20,014
18 Tansy ragwort	0	0%	0	0%	0	0%	0	0%	1,197	72%	0	0%	0	0%	13,689	40%	14,886
19 White top (Hoary cress)	1,205	37%	16,951	86%	0	0%	0	0%	446	27%	0	0%	0	0%	0	0%	18,602
20 Woolly distaff thistle	2,859	87%	8,653	44%	1,263	87%	0	0%	1,346	81%	0	0%	0	0%	14,699	43%	28,819
21 Yellow starthistle	0	0%	13,030	66%	1,207	83%	0	0%	1,431	87%	0	0%	0	0%	9,118	0%	24,786
22 Knapweeds - Diffuse	0	0%	18,015	92%	280	19%	0	0%	413	25%	0	0%	0	0%	0	0%	18,708
23 Knapweeds - Meadow	0	0%	0	0%	1,241	86%	0	0%	1,280	77%	0	0%	0	0%	14,319	42%	16,840
24 Knapweeds -Spotted	0	0%	17,356	88%	349	24%	0	0%	506	31%	10,011	47%	0	0%	23,099	68%	51,321
25 Knapweeds -Squarrose	0	0%	17,678	90%	995	69%	0	0%	1,506	91%	0	0%	0	0%	0	0%	20,179

Notes. 1. Upper bound estimates based on minus one standard deviation of the ecological amplitude.  
2. Other notes and sources for Table D.1 apply.

Table D.4  
Noxious Weed Infestation Susceptible Lower Bound Area by Land Type

Invasive Species	Acres (thousands)																Total
	Agriculture		Rangeland		Urban		Riparian		Pasture		Forestry		Estuarine		Wildland		
	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	Amount	Correction	
1 Armenian blackberry (Himalayan)	940	29%	0	0%	717	50%	617	29%	791	48%	8,515	40%	0	0%	0	0%	11,579
2 Cordgrass	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	40	0%	0	0%	40
3 Dalmatian toadflax	0	0%	7,462	38%	100	7%	668	31%	0	0%	0	0%	0	0%	13,066	39%	21,296
4 Giant hogweed	0	0%	0	0%	942	65%	588	27%	0	0%	0	0%	0	0%	0	0%	1,529
5 Gorse	0	0%	0	0%	892	62%	0	0%	1,024	62%	9,653	46%	0	0%	7,437	22%	19,006
6 Japanese knotweed	0	0%	0	0%	849	59%	535	25%	0	0%	0	0%	0	0%	0	0%	1,384
7 Kudzu	0	0%	0	0%	936	65%	0	0%	0	0%	10,271	49%	0	0%	0	0%	11,207
8 Leafy spurge	0	0%	8,382	43%	0	0%	817	38%	221	13%	0	0%	0	0%	15,241	45%	24,661
9 Hawkweeds (meadow and orange)	0	0%	0	0%	691	48%	827	38%	0	0%	0	0%	0	0%	11,916	35%	13,435
10 Mediterranean sage	0	0%	10,425	53%	0	0%	0	0%	287	17%	0	0%	0	0%	0	0%	10,712
11 Paterson's curse	2,203	67%	3,219	16%	882	61%	0	0%	1,036	63%	0	0%	0	0%	5,099	15%	12,440
12 Perennial pepperweed	0	0%	12,197	62%	0	0%	753	35%	299	18%	0	0%	0	0%	0	0%	13,249
13 Purple loosestrife	0	0%	0	0%	0	0%	673	31%	0	0%	0	0%	0	0%	8,305	25%	8,978
14 Purple starthistle	0	0%	1,003	5%	0	0%	0	0%	1,210	73%	0	0%	0	0%	0	0%	2,213
15 Rush skeletonweed	1,915	58%	8,713	44%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	10,628
16 Scotch broom	0	0%	0	0%	947	66%	0	0%	0	0%	10,150	48%	0	0%	0	0%	11,098
17 Scotch thistle	0	0%	10,262	52%	170	12%	0	0%	188	11%	0	0%	0	0%	0	0%	10,620
18 Tansy ragwort	0	0%	0	0%	0	0%	0	0%	1,085	66%	0	0%	0	0%	8,089	24%	9,174
19 White top (Hoary cress)	529	16%	9,924	50%	0	0%	0	0%	315	19%	0	0%	0	0%	0	0%	10,767
20 Woolly distaff thistle	2,031	62%	2,206	11%	888	61%	0	0%	1,123	68%	0	0%	0	0%	5,664	17%	11,912
21 Yellow starthistle	0	0%	3,974	20%	874	60%	0	0%	1,167	71%	0	0%	0	0%	9,118	0%	15,133
22 Knapweeds - Diffuse	0	0%	11,116	57%	166	12%	0	0%	336	20%	0	0%	0	0%	0	0%	11,618
23 Knapweeds - Meadow	0	0%	0	0%	967	67%	0	0%	1,094	66%	0	0%	0	0%	7,783	23%	9,843
24 Knapweeds - Spotted	0	0%	9,438	48%	138	10%	0	0%	210	13%	6,060	29%	0	0%	12,808	38%	28,654
25 Knapweeds -Squarrose	0	0%	11,956	61%	244	17%	0	0%	368	22%	0	0%	0	0%	0	0%	12,568

Notes. 1. Lower bound estimates based on plus one standard deviation of the ecological amplitude.  
2. Other notes and sources for Table D.1 apply.

Table D.5  
Anadromous Fish Habitat Noxious Weed Affected Stream Length

	<u>Current</u>	<u>Susceptible</u>		
		<u>Mean</u>	<u>Upper Bound</u>	<u>Lower Bound</u>
Fall Chinook				
Armenian blackberry (Himalayan)	672	4,011	4,731	3,221
Giant hogweed	0	3,981	4,229	3,487
Japanese knotweed	107	4,086	4,691	3,132
Leafy spurge	0	29	192	8
Perennial pepperweed	1	166	241	79
Purple loosestrife	21	3,419	4,425	2,025
Spring Chinook				
Armenian blackberry (Himalayan)	459	3,777	4,767	2,727
Giant hogweed	0	3,640	4,437	2,876
Japanese knotweed	93	3,356	4,775	2,609
Leafy spurge	4	1,291	1,928	868
Perennial pepperweed	1	1,343	1,956	833
Purple loosestrife	15	3,851	4,801	2,562
Chum				
Armenian blackberry (Himalayan)	40	482	495	434
Giant hogweed	0	390	441	223
Japanese knotweed	22	470	495	290
Leafy spurge	0	0	14	0
Perennial pepperweed	0	0	0	0
Purple loosestrife	3	465	489	336
Coho				
Armenian blackberry (Himalayan)	1,289	9,724	10,950	8,018
Giant hogweed	0	9,210	9,914	7,971
Japanese knotweed	209	9,917	10,927	7,284
Leafy spurge	0	160	669	58
Perennial pepperweed	0	169	432	36
Purple loosestrife	31	7,928	10,384	4,480
Summer steelhead				
Armenian blackberry (Himalayan)	547	4,082	6,441	2,238
Giant hogweed	0	4,599	5,927	3,169
Japanese knotweed	66	3,906	6,958	2,908
Leafy spurge	6	4,829	6,024	3,812
Perennial pepperweed	2	4,308	5,810	2,873
Purple loosestrife	17	5,250	7,060	3,141
Winter steelhead				
Armenian blackberry (Himalayan)	1,442	11,428	12,735	9,354
Giant hogweed	0	10,554	11,602	9,071
Japanese knotweed	221	11,647	12,795	8,875
Leafy spurge	0	403	1,047	139
Perennial pepperweed	0	328	764	108
Purple loosestrife	29	8,875	11,782	5,064

- Notes: 1. Stream length is in habitat river miles.  
2. Upper and lower bound estimates based on minus and plus one standard deviation of the ecological amplitude.



# Union County Community Wildfire Protection Plan

A working document that will serve as a resource for providing  
information to enhance community safety through  
hazard and risk reduction in the wildland-urban interface areas of  
Union County

08-10-05



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## ***Acknowledgements***

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This project was funded using *Title III – County Project* dollars from the *Secure Rural Schools and Community Self-Determination Act of 2000*.

A special thank you to the Community Wildfire Protection Plan Steering Committee and Resource Committee who dedicated their time and effort to this project while continuing to carry out the duties of their everyday jobs.

Recognition also goes to the many citizens of Union County and to local, state and federal government organizations who assisted in this planning effort by providing historical and technical information for the project.

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***Individual Wildland Urban Interface Area maps are provided in Section VII.***

## ***Signature Page***

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Transmitted herewith is the *Wildfire Protection Plan for Union County*. The Wildfire Protection Plan provides a framework in which Union County can assess the risks and hazards associated with Wildland-Urban Interface areas and identify methods of reducing the risk of ignition or eliminating hazards.

The Union County Board of Commissioners has approved this plan and both wildland firefighting agencies and the County's structural fire protection services have agreed upon the contents. The plan contents will be revisited annually and projects will be revised and updated as necessary. All recipients are requested to advise the Union County Emergency Services Office of any changes that might result in its improvement or increase its usefulness.

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Colleen MacLeod, Union County Commissioner

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Steve McClure, Union County Commissioner

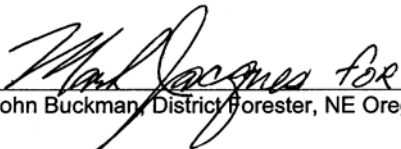
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John Lamoreau, Union County Commissioner

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Ray Hamann, Union County Fire Chief

---

  
John Buckman, District Forester, NE Oregon District, Oregon Dept. of Forestry

BE IT REMEMBERED, that at a regular term of the Board of Commissioners of the State of Oregon, for the County of Union, sitting for the transaction of County business, begun and held at the Joseph Building Annex in the City of La Grande, in said County and State, on Wednesday of said month and the time fixed by law for holding a regular term of said Commission, when were present:

The Honorable Colleen MacLeod, Chair

Steve McClure, Commissioner

John Lamoreau, Commissioner

WHEN, on Wednesday the 10<sup>th</sup> day of August 2005, among others the following proceedings were had to wit:

IN THE MATTER OF A RESOLUTION	)	RESOLUTION
ADOPTING THE UNION COUNTY	)	2005-25
COMMUNITY WILDFIRE	)	
PROTECTION PLAN AND ESTABLISHING	)	
AN ANNUAL REVIEW BOARD	)	

WHEREAS, the Union County Board of Commissioners allocated *Title III County Project* money from the *Secure Rural Schools and Community Self-Determination Act of 2000* to complete a Community Wildfire Protection Plan for Union County communities;

WHEREAS, the Union County Community Wildfire Protection Plan is a non-regulatory plan that identifies 16 Wildland-Urban Interface areas of high wildfire risk and hazard;

WHEREAS, the Union County Community Wildfire Protection Plan identifies potential projects that may reduce the hazards present in Wildland-Urban Interface areas and reduce the risk of wildfire ignition;


WHEREAS, the Union County Board of Commissioners establishes the project steering committee as the annual review board for the plan to be coordinated through the Union County Emergency Services office every spring;

BE IT RESOLVED that the Union County Board of Commissioners hereby adopts the Union County Community Wildfire Protection Plan and establishes the project steering committee as the annual review board.

DATED this 10<sup>th</sup> day of August 2005.

  
COLLEEN MACLEOD, CHAIR

  
STEVE MCCLURE, COMMISSIONER

  
JOHN LAMOREAU, COMMISSIONER



# ***I. Introduction***

---

## **Plan Overview and Development**

The Community Wildfire Protection Plan for Union County is the result of analyses, professional cooperation, collaboration and wildfire risk assessments considered with the intent to reduce the potential for wildfires that threaten people, structures, infrastructure, and values in Union County.

The project steering committee began meeting in October 2003 to first revise the Wildfire Annex for the Union County Emergency Operations Plan. Subsequent meetings were held to establish a project mission and goals and objectives for the Wildfire Protection Plan; develop the risk assessment; identify and prioritize WUIs; organize community workshops; provide guidance on plan content and organization; and prioritize risk reduction projects.

Data from numerous sources and time periods was used to prepare the plan. Because of the different sources and data periods the transition between data sets is not always fluid and there are many gaps in data collection. Where relevant, these gaps are identified and all sources are cited.

The planning committee, made up of collaborating partners, is responsible for implementing this project and includes:

Dara Decker	Union County Emergency Services	Co-Chair
Angie Johnson	Oregon Department of Forestry	Co-Chair
Paul Anderes	Union County Forest Restoration Board	Member
Larry Aragon	Wallowa-Whitman National Forest	Member
Jim Beekman	Umatilla National Forest	Member
Rob Burnside	Confederated Tribes of the Umatilla Indian Reservation Fire Dept.	Member
Jon Christensen	Private Forest Owner	Member
Ray Hamann	La Grande Rural Fire Protection District/Union County Fire Chief	Member
Gary Hansen	Cove Rural Fire Protection District	Member
Steve Henderson	Imbler Rural Fire Protection District	Member
Mark Jacques	Oregon Department of Forestry	Member
John Lamoreau	Union County Board of Commissioners	Member
John Manwell	Forest Capital	Member
Pat McDonald	Elgin City & Rural Fire Protection District	Member
David Quinn	Northeast Oregon Interagency Dispatch Center	Member
Jay Rasmussen	Wallowa-Whitman National Forest	Member
Ron Rochna	Citizen	Member
Trish Wallace	Wallowa-Whitman National Forest	Member
Mitch Williams	Oregon Department of Forestry	Member

Resource members serve in an advisory capacity to the planning committee and include:

Heidi Bigler-Cole	USFS Pacific Northwest Lab	Resource Member
John Buckman	Oregon Department of Forestry	Resource Member
Jim Carter	Medical Springs Rural Fire Protection District	Resource Member
Renae Crippen	Northeast Oregon Interagency Dispatch Center	Resource Member
Brett Brownscombe	Hells Canyon Preservation Council	Resource Member
Dale Eckman	Bureau of Land Management	Resource Member
Mike Hartwell	Bureau of Land Management	Resource Member
Chris Heffernan	Private Forest Owner	Resource Member
Bill Hooker	Union City & Rural Fire Protection District	Resource Member
Sonny Johnson	Cove Rural Fire Protection District	Resource Member
Lola Lathrop	911/Dispatch Manager	Resource Member
Colleen MacLeod	Union County Board of Commissioners	Resource Member
Michael McAllister	Citizen	Resource Member
Steve McClure	Union County Board of Commissioners	Resource Member
Paul Oester	OSU Extension Service	Resource Member
Boyd Rasmussen	Union County Sheriff's Office	Resource Member
Matt Reidy	Wallowa-Whitman National Forest	Resource Member
Ken Rockwell	Wallowa-Whitman National Forest	Resource Member
George Russell	North Powder City & Rural Fire Protection District	Resource Member
Ron Warnock	Cove Rural Fire Protection District	Resource Member
Bruce Weimer	La Grande Fire Department	Resource Member
Kurt Wiedenmann	Wallowa-Whitman National Forest	Resource Member
Judy Wing	Wallowa-Whitman National Forest	Resource Member

## Plan Compliance

This community wildfire protection plan has been prepared in compliance with the National Fire Plan, the 10-year Comprehensive Strategy, the FEMA Tri-County Hazard Natural Hazard Mitigation Plan (Baker, Union, and Wallowa Counties), Union County Emergency Operations Plan, Oregon Senate Bill 360 (The Act of 1997), and Healthy Forests Restoration Act.

The Union County Commissioners with cooperation and input from the Community Wildfire Protection Plan Steering Committee endorse this plan. These representatives mutually agree to the final contents of the plan. The plan is not regulatory and does not create or place mandates or requirements on individual jurisdictions. This plan does not bypass the individual rules and procedures that govern the participating agencies, organizations and individuals. The role of the plan is to serve as a working document to coordinate fire and land managers and their efforts in Union County.

## Preparing a Community Wildfire Protection Plan<sup>i</sup>

Both the *National Fire Plan*, and the *Ten-Year Comprehensive Strategy for Reducing Wildland Fire Risks to Communities and the Environment* place a priority on working collaboratively within communities in the WUI to reduce their risk from large-scale wildfire. The incentive for communities to engage in comprehensive forest planning and prioritization was given new momentum with the enactment of the *Healthy Forests Restoration Act* (HFRA) in 2003. The

language in HFRA provides maximum flexibility for communities to determine the substance and detail of their plans and the procedures they use to develop them. HFRA emphasizes the need for federal agencies to work collaboratively with communities in developing hazardous fuels reduction projects, the act also places priority on treatment areas identified by communities themselves in a community fire plan. Combine this with the direction by NFP and the Ten-Year Strategy, one can see the importance of preparing a plan.

Other local government planning considerations, such as FEMA's direction to prepare county hazard mitigation plans and the implementation of Oregon Senate Bill 360, has made it very important for local government to participate in the development and implementation of a community wildfire protection plan. A community wildfire protection plan inventories local conditions including fire risk, and coordinates fire protection and outreach projects across Union County communities.

### **Wildland-Urban Interface Loss in Oregon<sup>ii</sup>**

Oregon's *Natural Hazards Mitigation Plan* says wildland fires are a common and widespread natural hazard in Oregon; the state has an extensive history of wildfire. Significant portions of Oregon's wild lands and rural communities are dominated by ecosystems dependent upon fire for health and survival.

Oregon has over 41 million acres (over 64,000 square miles) of forest and rangeland susceptible to wildfire. In addition, significant agricultural areas of the Willamette Valley, north central and northeastern Oregon support grain crops that are prone to wildfire damage. Fire danger is not exclusive to land, communities are also at risk. A federal document titled *Urban Wildland Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire* (listed in the 2001 *Federal Register*, 367) issued by the Department of Agriculture - Forest Service Department of the Interior - Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service and National Park Service states "Oregon has communities that are at risk of damage from wildfire".

The majority of wildfires occur between June and October. However, wildfires can occur at other times of the year when weather and fuel conditions combine to allow ignition and spread. Seventy percent of Oregon's wildland fires result from human activity. The remaining thirty percent result from lightning, occurring most frequently in eastern and southern Oregon.

The financial and social costs of wildfires demonstrate the need to reduce their impact on lives and property, as well as the short and long-term economic and environmental consequences of large-scale fires. Cost savings can be realized through preparedness and risk reduction including a coordinated effort of planning for fire protection and implementing activities among local, state, and federal agencies, the private sector, and community organizations. Individual

property owners have a major role to play in this coordinated effort, especially in wildland interface areas.

The wildland-urban interface (WUI) is the area or zone where structures and other human development meet or intermingle with wildland or vegetative fuels. As more people have moved into wildland urban interface areas, whether for lifestyle or economic reasons, the number of large wildfires affecting homes has increased dramatically. Many in the population migrating to rural Oregon from urban areas maintain the expectation of structural fire protection similar to the high-density areas they were leaving. Rural fire departments combined with local mutual aid agreements and finally the Conflagration Act attempt to fulfill these expectations. However, many homes are still located within areas with little or no structural fire protection.

Recent fire seasons bring the wildland interface problem and the problem of overabundant dense forest fuels to the forefront. The forest fuels issue is a major and continuing problem that has received presidential level attention. Work is underway to reduce fuels in WUI areas by way of community involvement and funding from the *National Fire Plan*. National Fire Plan goals are to:

- Ensure sufficient firefighting resources for the future;
- Rehabilitate and restore fire-damaged and fire-adaptive ecosystems;
- Reduce fuels (combustible forest materials) in forests and rangelands at risk, especially near communities; and
- Work with local residents to reduce fire risk and improve fire protection.

Community Assistance grants and other grant opportunities are available through *National Fire Plan* (NFP) to aid in achieving these goals. The goals aim high. They represent a substantial amount of work, and their ultimate success will depend on concerned individuals, agencies, and organizations working in concert. No agency or group working alone can achieve NFP's goals.

## **Conversion of Resource Lands in Eastern Oregon**

The Oregon Department of Forestry completed a study titled, *Forest, Farms and People: Land Use Change on Non-Federal Land in Eastern Oregon, 1975-2001*<sup>iii</sup> that studies the conversion of resource lands (farm, forest and range) to residential development in Eastern Oregon. The study used aerial photographs from 1975, 1986 and 2001 to examine land development before and after the implementation of land use laws to determine whether land use laws have been successful in slowing growth on Eastern Oregon resource lands. Ultimately, the report concludes that land use laws have slowed the conversion of resource land in Eastern Oregon, but while the rates of urban and rural residential development have declined statewide, they have increased in Eastern Oregon's non-federal

forests, leading to potential impacts like compromised forest management and fire protection capability.

Results from the study include the following facts:

1. In parts of Central Oregon, 60% of forest industry land has shifted from forest industry to non-industrial ownership.
2. There are now three times as many dwellings on non-federal wildland forest in Eastern Oregon as in 1975. This may lead to increased fire hazard, impacts to wildlife and their habitat, and a decreased timber supply.
3. Dwelling density is increasing at a faster rate in Eastern Oregon's fire-prone private wildland forests than in Western Oregon's private wildland forests.
4. As the number of structures in Eastern Oregon's forests increase, the propensity to manage for timber production decreases.
5. Along with decreasing inventory volumes on timber industry lands, timber harvests in Central Oregon have decreased dramatically, and may remain depressed.
6. The remainder of Eastern Oregon's private forests may experience the rapid development and other permanent changes currently occurring in Central Oregon.

The study results have implications for private forestland in Union County. Local land division ordinances currently contain fire-siting standards (see *Section V*) that stipulate the safest way for residential development to occur in forestland yet development is still occurring, which leads to structural protection challenges for local protection agencies. Additionally, timber production and wildlife habitat may decline as forestland is converted to residential development.

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<sup>i</sup> <http://www.communitiescommittee.org/pdfs/cwpphandbook.pdf>

<sup>ii</sup> Oregon Emergency Management; *Emergency Management Plan, Natural Hazards Mitigation Plan, Fire Chapter*, (December 2003).

<sup>iii</sup> Oregon Department of Forestry; *Forest, Farms and People: Land Use Change on Non-Federal Land in Eastern Oregon, 1975-2001* (August 2004).  
[http://www.odf.state.or.us/DIVISIONS/resource\\_policy/resource\\_planning/Annual\\_Reports/EORDZ.pdf](http://www.odf.state.or.us/DIVISIONS/resource_policy/resource_planning/Annual_Reports/EORDZ.pdf)

## II. Union County Profile

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Located along the Interstate 84 corridor in northeast Oregon, Union County is approximately 250 miles east of Portland, Oregon and 160 miles northwest of Boise, Idaho. Union County lies in the Grande Ronde River and Powder River Valleys just east of the Blue Mountains. Union County is bordered by Wallowa County to the north and east, Baker and Grant Counties to the south and Umatilla County to the west.

Union County is characterized by the ridges and valleys typical of the Blue Mountains, and is part of the Grande Ronde River Basin. Total area is 2,038 square miles, or 1,304,320 square acres. The Grande Ronde River runs south to north across Union County, and supports recreational, irrigation and livestock uses.

There are eight incorporated communities in Union County including La Grande, Island City, Elgin, Imbler, Cove, Union, North Powder and Summerville. Union County also contains eight fire districts/departments providing structural fire protection and three wildland fire agencies providing wildland fire protection. Fire Protection is discussed in greater detail under *Section IV – Emergency Management*. The area draws many visitors every year to enjoy outdoor activities such as skiing, hunting, fishing, hiking and biking. Aside from the natural beauty of the area, amenities like a university and hospital also draw visitors and new residents.



Figure 1 - Union County Vicinity Map

### Climate

Union County enjoys four distinct seasons. Annual precipitation is approximately 18 inches in the valleys while high mountain areas rarely exceed 10 inches. Seasonal distribution is quite different from western Oregon. "Relatively low winter totals are nearly matched by rain from summer thunderstorms, which are much more common than western areas. Thus, much

of eastern Oregon receives almost uniform precipitation throughout the year."<sup>i</sup> Summer highs average in the 80s while winter highs linger in the 30s."<sup>ii</sup> Summer days are usually dry and clear with cool nights. The prevalence of thunderstorms in the mountainous and timbered regions of eastern Oregon suggests the potential for lightning-caused fires.

### Land Use

Most of the county's development and population is located on the valley floor. Industrial, state and national forests occupy the higher elevations. National Forest land comprises almost all of the 49% publicly owned land.

Today's land uses in the Grande Ronde Valley reflect land uses of the valley's early settlers. The valley floor supports extensive agricultural activities, while

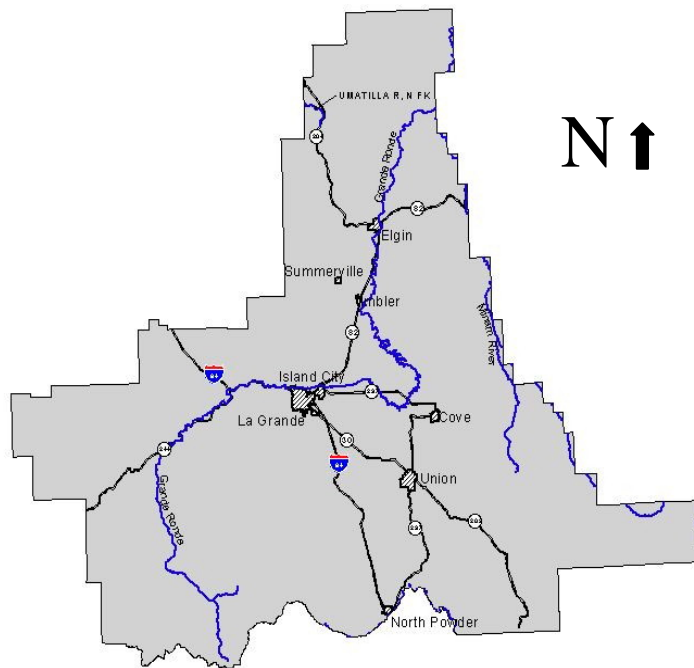


Figure 2 - Union County Map

livestock grazing on rangelands and timber resources flourish on the steeper slopes surrounding the valley. Historically, development in conjunction with farm and ranch uses occurred on the valley floor, but

today, most development occurs within cities' urban growth boundaries and rural residential zones identified in the Union County Land Use Plan. Most rural residential zones are located in wildfire risk areas due to density of development, vegetation, past fire occurrences, weather and topography.

Union County depends on the landscape to sustain its livelihood. Land is primarily suited for agriculture, but there are also forest/agriculture possibilities and mineral/aggregate locations throughout the county.

**Table 1. Northeast Oregon Land Use**

County	Percent Acreage in farms
Union	40.8%
State of Oregon	28.4%

Source: Reid, Rebecca L., *Oregon: A Statistical Overview: 2002*, Southern Oregon Regional Services Institute, Southern Oregon Regional Services Institute, Southern Oregon University. Ashland, Oregon, May 2002.

## Forestland Ownership and Stewardship

Forestland in Union County is divided among federal, state and private ownership or stewardship. Table 2 displays federally administered land in Union County as compared with the state as a whole. Federal land managers include the United States Forest Service and the Bureau of Land Management. The Oregon Department of Forestry provides stewardship and fire protection patrol for state and private forestland throughout Union County.

**Table 2. Federally Administered Land**

County	Private % Total	BLM % Total	USFS % Total	Federal Land Total <sup>iii</sup>
<b>Union</b>	52%	1%	47%	47.5%
<b>State of Oregon</b>	44%	25%	25%	50%

Source: Reid, Rebecca L., *Oregon: A Statistical Overview: 2002*, Southern Oregon Regional Services Institute, Southern Oregon Regional Services Institute, Southern Oregon University. Ashland, Oregon, May 2002.

## Population and Demographics

The Grande Ronde Valley includes six of the county's eight incorporated communities, and most of the county's population. According to the Union County Population Analysis and 2020 Forecast, the county had a year 2000 population of 24,550 people<sup>iv</sup>. See Table 3 for individual community populations.

**Table 3. Union County Community Populations**

Community	2000 PSU Revised	1990 U.S. Census	Population Change 1990-2000	Percent Change 1990-2000
Cove	595	507	88	17%
Elgin	1,655	1,586	69	4%
Imbler	285	299	-14	-5%
Island City	925	696	229	33%
La Grande	12,340	11,766	574	5%
North Powder	490	448	42	9%
Summerville	115	111	4	4%
Union	1,930	1,847	83	4%
<b>Union County</b>	<b>24,550</b>	<b>23,598</b>	<b>952</b>	<b>4%</b>
<b>Incorporated</b>	<b>18,335</b>	<b>17,260</b>	<b>1,075</b>	<b>6%</b>
<b>Unincorporated</b>	<b>6,215</b>	<b>6,338</b>	<b>-123</b>	<b>-2%</b>

Source: Union County Population Analysis and 2020 Forecast

Increased growth (both urban and rural) impacts agency preparation for emergencies because increased population and development (especially within WUI's) greatly increases wildfire frequency and severity.

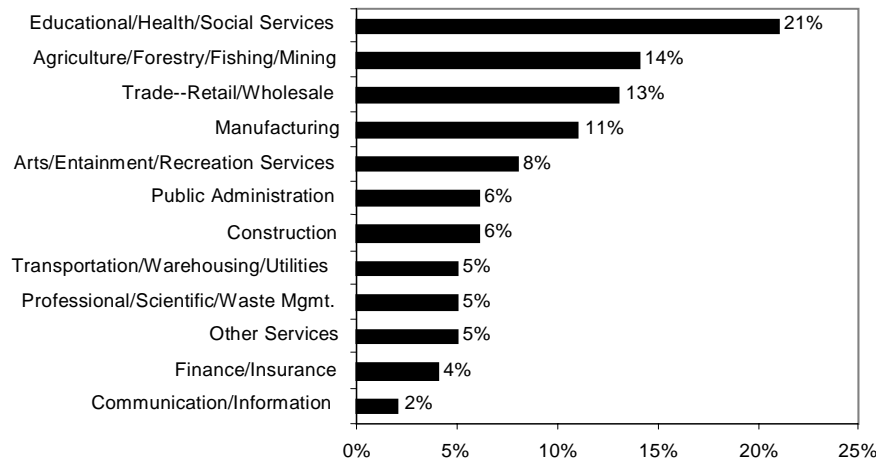
## Employment and Industry

The region has historically been dependent upon agriculture and timber as the primary employment in the area. Currently prominent industries include public employment (government and education), agriculture and timber. Manufacturing, trade and services are the largest employment sectors in Union County.<sup>v</sup> Timber played a key role in Union County's early economic development but has steadily declined in economic value since the late 1970s. Wood products, however, still remain as the most prominent manufacturing sector in Union County, and northeast Oregon as a whole.

Looking towards the future, agricultural, manufacturing, educational, healthcare, governmental, tourism, and retail trade sectors will continue to grow and provide goods, services and employment opportunities for area residents. Figure 4 provides a breakdown of the region's employment by industry for the year 2000:



**Figure 3. Employment by Industry**



Source: Oregon Labor Market Information System, Oregon Employment Department.

## Fire History

Union County and the surrounding area have a significant history of both human and lightning caused fires. A combination of climate, fuels and terrain make Union County prone to wildfire. Figure 4 shows lightning vs. human caused fires for a ten-year period.

Figure 4 shows over 600 fire starts (human and natural) were reported during the years 1994 – 2003. During that time period human causes were responsible for approximately 200 starts and lightning strikes were responsible for approximately 400 starts. Figure 5 shows the interface areas and fires over ten acres in size.

Figure 5 illustrates Union County fires greater than 10 acres over the last 20+ years. Figures 4 and 5 illustrate a stark contrast. Though Union County annually endures many fire starts from both lightning and human sources the number of fires reaching the ten-acre threshold remains relatively low. This dichotomy is due to effective initial attack and coordinated local suppression efforts. It is worth noting that the recent absence of major fires does not indicate that major fires are not possible in the future. As illustrated in this document many areas are at high risk for a potentially catastrophic event.

## Major Union County Fires

Over the past twenty-five years Union County has had five fires of major significance. The fires are: Rooster Peak – 1973, Mt. Harris – 1981, Frizzell – 1986, Boulevard – 2001 and Craig



**Figure 4. Rooster Peak Fire photo courtesy of The Observer, August 18, 1973.**

Loop – 2003. The fires were of significance for different reasons.

The lightning caused Rooster Peak fire was the largest and most destructive in recent history. The fire burned approximately 6,400 acres including six structures. Much of the fire was located near La Grande's southwest City Limits. Because structures were lost and the fire threatened the City of La Grande, this is the most significant fire in recent history.

The Mt. Harris fire was an 850-acre human caused fire resulting in significant timber loss. In addition to the timber loss the fire was highly visible from La Grande, Summerville, Imbler and Cove. Much of the Mt Harris burn has never recovered to support the timber once present. One ongoing effect of the two fires is a psychological one. The Rooster Peak fire's close proximity to La Grande and the Mt Harris fire's high visibility left a memorable impact on long time Grande Ronde Valley residents. These fires made the wildfire threat a much more tangible danger.

The Frizzel fire (250 acres, lightning caused) and the Craig Loop fire (43 acres, human caused) were not significant fires due to their size, but were significant due to their location and potential. Both fires took place in the Mt. Emily WUI. This interface is now recognized as one of Union County's most populated and most at risk interface areas. Though these fires were relatively small and quickly contained the potential for property damage and loss of life was substantial.

The Boulevard fire (150 acres, lighting caused) was another near miss for Union County. The fire threatened the La Grande watershed, a rugged and roadless area of high environmental value. Much like the previous fires the potential for a catastrophic fire was high, but for different reasons. The watershed contains substantial fuel and has very limited access. Had conditions been less favorable, a major event could have occurred.

Forest ecosystems depend on fires for certain functions. Under certain circumstances fire is a healthy and natural occurrence. Fast moving, low intensity burns clear understory and allow for new growth while not harming the larger fire resistant trees. The issue of reintroducing fire into an ecosystem where fire has been long absent is difficult. Resource managers must choose which fires to allow to burn and which to suppress. This decision is made taking into account a variety of factors and conditions. As increased mitigation steps are taken and plans such as this are put in place, that decision may become easier.

## **Economic Impact of Major Fires**

Timber is a valuable resource in Union County representing an economic commodity in the form of raw materials and finished products, as well as an amenity resource appreciated for its scenic beauty and outdoor opportunities. Timber resources also play key roles in water quality and wildlife habitat.

A wildfire of any magnitude in Union County would severely impact the economy by reducing the amount of wood available for market. This in turn would limit the business relationships and opportunities of those who are dependent on forest resources as the amount of available timber is in decline. A catastrophic fire would also impact tourism and recreational opportunities over the long term. As forestland is consumed by wildfire wildlife habitat diminishes and the aesthetic value declines.

Suppression costs include all costs associated with controlling wildfire. The cost of suppression for land management agencies like the Oregon Department of Forestry and United States Forest Service can mount quickly depending on fire season severity.

When wildfire consumes physical property like structures, the associated costs rise dramatically, displacing people and businesses and contributing to higher overall economic losses. The assessed value of property in Union County totals \$1,140,900,882 and should be protected to the extent possible against loss from wildfire.<sup>vi</sup>

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<sup>i</sup> *The Climate of Oregon: From Rain Forest to Desert*, Taylor, George H. and Hannan, Chris, Corvallis, OR: OSU Press (1999) pp. 80.

<sup>ii</sup> *Ibid*, pp. 8-9.

<sup>iii</sup> Taylor, *Climate of Oregon*.

<sup>iv</sup> *Union County Population Analysis and 2020 Forecast; Final Draft*, The Benkendorf Associates Corporation, (January 25, 2001) pp. 1.

<sup>v</sup> *Union County 2002 Strategic Plan*, Elesco Limited and Auyer Consulting, (June 2002) pp.15.

<sup>vi</sup> Union County Assessment and Tax Collection Department, (March 2005).

### ***III. Mission, Goals and Objectives***

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#### **Mission Statement**

Union County and partnering agencies are committed to creating a meaningful Community Fire Plan that serves to coordinate wild land fire agencies resources and educate landowners while enhancing community safety and values through hazard reduction, risk reduction, and fire prevention.

#### **Goals and Objectives**

Goals and objectives were formulated by the plan committee and were later refined using input from community workshops. The plan committee then prioritized the plan goals based on identified needs in Union County. Goals are listed in priority order.

1. Improve emergency response through the protection of life, property and natural resources:
  - a. Identify local equipment and training needs.
  - b. Promote cooperation and foster relationships among agencies, organizations, jurisdictions, and communities.
  - c. Improve interagency communications before and during emergency situations.
  - d. Improve pre-suppression planning strategies among all agencies with protection responsibilities.
2. Identify and reduce hazardous fuels in Wildland Urban Interface areas and coordinate risk reduction strategies across the landscape:
  - a. Share data and use a common set of base information for risk assessment.
  - b. Use local knowledge.
  - c. Prioritize hazardous fuel reduction areas.
  - d. Utilize fuel reduction material where suitable and cost-effective.
3. Foster widespread and consistent support of the Community Wildfire Protection Plan:
  - a. Form partnerships among agencies and citizens.
  - b. Collaborate with the community to develop a range of ideas/alternatives for protection from wildfire.
4. Use the community wildfire protection plan as a coordinated resource, tool and educational piece:
  - a. Fire prevention.
  - b. Landowner assistance.
  - c. Coordinated and consistent messages.

## ***IV. Emergency Operations***

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### **Fire Protection**

In October 2003, wildland and structural fire protection agencies in Union County began updating the Wildfire Annex to the *Union County Emergency Operations Plan*. The annex is a hazard-specific chapter that outlines the roles and responsibilities of the different agencies that may be involved in an urban/wildland interface fire, with the main goal of protecting life and property during a wildfire event. To read the annex in its entirety, see Appendix C.

Union County contains eight fire protection districts/departments providing structural fire protection. Additionally, the US Forest Service (USFS) and the Oregon Department of Forestry (ODF) provide wildland fire protection for timber resources. Though some rural fire protection districts have received wildland firefighting training, wildland firefighters have not been trained in structural protection, nor do they provide structural fire protection. The Bureau of Land Management (BLM) also manages land in Union County, but coordinate with the USFS for initial attack responsibilities on BLM land. An agreement is in place between the BLM and the USFS specifying that the nearest resources to the incident regardless of ownership or suppression responsibility are deployed for initial attack.

In Union County, fire protection can be found in three tiers: unprotected (without any protection for the land or structure); single protection from rural districts, city departments, or wildland agencies (structures are protected, but not the land; or visa versa); and dually protected (both structural and wildland protection). Union County contains approximately 50,890 acres of land not protected by a structural or wildland fire agency. To the extent possible, new development abutting fire districts is annexed into the district via landowner petition. When a wildfire reaches the threshold for declaring a conflagration (per the Oregon Conflagration Act), the Union County fire chief will request assistance and support for wildland fire suppression.

In order to meet the criteria set forth in 2005 by the Office of the State Fire Marshall for conflagration declaration, Union County is currently compiling this plan in accordance with the following:

1. FEMA National Fire Plan
2. The 10-year Comprehensive Strategy
3. FEMA Tri-County Hazard Natural Hazard Mitigation Plan (Baker, Union, and Wallowa Counties)
4. Union County Emergency Operations Plan

5. Oregon Senate Bill 360 (The Act of 1997), and
6. Healthy Forests Restoration Act.

Additionally, the Union County Planning Department has had in place since 1983 adopted minimum fire defense standards for new construction. These have been modified over time using Oregon Department of Forestry fire siting standards as development has increased. The County's IT Department is working on changing the designation that appears on property tax statements from "fire patrol" to "ODF non-structural protection". Other criteria required by the Office of the State Fire Marshall for 2006 include the active implementation of this community wildfire protection plan.

### **Infrastructure and Structural Protection Capabilities**

The various fire agencies in Union County provide structural and wildland fire protection that also includes infrastructure like utilities, transportation corridors and water systems. Generally, the greatest issues for local fire districts are specific roads or bridges that have been identified as load limited or are too narrow for adequate ingress / egress.

Currently the fire districts throughout Union County are working on assembling an inventory of equipment and personnel qualifications. From this inventory, fire districts will be able to determine what their training and equipment needs are in order to improve fire services for Union County. When this project is complete, the inventory will be shared among all local fire agencies and become a part of this plan.

### **Defensible Space**

Defensible space is the area around a structure where the vegetation has been reduced or modified to reduce the ability for flame conduction from the ground level to the tree crowns. The defensible space is designed to be a buffer between the fire and a structure. Creating and maintaining a defensible space takes many forms, from planting and maintaining a lawn to thinning and clearing underbrush. The space will often be layered in a vertical primary, secondary and tertiary format with different treatment and maintenance in each portion of the space. The size of a defensible space is dependent on many factors such as slope, fuels, climate and fire history. There is no standard size or type of defensible space. Dependant on conditions, each property's size and types of defensible space will vary greatly. From a tactical standpoint, the defensible space designed into a property's landscaping and management may be what allows a fire agency to save a structure. The number of resources needed to protect a structure with a properly maintained defensible space is lower. Given a major fire in a WUI, conserving resources will be a priority in an effort to defend as much improved property as possible.

## ***V. Community Outreach and Education***

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### **Outreach**

Education and community outreach were two areas of primary focus when creating this community fire protection plan. The local area can be the best source of information and encouraging community involvement is an important part of this plan. It is also important that this plan be viewed as valuable to public safety, and as a resource to mitigate wildfire hazards.

During the development of this plan, two rounds of community workshops were held throughout Union County. The workshops allowed the steering committee an opportunity to discuss the plan completion timeline, the high hazard area risk assessment, values threatened by wildfire risk, and any additional concerns related to emergency services and fire agency response. The first round of community workshops were held in Elgin, Imbler, Medical Springs and La Grande. Discussion topics included the importance of the planning effort, the local risk assessment and emergency operations related to wildfire events. The second round of community workshops were held in Cove, Elgin and Island City. Discussion topics included the risk assessment, formulation of WUI boundaries and potential projects (see Appendix B for Community Workshop Summaries).

In addition to community workshops, radio interviews and newspaper articles, the steering committee decided a website would also be an effective method for communicating with citizens throughout the evolution of the plan. In reality, both Union County's and the La Grande ODF Office's websites were used to support this project.

The steering committee also formulated a grassroots questionnaire identifying potential educational opportunities and gauging what citizens value most and how those values may be threatened by wildfire. The questionnaires were passed out at community workshops, available at all local libraries, city halls and community centers throughout Union County. The questionnaire was also printed in the newspaper on three occasions and posted on the website for download and completion (see Appendix B for questionnaire results).

### **Blue Mountain Wildland-Urban Interface Study**

In September of 2003 the Oregon Department of Forestry completed the *Blue Mountain Wildland-Urban Interface Wildfire Study* (Appendix B). Grant funding from the National Fire Plan were used to conduct this study in cooperation with Union County and Baker County OSU Extension Services. Contact Paul Oester at 963-1010 for more detailed information. This study was conducted using statistical methods for scientific validity so potential respondents were targeted to receive the survey.

Surveys were mailed to 847 landowners within various WUI's in Baker, Grant, Umatilla, Union and Wallowa Counties. Approximately 225 individuals responded to the survey indicating wildfire priorities and values. The study shows substantial concern for fuel loads on adjacent properties and response time/equipment/capabilities of local fire agencies. The study also indicates a majority of respondents do not have a plan for what they would do in case of a nearby wildland fire. The great majority is not concerned about the issues relating to creating defensible space such as cost, physical work, time and aesthetics and is interested in potential grant funding opportunities.

## **Union County Values-At-Risk Questionnaire**

As a part of the public involvement associated with this plan the steering committee and staff crafted a *Values-At-Risk Questionnaire* to evaluate the concerns and values of Union County's WUI residents (Appendix B). Individuals listed resources valued most, such as aesthetics, outdoor recreation, clean air and water, vegetation and wildlife habitat and indicated all could be detrimentally affected by wildfire. Most have had limited, if any contact, with Fire Wise or other fire planning efforts and have only moderate concern for wildfire in their area. In addition a substantial number of residents are only somewhat or not at all aware of defensible space principles. This questionnaire was a grassroots effort and was not conducted using statistical methods; the questionnaire was made available to anyone who had an interest in filling it out.

Both the study and the questionnaire show concern for wildfire and the resulting consequences. Both highlight a need for additional education and outreach to those landowners in WUI's in order to promote the use of defensible space as well as other grant and educational programs.

## **Fire Programs and Policies**

In order to address wildfire in Union County's wildland-urban interface (WUI), homeowners and landowners must understand the hazards around their homes and property that contribute to increased wildfire risk. As more people move into WUI areas the number of large wildfires potentially impacting homes have increased.

Across Union County, fire protection can be found in three tiers: unprotected (without any protection for the land or structure); single protection from rural districts, city departments, or wildland agencies (structures are protected, but not the land; or visa versa); and dually protected (both structural and wildland protection).

Finding areas with dual protection is limited to rural residential areas. Also, the large land area of the county causes increased response time and limits the capabilities of fire services.

*Structural Vulnerability* - a term that relates factors contributing to how and why a home is vulnerable to wildfire. Examples of factors that would make homes vulnerable in a wildfire event are access to the home, ladder fuels and vegetation within the landscape of a home, and whether or not fire protection



Union County citizens have available various prevention programs about self-preparation and property protection from the risk of wildfire. These programs are mentioned below. The best protection is prevention.

### *Living with Fire*

This educational newspaper is available on-line. The newspaper displays step-by-step instructions on how to create a survivable space around your home taking into account topography and surrounding vegetation. Please visit [www.or.blm.gov/nwfire/docs/Livingwithfire.pdf](http://www.or.blm.gov/nwfire/docs/Livingwithfire.pdf) for more information.



Figure 5. Photo courtesy of California Department of Forestry and Fire Protection.

The pre-fire activities implemented by this homeowner included a green and well-maintained landscape, reduction of wildland vegetation around the perimeter of the property, a fire resistant roof, and a good access road with a turnaround area. The charred surroundings of the home show that these pre-fire activities effectively protected it when wildfire hit.

### *I'm Concerned....*

ODF is currently using the "I'm Concerned..." campaign for its fire prevention program. "I'm Concerned..." offers quick tips for burning debris safely, seasonal property clean up, safely building and extinguishing a campfire, burn barrel safety, and home fire safety. ODF publishes "I'm Concerned..." ads in the local newspapers and on their website as the time of year dictates. You can visit [www.odf.state.or.us/eastern/northeast/default.asp](http://www.odf.state.or.us/eastern/northeast/default.asp) anytime to get a copy of the fire safety tips.

### *Firewise*

*Firewise* promotes fire-wise practices by, 1) educating citizens about the dangers of a wildfire in the area; 2) encouraging residents to take responsibility in reducing the risk of a wildfire and creating survivable space around their residence; and, 3) increasing awareness of the natural role of low-intensity fires and the benefits of prescribed burning or occasionally managing natural wildland fires to achieve ecological benefits while maintaining firefighter and public safety (visit [www.firewise.org](http://www.firewise.org) for more information).

*Structural Ignitability* - a term that relates to the cause of a home igniting during a wildfire. Cause could be attributed to the building materials used for the home or the amount of combustible materials around the home.

A term that is emphasized in this prevention program is structural ignitability. Structural ignitability is the ability of the building materials used for a home, deck or attached outbuilding to combust.

### *Fire-Resistant Plants for Oregon Home Landscapes*

When landscaping around a home, most homeowners are concerned primarily with aesthetics. When homeowners are advised to remove flammable vegetation, they are often worried that the aesthetics of their landscape will be compromised.

Flammable plant material on the landscape can dramatically increase the fire risk around homes. Homeowners can find information about fire-resistant plant materials that aid in improving the chances of a home surviving wildfire while providing aesthetically pleasing color, texture, flowers, and foliage for the landscape. For details please visit

[www.extension.oregonstate.edu/emergency/FireResPlants.pdf](http://www.extension.oregonstate.edu/emergency/FireResPlants.pdf).

### *Cost-Share Grant Programs through National Fire Plan*

ODF provides homeowners within the WUI areas of Union County a free home site inspection. After the inspection, technical advice is shared with the homeowner as to what can be done to lessen the structural ignitability rating of the home. The amount and type of vegetation to be removed varies depending on the amount of survivable space needed to protect the home. This could entail a substantial cost to the homeowner; however there may be grant funds available to share in the cost of the project.

In addition to the above-mentioned program, there is a separate program for larger landowners that have land within a Union County WUI. The larger large block landowners become an even higher priority if located in a WUI and adjacent to federal land. This program offers cost-share incentives for pre-commercial thinning, slash removal, brush removal, and/or ladder fuel removal. Contact ODF in La Grande at (541) 963-3168 to find out more about these programs.

### *Land Use Planning*

Land use planning is an important part of ongoing efforts to mitigate the impact of development in WUI areas. Development in concert with the physical landscape and its inherent risks is the first line of defense against a major fire resulting in extensive private property damage and loss of life. Oregon has instituted the statewide land use planning program, which is administered by county and city planning departments. Union County administers the program through the Comprehensive Plan instituted by Union County Zoning, Partition and Subdivision Ordinance (UCZPSO). UCZPSO requires all new development located within one quarter mile of forestland to meet Fire Siting Standards. Among other things the standards regulate access and building materials as well

as require on-site water for fire suppression. In addition they require a primary and secondary fuel break be maintained on the property.<sup>i</sup>

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<sup>i</sup> Union County Zoning, Partition and Subdivision Ordinance, Siting Standards for Dwellings and Structures and Development and Fire Siting Standards (Adopted November 2, 1983).

## VI. Wildfire Risk Assessment

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### Methodology for Hazard Assessment<sup>1</sup>

To identify and prioritize wildland-urban interface areas-at-risk in Union County, an assessment of factors contributing to large wildfire events was conducted. This section will outline the process used and highlight any unfamiliar definitions. Two key documents were referenced for this process, as instructed by Oregon Department of Forestry:

- 1) *Field Guidance: Identifying and Prioritizing Communities at Risk*. National Association of State Foresters. June 27, 2003. (Available at: <http://www.stateforesters.org/reports>)
- 2) *Concept for Identifying and Assessment of Communities at Risk in Oregon*. Draft prepared by Jim Wolf, Fire Behavior Analyst, Oregon Department of Forestry. July 19, 2004. (Available by contacting Jim Wolf at [jwolf@odf.state.or.us](mailto:jwolf@odf.state.or.us))

These documents were used to expand the assessment of communities-at-risk to also include the assessment of wildland-urban interface areas-at-risk.

In Union County, a **community-at-risk (CAR)** is defined as a group of homes or other structures with basic infrastructure (such as shared transportation routes) and services within or near federal land. A **wildland-urban interface area (WUI)** surrounds a community at risk, including a community's infrastructure or water source, and may extend beyond 1 ½ miles of a community, depending on topography, geographic features used as an effective firebreak, or Condition Class 3 land.

It is important that one understands the meaning of risk and hazard in relation to wildfire. Risk is the chance or probability of fire occurrence. Hazard is the exposure to risk, and in a wildfire those hazards can be related to the natural environment and the man-made environment. Natural hazards include fuel type and amount, topography, and weather. Man-made hazards include access to structures and wildland, availability of water, limited greenspace around structures, and ignitability of structures. Capability of firefighting resources will be compromised by the severity of both natural and man-made hazards.

### Fire Occurrence

The rate of fire occurrence is an important component of the assessment. Fire history records for the last ten years (1994-2003) were used. Fire history data was compiled from the La Grande Ranger District and the Walla Walla Ranger District of the U, Oregon Department of Forestry-La Grande Unit, and the BLM. The fire occurrence rate (FOR) per 1,000 acres was used to yield a value of 1, 2, or 3 to be used to calculate overall hazard in the county.

The following are point assignments for fire occurrence per 1,000 acres for the 10-year period:

<b><i>Number of fires per 1,000 Acres (1994 – 2003)</i></b>	<b><u>Value</u></b>
1 – 2 fires for the 10 years	1
3 – 4 fires for the 10 years	2
5 + fires for the 10 years	3

## **Fuels**

Data used to create a fuels inventory in a Geographical Information System (GIS) was derived from LandSat imagery provided by Oregon Department of Forestry for private lands and the

Wallowa-Whitman National Forest GIS and Oracle tables derived from stand exams and photo interpretation. For Union County, the increased risk of a large wildfire event is caused by the buildup of forest fuel and changes in vegetation composition over time. Unnaturally dense stands competing for limited water and nutrients are at increased risk of wildfire and insect and disease epidemics. Condition class for the county is minimal at level 1, while condition class 2 and 3 dominate. This also means that fire regimes are altered from their historic range, which in turn sets Union County up for wildfires that will be larger in size, more intense and severe, causing landscape patterns to change significantly. One or more of the following activities may have caused this departure: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects and disease, or other pest management activities.<sup>2</sup>

Both surface and crown fuels were considered for the vegetation hazard. Surface fuel hazard was determined by using fire behavior fuel models and/or potential flame length. The table below displays the grouping of fuel models to determine hazard. Values were assigned for each fuel group:

<b><u>Fuel Group</u></b>	<b><u>Value</u></b>
Group 1 (see Table 4)	1
Group 2 (see Table 4)	3
Group 3 (see Table 4)	5

**Table 4. Fuel Group Descriptions**

<b>Fuel Hazard Factor</b>	<b>Fuel Model Group</b>	<b>Fire Characteristics</b>
1	Grass, Low/less flammable brush, and short-needle timber litter (FM 1, 5, 8)	Typically produces a flame length of up to 5 feet; a wildfire that exhibits very little spotting, torching, or crowning, and which results in a burned area that can normally be entered within 15 minutes. Low severity.
2	Grass/Timber, Moderate brush, conifer reproduction, open sage and juniper (FM 2, 6, 9)	Typically produces a flame length of 5 to 8 feet; a wildfire that exhibits sporadic spotting, torching, or crowning, and which results in a burned area that can normally be entered within one hour. Mixed severity.
3	Tall, flammable grasses, Heavy/flammable brush, timber/slash (FM 3, 4, 10-13)	Typically produces a flame length of over 8 feet; a wildfire that exhibits frequent spotting, torching, or crowning, and which results in a burned area that normally cannot be entered for over one hour. Stand replacement severity.

Crown fuel hazard was derived from the vegetation conditions of the landscape and took into consideration the canopy closure and structure.

Total Vegetation Hazard was determined by combining the points assigned to the crown fuel hazard and points assigned to the surface fuel hazard. The total possible value for vegetation hazard is ten.

<b><u>Crown Fuel Group</u></b>	<b><u>Value</u></b>
Low	1
Moderate	3
High	5

Historical notes have been kept for the GIS processes used and are archived at the Union County Emergency Services Office or the Oregon Department of Forestry Office in La Grande.

## Topographic Hazard

Slope and aspect affect both the intensity and rate of wildfire spread. The topography hazard factor was derived from the Digital Elevation Model for Union County; values were assigned to the combination of slope and aspect working together on the landscape.

<b><u>Slope</u></b>	<b><u>Value</u></b>
0 – 25%	1
25 – 50%	2
> 50%	3
<b><u>Aspect</u></b>	<b><u>Value</u></b>
N, NE	1
NW, E	2
W, SE	3
S, SW, Flat	4

Total Topographic Hazard was determined by combining the points assigned to the slope hazard and points assigned to the aspect hazard. The total possible value for topographic hazard is seven.

## **Overall Hazard**

Fire occurrence, the total topographic hazard rating, and the total fuel hazard rating were combined using *Spatial Analyst* (an ESRI product) to determine an overall hazard display of Union County. The maximum points assigned for fire occurrence was 3, the maximum points assigned for total topographic hazard was 7, and the maximum points assigned for total vegetation hazard was 10. The breakpoint used to determine high hazard was 10.5. Hence, anything with 10.5 or higher was considered high hazard, and anything lower was considered moderate / low hazard.

## **Weather Hazard**

In Union County, weather patterns produce summer lightning storms that start many fires. These multiple starts put a strain on the wildland firefighting resources. Add the drying of fuels over time and low relative humidity, and the probability for large fires has increased. The number of days per season that forest fuels are capable of producing a significant fire event is important to consider. Oregon Department of Forestry has already determined that Eastern Oregon is at the highest hazard rating for weather. This value was assigned by an analysis of daily wildfire danger rating indices in each regulated use area of the state. This value is constant across Union County; however weather patterns vary due to the mountainous landscape within the county. The high hazard value was offset with annual rainfall during the scoring of wildland-urban interface areas in order to effectively prioritize each WUI, as well as reflect a true assessment of the local weather hazard.

## **Overall Fire Protection Capability Hazards**

In Union County, local fire departments determined their overall capability for responding to a fire in their district. Each district submitted information to the Oregon Department of Forestry that included an inventory of roads that prohibit access to structures, water shortages, unprotected locations, structure density, building materials and defensible space around structures, and any other issues that pose a hazard to the fire district.

The WUI boundaries were drawn to capture the overall limitations of each fire protection district, fuel hazard, communities at risk and values-at-risk. Logical anchor points on the landscape were used to designate WUI boundaries, including natural fuel breaks, ridge lines, roads, and 6<sup>th</sup> field hydrological unit code (HUC) boundaries (identified using the GIS layer available in the Oregon Department of Forestry GIS library).

## Values at Risk

The economic viability of Union County would suffer if a large wildfire eliminated valuable timber and destroyed recreational areas that draw tourists to the county. Citizens of Union County consistently identified the beauty and scenery as being of value. From anywhere within the Grande Ronde Valley of Union County, the forested landscape is within the viewshed of a community. A large wildfire could significantly affect that scenic value. Values-at-risk are subjective based on community input; however, it was possible to use the input in the scoring and prioritization of each WUI area. For more detailed information regarding values-at-risk derived from community input, please review the Values-At-Risk Questionnaire results found in Appendix B of this plan.

## Using the Hazard Assessment to Score and Prioritize WUI Areas

The hazard assessment information discussed previously was used to develop a scoring matrix that would provide results to be used for prioritizing the WUI areas within Union County. The weighting of each element of the matrix was based on input received from the community, steering committee, and statewide assessment information. The matrix is not statistically valid as the plan was designed to be community-driven. Community and steering committee input was captured in its raw form. The list of priorities helped the steering committee build a comprehensive inventory of projects and action items that could be implemented to protect the WUI areas from large wildfire. The categories for the scoring matrix are:

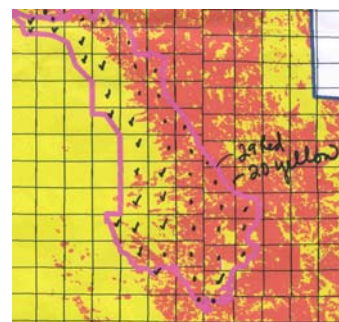
- ✓ Wildfire Hazard
- ✓ Overall Fire Protection Capability/Structural Vulnerability
- ✓ Values Protected
- ✓ Weather
- ✓ Opportunity for Fuels Reduction

A total of 150 points were established for the overall high score. Each of the categories was a percentage of that score. In Section VII of this document, the scoring matrix lists the scores received for each WUI, with a total of fifteen WUI's existing in Union County.

### Category 1: Wildfire Hazard

Sixty points were possible for the category of wildfire hazard, yielding 40% of the overall total score. The wildfire hazard was based on the original layout done when total hazard was derived from ignition risk, topography, and fuels (see *Overall Hazard* in the *Methodology* section above.)

Cove Hazard Scoring





A simple GIS technique, known as majority rules, was used to determine whether a WUI area had a low/moderate wildfire hazard rating or a high hazard rating. Sections from the public land survey (PLS) layer were counted within a WUI. Each section was analyzed based on the amount of color it had that represented high (red) or low/moderate (yellow). The dominating color of that section determined whether a section should be counted as "red" or "yellow." Then the number of "reds" and the number of "yellows" were tallied. If an area had more "yellow" sections than "red" sections, it received a score of 30. If an area had more "red" sections than "yellow" sections, it received a score of 60.

## **Category 2: Overall Fire Protection Capability/Structural Vulnerability**

This category of the scoring matrix consists of six areas to consider, with this category yielding 30% of the overall score. Different ranges represented low, moderate, and high risk. A score of 0-15 gave the WUI a low hazard rating; a score of 16-30 gave the WUI a moderate hazard rating; and a score of 31-45 gave the WUI a high hazard rating.

The six areas for consideration when assigning a score to Overall Fire Protection Capability/Structural Vulnerability are:

- ✓ Homesite Density
- ✓ Ignition Risk Factors
- ✓ Type Of Organized Fire Response
- ✓ Structural Fire Agency Response Time
- ✓ Level Of Community Preparedness
- ✓ Structural Vulnerability Factors

## **Category 3: Values Protected**

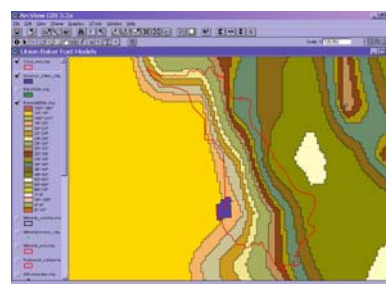
When scoring a WUI for values protected, a list was comprised of the values that the public noted in the questionnaire and from information gleaned from the public meetings. Also, municipal watershed and major transmission lines and corridors were added as those values are part of the legislation that was put forth under the Healthy Forest Restoration Act (HFRA). This category was 15% of the total score, with the possibility of receiving a high score of 22.5 points. If a WUI had 0-3 of those values present, then a score of 7.5 was received; 3-5 present, then a score of 15 was received; and, 5 or more present, then a score of 22.5 was received. The scoring matrix in the appendix lists the values considered.

## **Category 4: Weather Factor**

It was already mentioned in the *Methodology* section above that northeastern Oregon is considered to have a high hazard rating for weather. However, it was decided that the

high hazard rating should be offset with annual rainfall in order to reflect the unique weather patterns across Union County. This category is 10% of the overall total score, with 15 points being the most a WUI could receive for this category. If an area receives 25" or more annually, then a score of 5 was assigned. If an area receives 13-24" annually, then a score of 10 was assigned; and, if an area receives 12" or less annually, then a score of 15 was assigned. (Note: The layer used to determine annual rainfall came from the Oregon Department of Forestry GIS library).

Cove Annual Rainfall



**Table 5. Individual WUI Score Sheet**

<b>Score Sheet for Wildland Urban Interface Area at Risk</b>	
1) Wildfire Hazard Rating (Ignition Risk, Topography, Fuels) = 40% of score Low/Moderate = Score of 30 High = Score of 60	<b>Score:</b> _____
2) Overall Fire Protection Capability / Structural Vulnerability Rating = 30% of score  Low Risk: Score 0 - 15 Moderate Risk: Score 16 - 30 High Risk: 31 - 45	<b>Score:</b> _____
3) Values At Risk = 15% of score  Low = Score of 7.5 Moderate = Score of 15 High = Score of 22.5	<b>Score:</b> _____
4) Weather Factor (High Hazard and Low Precipitation) = 10% of score  Low = Score of 5 (25+" annually) Moderate = Score of 10 (13-24" annually) High = Score of 15 (0-12" annually)	<b>Score:</b> _____
5) Opportunity for Fuels Reduction Projects = 5% of score  Yes for Private; Yes for Federal/Other = 7.5 Yes for one; No for one = 5.0 No for both = 2.5	<b>Score:</b> _____
<b>Total:</b> _____	

### Category 5: Opportunity for Fuels Reduction Projects

To fully protect WUI areas from the risk of large wildfire, some level of fuels treatment will need to be conducted. Hence, this category was 5% of the overall total score (a high score of 7.5 is possible). If there was active fuels treatment taking place in a WUI or private landowners had expressed an interest in conducting a fuels treatment project and there was an adjacent planned or completed project on federal land, then the WUI received a score of 7.5. If there was a "yes" for one and a "no" for the other (with the same criteria as mentioned above), then the

WUI received a 5. If there wasn't any treatment being done or planned for the future and no interest on behalf of private landowners, then the WUI received a score of 2.5.

### Prioritization

A list of priorities was established from the scores assigned to each WUI. The WUI with the highest score is at the top of the list and the WUI with the lowest score is at the bottom of the list. Projects and Action Items for each WUI were developed based on the reasons a WUI received a particular score in a particular category of the overall scoring matrix.

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<sup>1</sup> This document was authored by Angie Johnson, Oregon Department of Forestry-Northeast Oregon District, and edited by Trish Wallace, US Forest Service-Wallowa-Whitman office. The hazard assessment was conducted by both Trish and Angie.

<sup>2</sup> *Expanded Fire Condition Class Definition Table*. Available at <http://www.frcc.gov>.

## ***VII. Wildland-Urban Interface Areas***

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### **Wildland-Urban Interface Areas**

Sixteen WUI's were identified which roughly correspond with rural residential areas in Union County. The Stubblefield Mountain and Beaver Creek Watershed areas tied for the sixth riskiest area. Table 6 identifies them in order of potential risk, with the highest risk listed first.

Each of the column headings corresponds with each category of the risk assessment. The key for Table 6 is:

- |                    |   |  |
|--------------------|---|--|
| 1. Wildfire Hazard | = | Fire occurrence, combined with vegetation and topography.        |
| 2. OFP/SV          | = | Overall fire protection combined with structural vulnerability.  |
| 3. Values at Risk  | = | Values at risk from wildfire as determined by VAR questionnaire. |
| 4. Wx Haz.         | = | Weather hazard.  |
| 5. Opp. FR         | = | Opportunity for fuels reduction partnerships or projects.        |

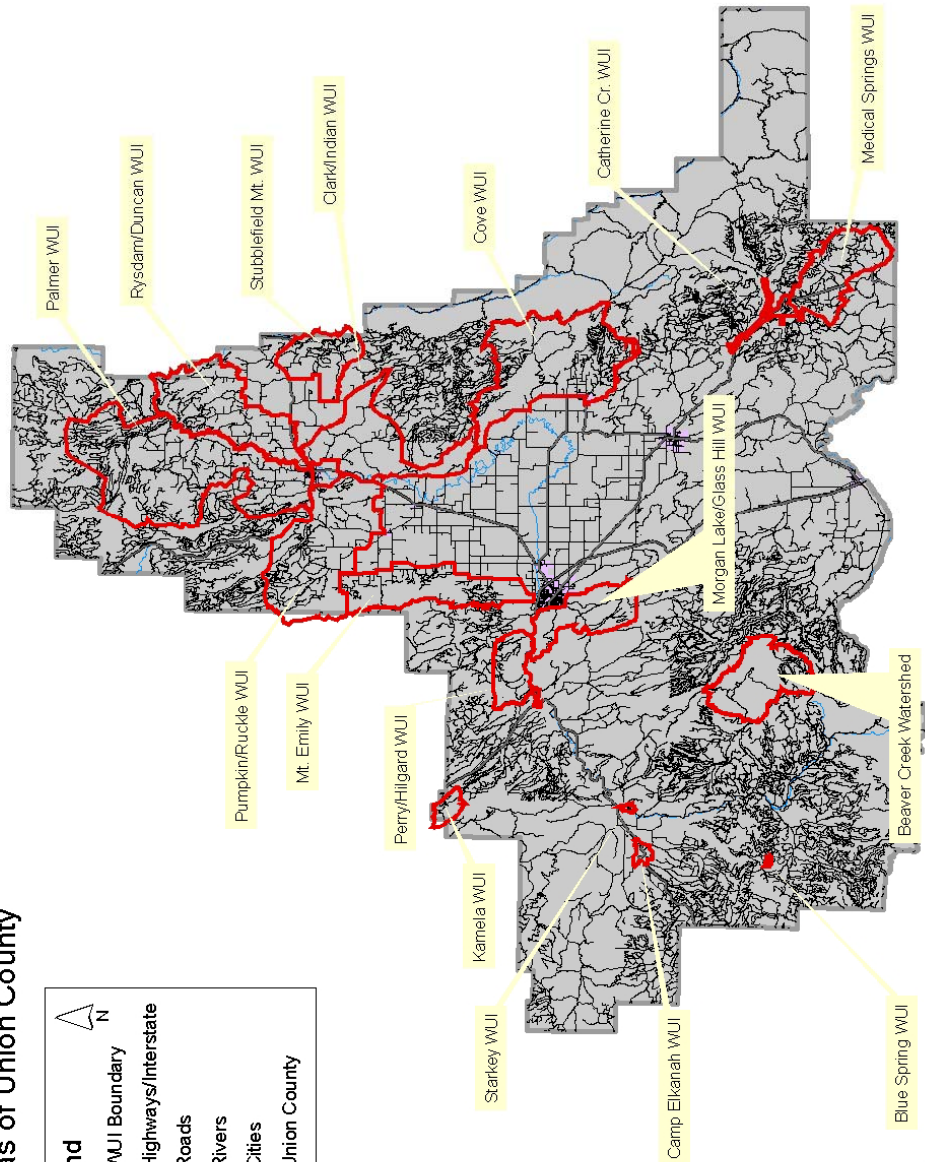
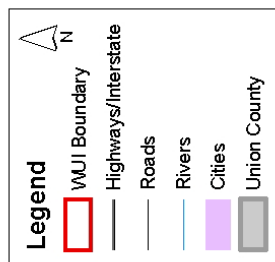
### **Individual Interface Information**

Each of the sixteen WUIs has a layout showing the boundaries and overall hazard of the region. Pertinent information about the interface areas is listed alongside the map. Risk assessment and project information is also listed here.

**Table 6. Wildland-Urban Interface Ranking Summary**

<b>WUI Area</b>	<b>Wildfire Hazard</b>	<b>OFP / SVR</b>	<b>Values at Risk</b>	<b>Weather Hazard</b>	<b>Opp. FR</b>	<b>Total Score</b>	<b>Rank</b>
	<i>Raw Score/Rating</i>	<i>Raw Score/Rating</i>	<i>Raw Score/Rating</i>	<i>Raw Score/Rating</i>	<i>Raw Score/Rating</i>		
<i>Morgan</i>	60/H	37/H	22.5/H	10/M	5/M	134.5/150	#1
<i>Cove</i>	60/H	33/H	22.5/H	10/M	7.5/H	133/150	#2
<i>Mt. Emily</i>	60/H	35/H	22.5/H	5/L	7.5/H	130/150	#3
<i>Palmer</i>	60/H	29/M	22.5/H	10/M	7.5/M	129/150	#4
<i>Perry/Hilgard</i>	60/H	33/H	22.5/H	5/L	7.5/H	128/150	#5
<i>Stubblefield</i>	60/H	37/H	15/M	5/L	5/M	122/150	#6
<i>Beaver Creek Watershed</i>	60/H	32/H	22.5/H	5/L	2.5/L	122/150	#6
<i>Catherine Creek</i>	60/H	26/M	22.5/H	5/L	7.5/H	121/150	#7
<i>Blue Springs</i>	60/H	35/H	15/M	5/L	5/M	120/150	#8
<i>Medical Springs</i>	60/H	24/M	22.5/H	5/L	7.5/H	119/150	#9
<i>Kamela</i>	60/H	22/M	15/M	5/L	7.5/H	109.5/150	#10
<i>Pumpkin Ridge /Ruckle</i>	30/L-M	34/H	22.5/H	10/M	7.5/H	104/150	#11
<i>Elkanah</i>	30/L-M	39/H	15/M	10/M	7.5/H	101.5/150	#12
<i>Clark</i>	30/L-M	30/M	22.5/H	10/M	5/M	97.5/150	#13
<i>Rysdam</i>	30/L-M	29/M	22.5/H	10/M	5/M	96.5/150	#14
<i>Starkey</i>	30/L-M	33/H	15/M	10/M	7.5/H	95.5/150	#15
<b><i>L = Low      M = Medium      H = High</i></b>							

## WUI Areas of Union County



For Visual Display Only



Northeast Oregon District GIS unit  
La Grande, OR  
July 25, 2005

**WUI Name:** Morgan Lake / Looking Glass Hill

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>37</b>	<b>22.5</b>	<b>10</b>	<b>5</b>	<b>134.5</b>	<b>1</b>

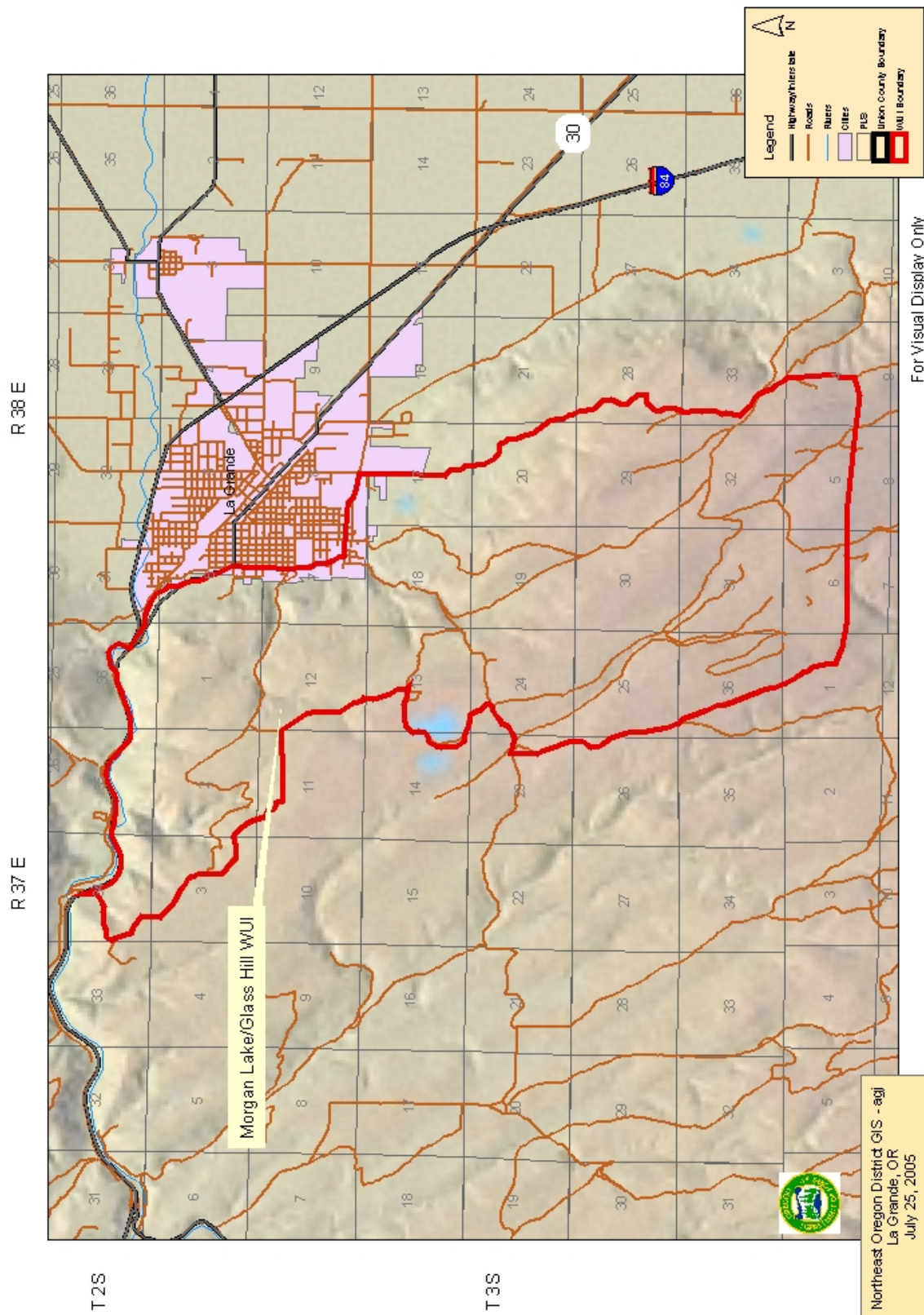
**Communities at Risk:** Morgan Lake, City of La Grande

**Structural Fire Protection Agency:** La Grande Fire Department protects to the City Limit; otherwise it is wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

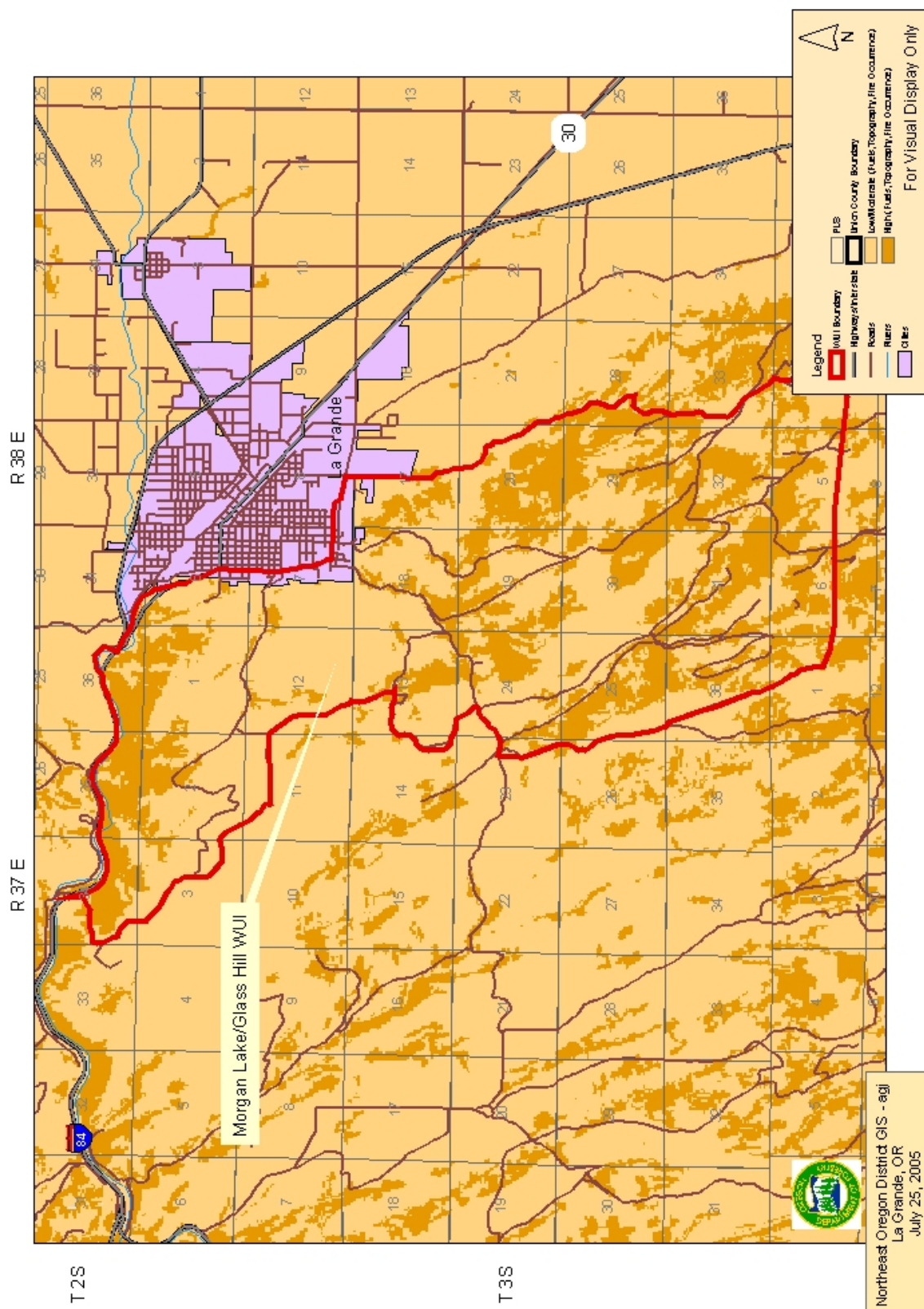
<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Morgan Lake Private Lands	• 1-2 years	• ODF; Landowners, LGFD; LGRFPD
Prepare Morgan Lake Evacuation Plan	• 1-2 years	• UCES; UCPW; UCSO
Reconstruct Morgan Lake Road	• 3 + years	• UCPW; ODOT
Establish RFPD for Morgan Lake	• 3 + years	• Landowners; UC; Structural Agencies

# Union County WUI Boundaries (with Shaded Relief)





# Union County WUI Boundaries (with Wildfire Hazard)



WUI Name: Cove

Priority Category: High

Risk Assessment Factors						
Wildfire Hazard, including: Fire Occurrence, Topography & Total Fuels	Overall Fire Protection & Structural Vulnerability	Values At-Risk	Weather Hazard	Opportunity for Fuels Reduction	Score	Rank
60	33	22.5	10	7.5	133	2

**Communities at Risk:** City of Cove, Lower Cove, High Valley and adjacent rural residential areas.

**Structural Fire Protection Agency:** Cove Rural Fire Protection District.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

WUI – Specific Projects	Timeframe	Lead Agency/Cooperators
Cove Treatment	• 3 + years	• USFS; ODF; Landowners, Cove RFPD; UC Forest Restoration Board; Industrial Forestland Owners
Cove Private Lands	• 1-2 years	• ODF; Landowners; Cove RFPD

Map of the WUI boundary in the Northeast Oregon District GIS. The map shows a red line representing the WUI boundary, with a yellow callout box labeled 'Cove WUI' pointing to a specific location. The map includes a grid with coordinates (R 39 E, R 40 E, R 41 E and T 2 S, T 3 S) and a legend for WUI Boundary, Roads, Highways/Highways, Cities, and WUI. A north arrow is also present.

Legend:

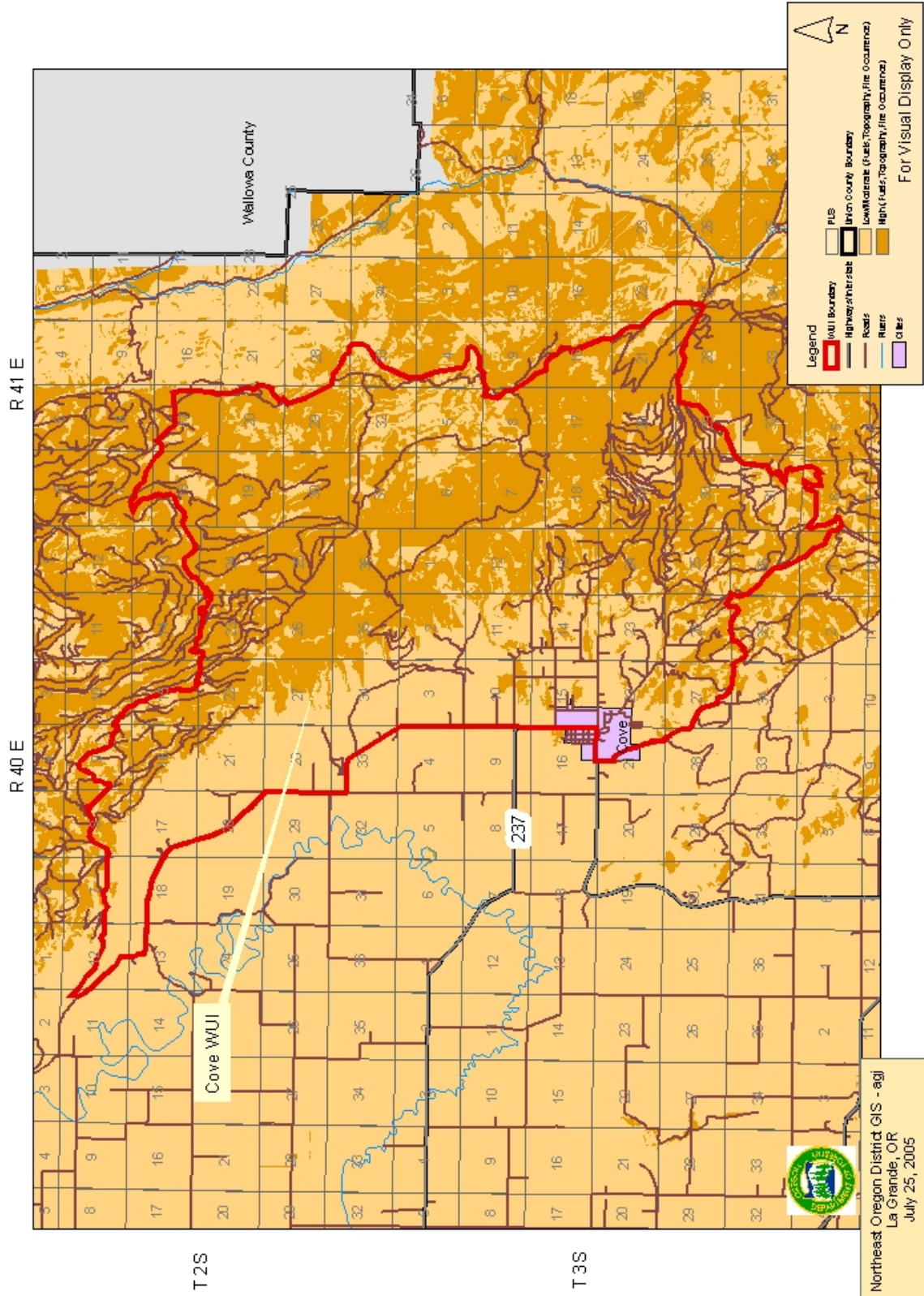
- WUI Boundary
- Roads
- Highways/Highways
- Cities
- WUI

For Visual Display Only

Northwest Oregon District GIS - agj  
La Grande, OR  
July 25, 2005



# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Mt. Emily

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>35</b>	<b>22.5</b>	<b>5</b>	<b>7.5</b>	<b>130</b>	<b>3</b>

**Communities at Risk:** Mt. Emily, Owsley Canyon and adjacent rural residential areas.

**Structural Fire Protection Agency:** La Grande and Imbler Rural Fire Protection Districts.

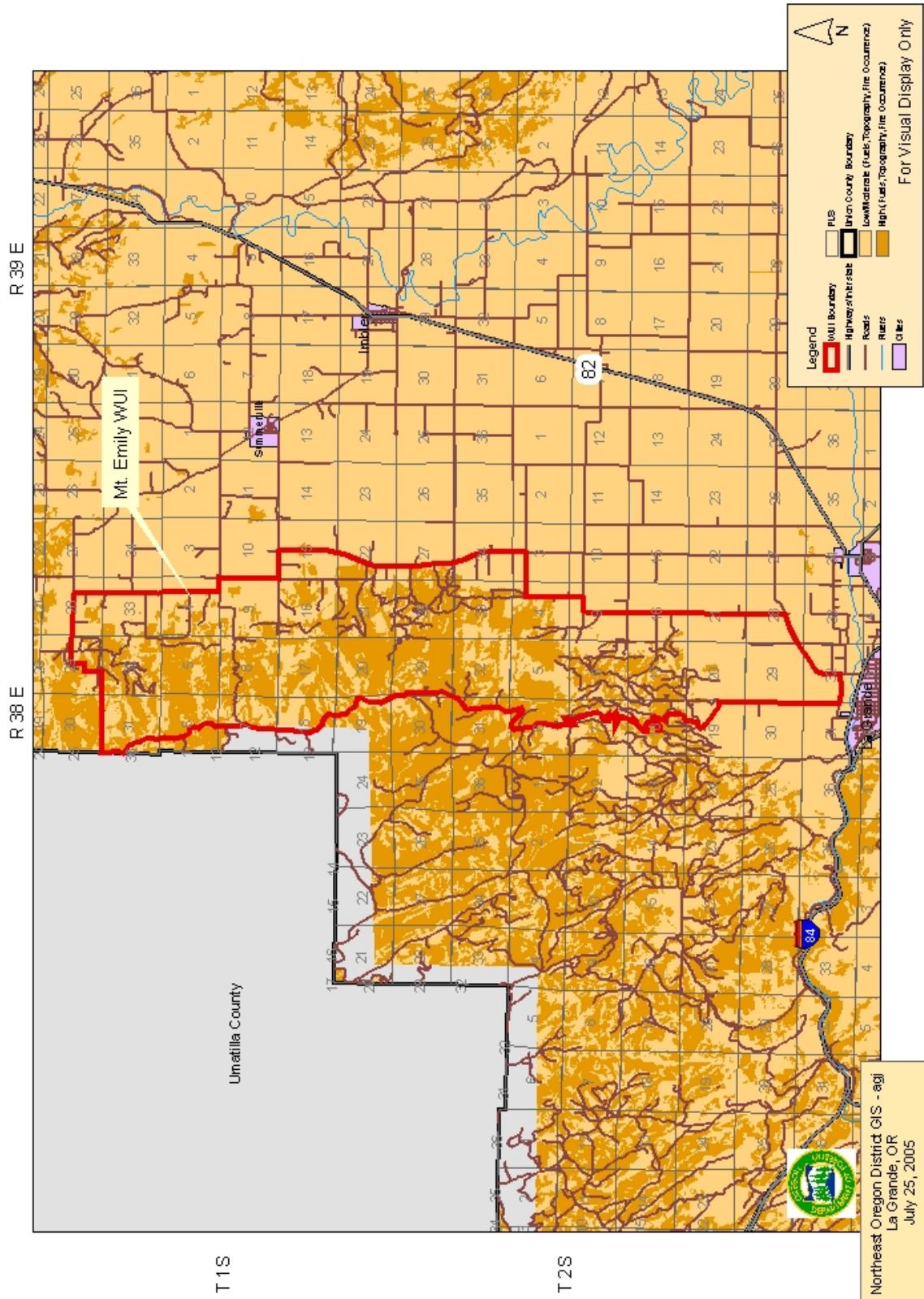
**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Mt. Emily Treatment	• 3 + years	• USFS; ODF; Private & Industrial Landowners; LG & Imbler RFPDs; UC Forest Restoration Board
Mt. Emily Private Lands	• 1-2 years	• ODF; Private & Industrial Landowners; LG & Imbler RFPDs

The map displays a topographic view of a region in Northeast Oregon, overlaid with a grid of 30x30 cells. A prominent red boundary outlines a specific area, labeled 'Mt. Emily WUI' with a yellow callout box. The map includes various geographical features: brown lines for roads, blue lines for railroads, and green areas for other land use. A legend in the bottom right corner defines these symbols. A north arrow is located in the top right corner. The map is labeled 'For Visual Display Only' and 'Northeast Oregon District GIS - agj La Grande, OR July 25, 2005'.



# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Palmer Valley / Valley View

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>29</b>	<b>22.5</b>	<b>10</b>	<b>7.5</b>	<b>129</b>	<b>4</b>

**Communities at Risk:** Palmer Valley, Valle View Road area, City of Elgin and adjacent rural residential areas.

**Structural Fire Protection Agency:** Elgin Rural Fire Protection District.

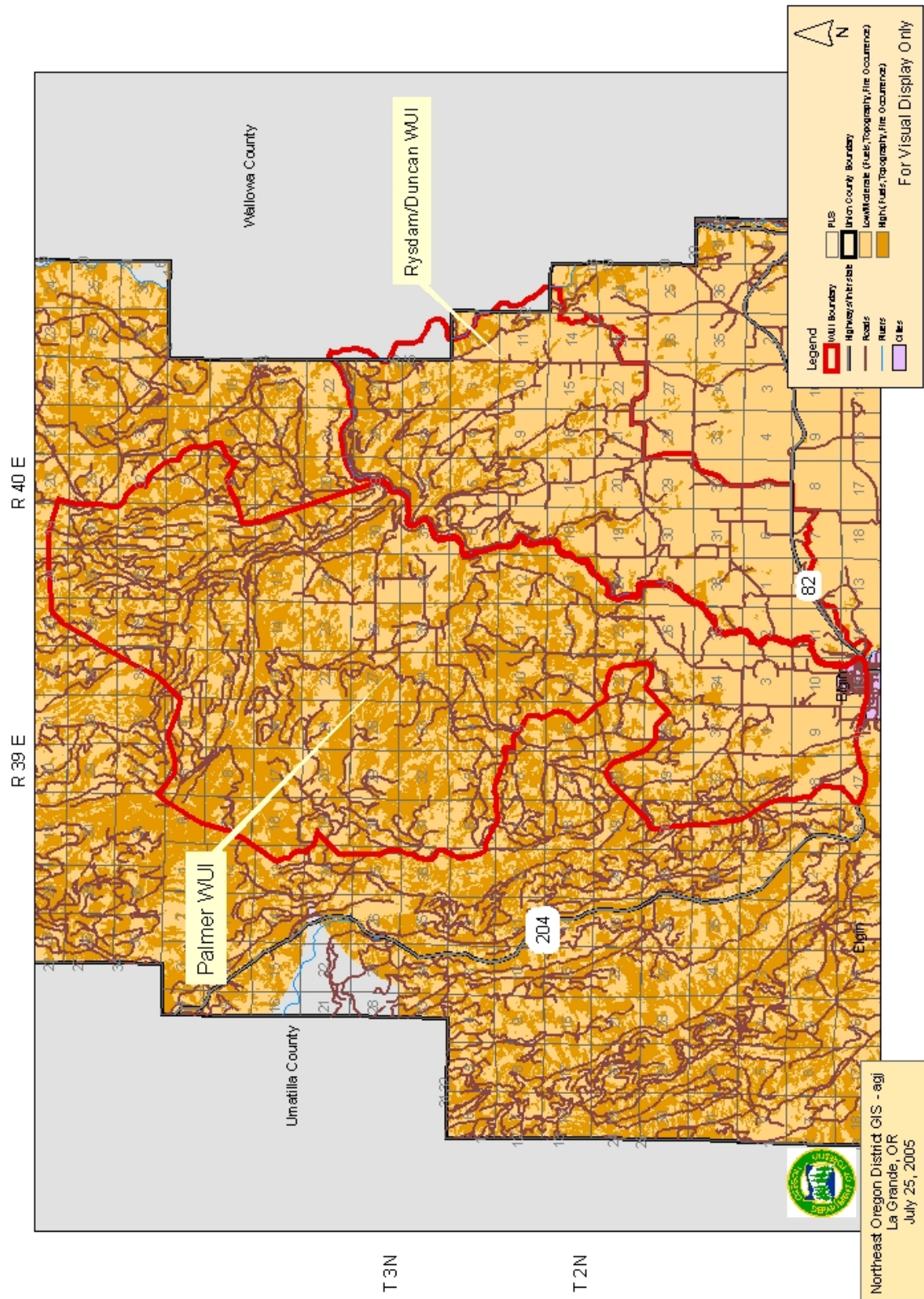
**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Palmer Valley Private Lands	• 1-2 years	• ODF; Landowners; Elgin RFPD





# Union County WUI Boundaries (with Wildfire Hazard)





**WUI Name:** Perry / Hilgard

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>33</b>	<b>22.5</b>	<b>5</b>	<b>7.5</b>	<b>128</b>	<b>5</b>

**Communities at Risk:** Upper and Lower Perry, Hilgard.

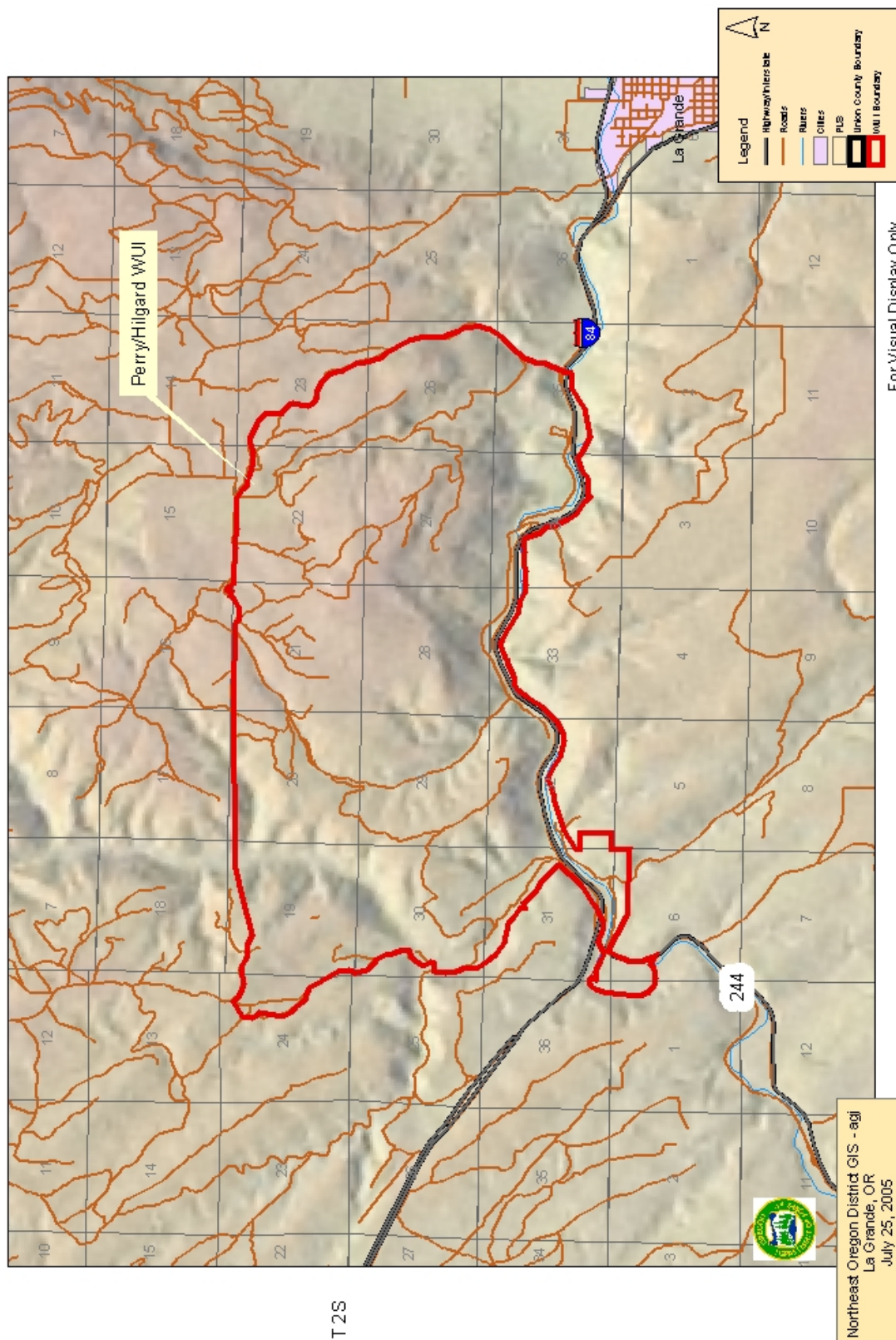
**Structural Fire Protection Agency:** Wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Establish a Perry / Hilgard RFPD	• 3 + years	• Landowners; UC; Structural Agencies
Pelican Creek Treatment	• 1-2 years	• USFS
Three Cabin Creek Treatment	• 1-2 years	• USFS

# Union County WUI Boundaries (with Shaded Relief)

R 37 E





WUI Name: Stubblefield

Priority Category: High

Risk Assessment Factors						
Wildfire Hazard, including: Fire Occurrence, Topography & Total Fuels	Overall Fire Protection & Structural Vulnerability	Values At-Risk	Weather Hazard	Opportunity for Fuels Reduction	Score	Rank
60	37	15	5	5	122	6

**Communities at Risk:** Stubblefield Mountain area.

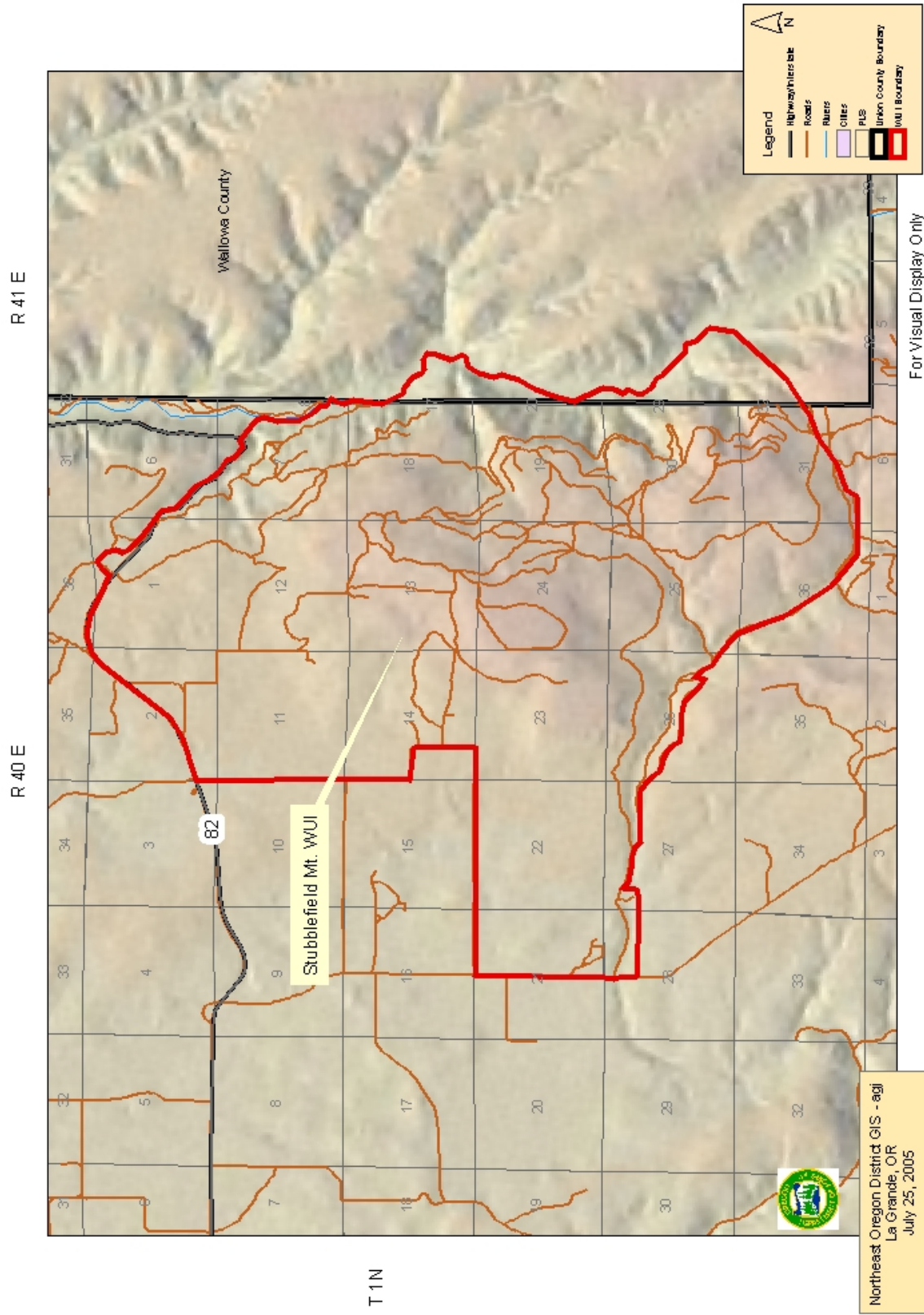
**Structural Fire Protection Agency:** Wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

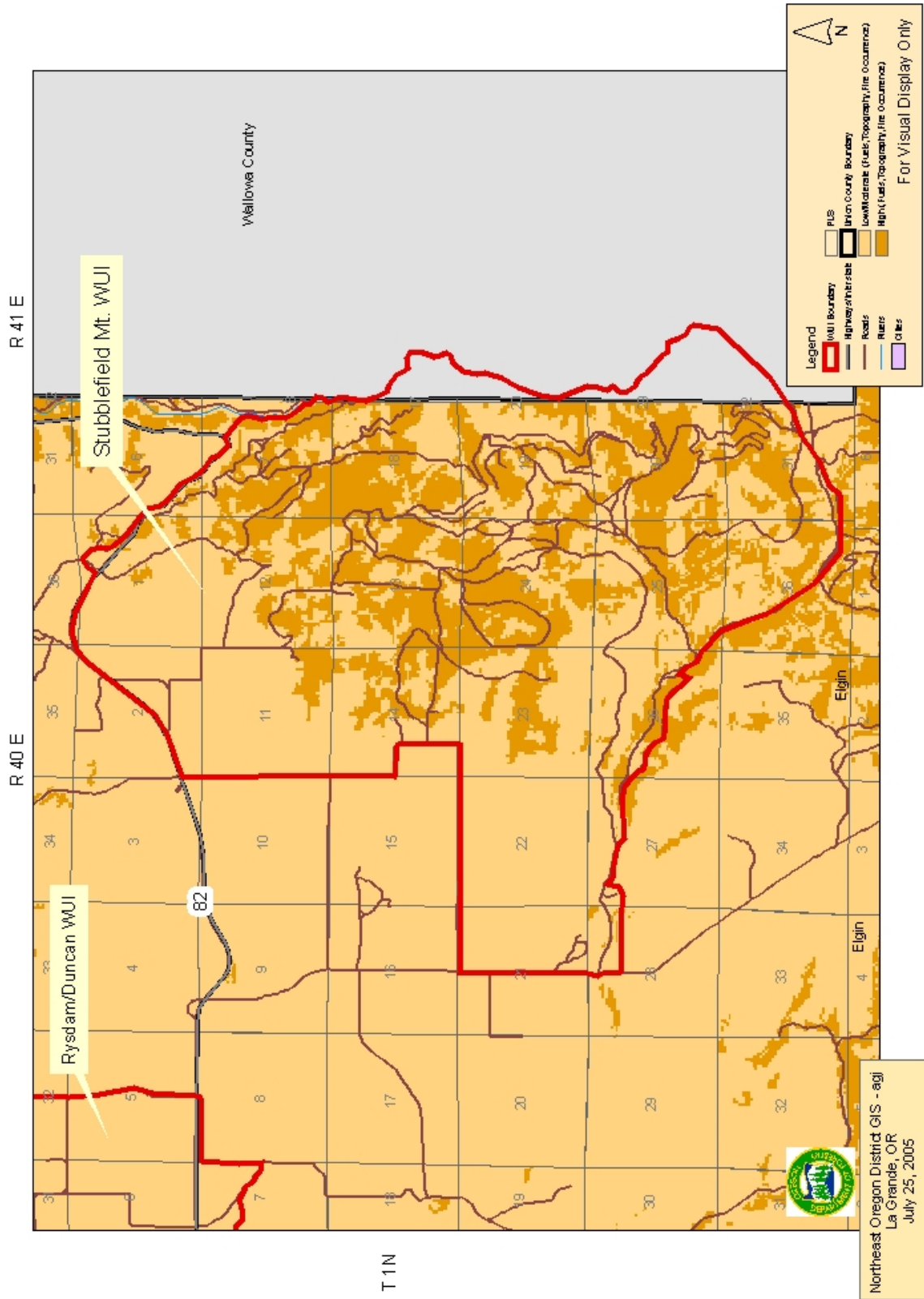
WUI – Specific Projects	Timeframe	Lead Agency/Cooperators
	•	•
	•	•
	•	•
	•	•



# Union County WUI Boundaries (with Shaded Relief)



# Union County WUI Boundaries (with Wildfire Hazard)





**WUI Name:** Beaver Creek Watershed

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>32</b>	<b>22.5</b>	<b>5</b>	<b>2.5</b>	<b>122</b>	<b>6</b>

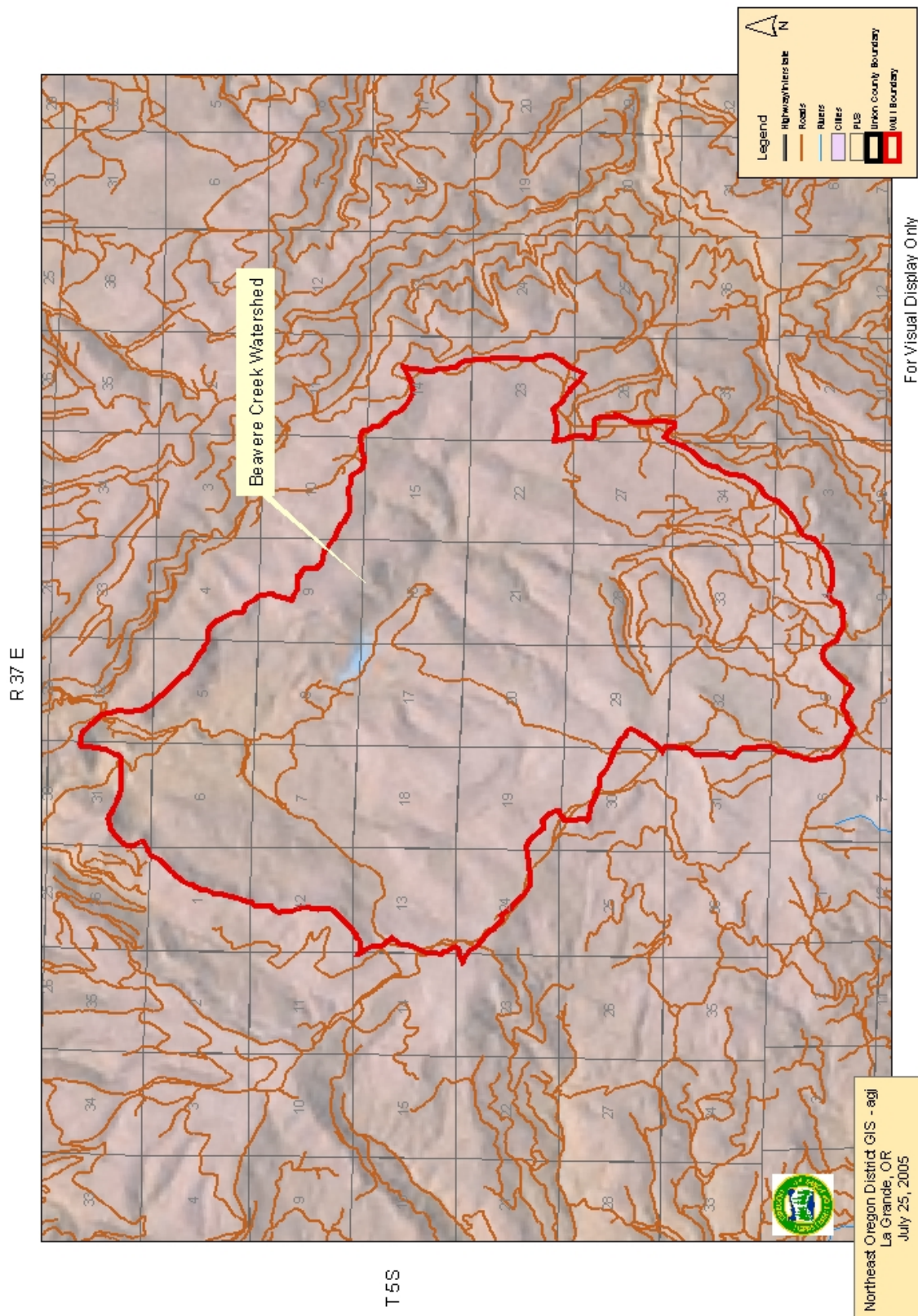
**Communities at Risk:** City of La Grande.

**Structural Fire Protection Agency:** Wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
	•	•
	•	•
	•	•
	•	•

# Union County WUI Boundaries (with Shaded Relief)



Beaver Creek Watershed

R 37 E

T 5 S

Legend

- Watershed Boundary
- Union County Boundary
- Low/Moderate (Fuels, Topography, Fire Occurrence)
- Roads
- Other

For Visual Display Only

Northwest Oregon District GIS - agj  
La Grande, OR  
July 25, 2005

**WUI Name:** Catherine Creek

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>26</b>	<b>22.5</b>	<b>5</b>	<b>7.5</b>	<b>121</b>	<b>7</b>

**Communities at Risk:** Catherine Creek area.

**Structural Fire Protection Agency:** Wildland fire protection only.

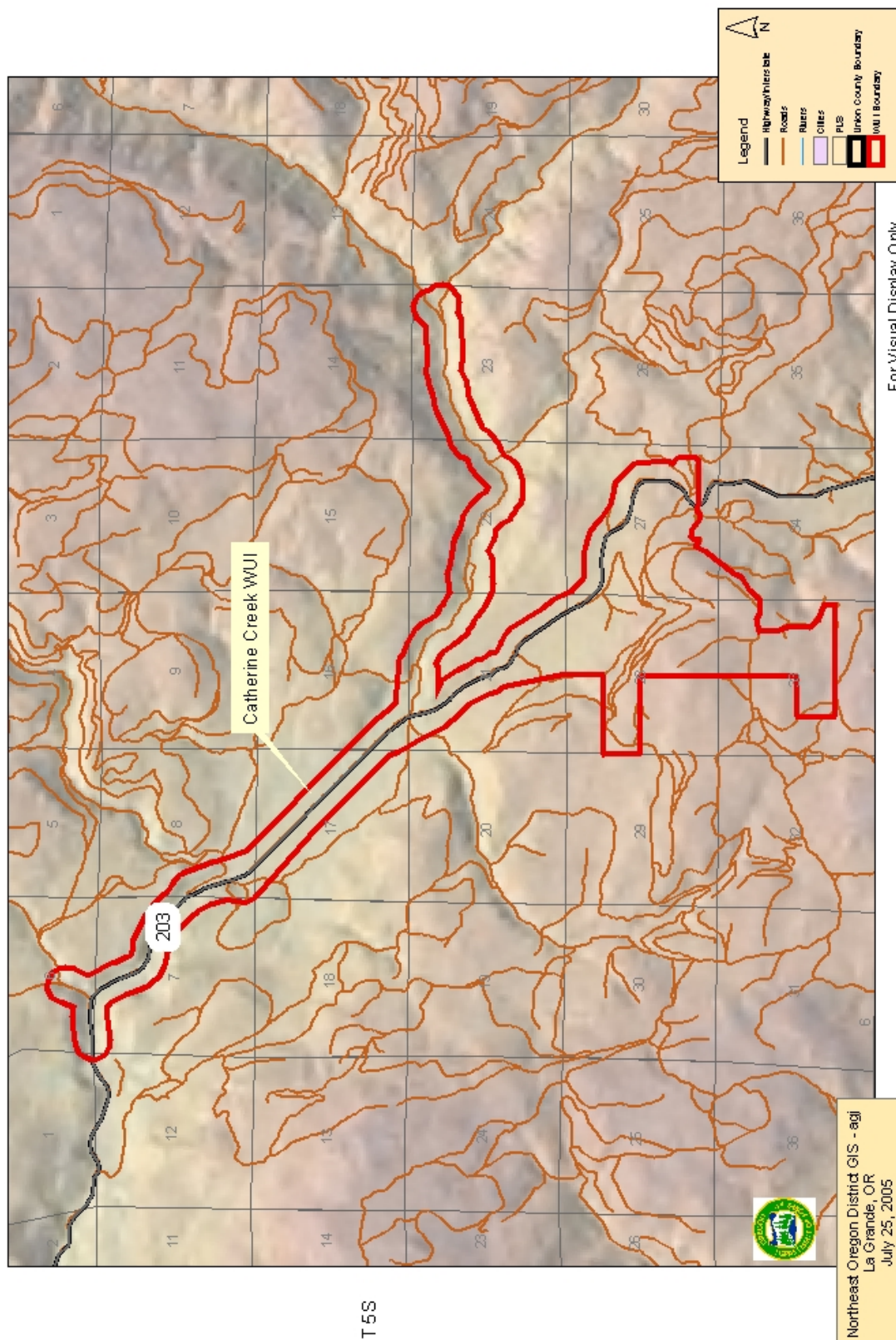
**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
South Fork Catherine Creek	• 3 + years	• USFS; ODF; Private & Industrial Landowners; Union RFPD; UC Forest Restoration Board
Catherine Creek Corridor Private Lands	• 3 + years	• ODF; Landowners; Union RFPD
Catherine Creek Corridor Mapping	• 1-2 years	• ODF; Landowners; Union RFPD



# Union County WUI Boundaries (with Shaded Relief)

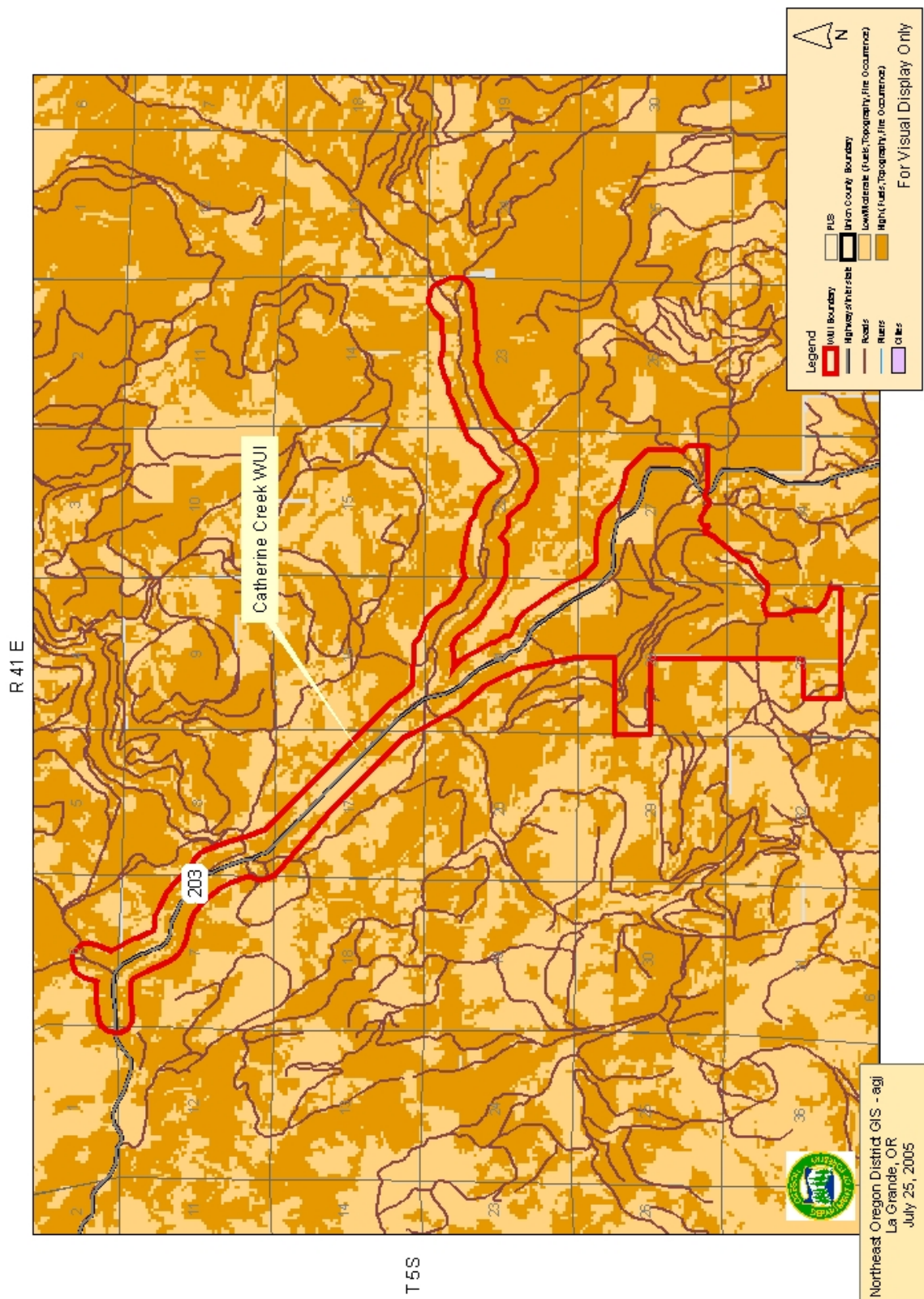
R 41 E



T 5 S

Northeast Oregon District GIS - agl  
La Grande, OR  
July 25, 2005

# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Blue Springs

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>35</b>	<b>15</b>	<b>5</b>	<b>5</b>	<b>120</b>	<b>8</b>

**Communities at Risk:** Blue Springs area.

**Structural Fire Protection Agency:** Wildland fire protection only.

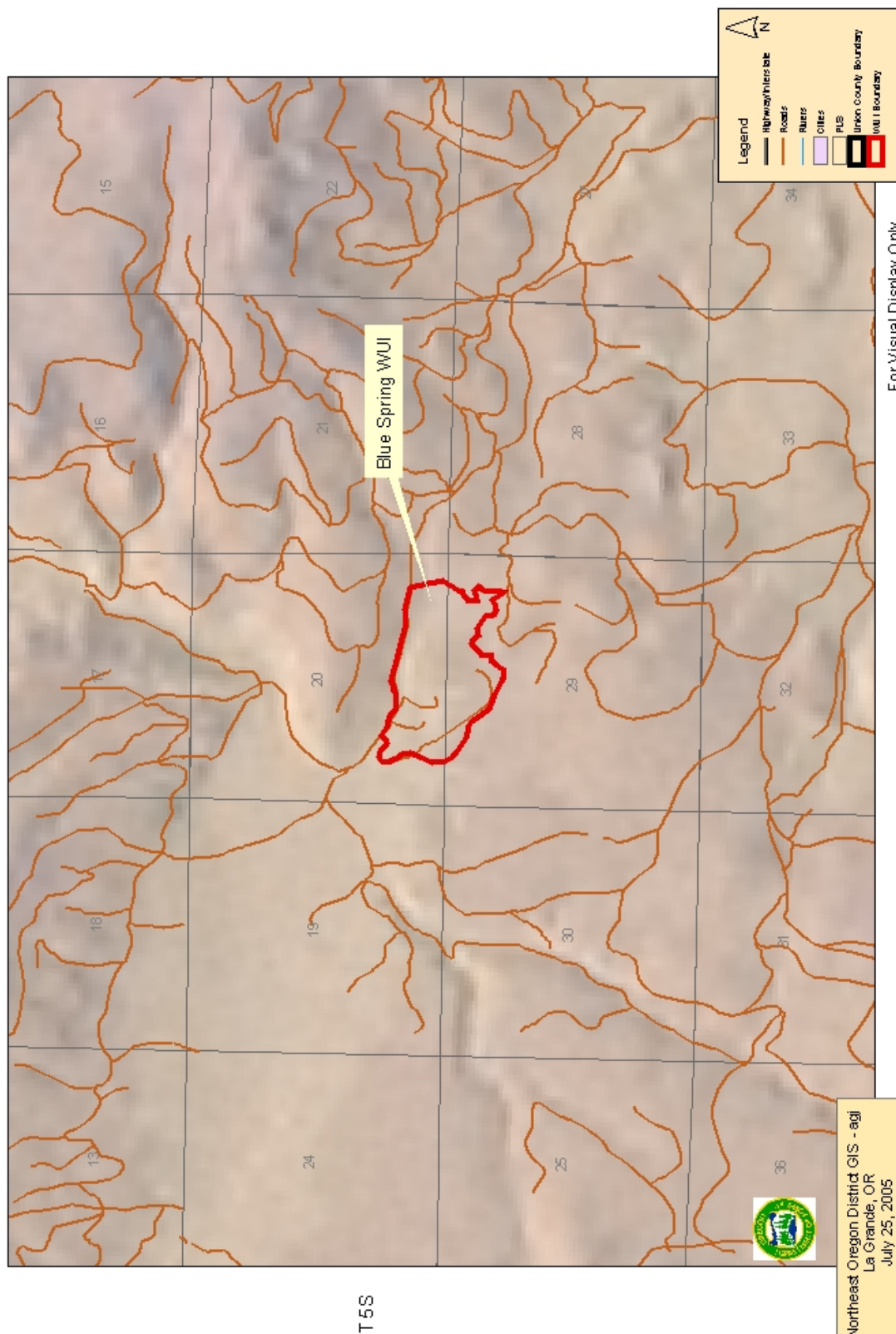
**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Blue Springs Maintenance	• Ongoing	• USFS



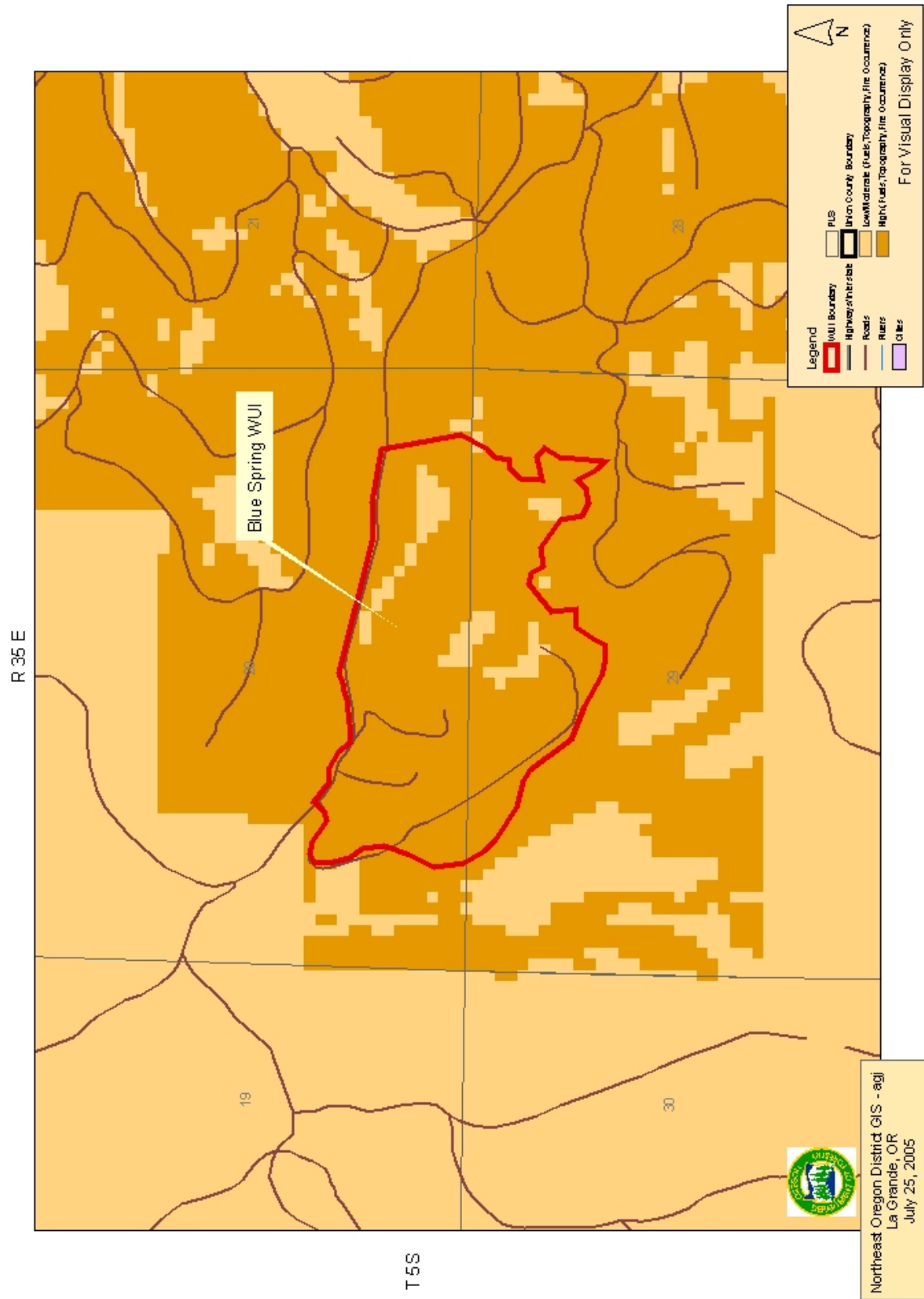
# Union County WUI Boundaries (with Shaded Relief)

R 35 E





# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Medical Springs

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>24</b>	<b>22.5</b>	<b>5</b>	<b>7.5</b>	<b>119</b>	<b>9</b>

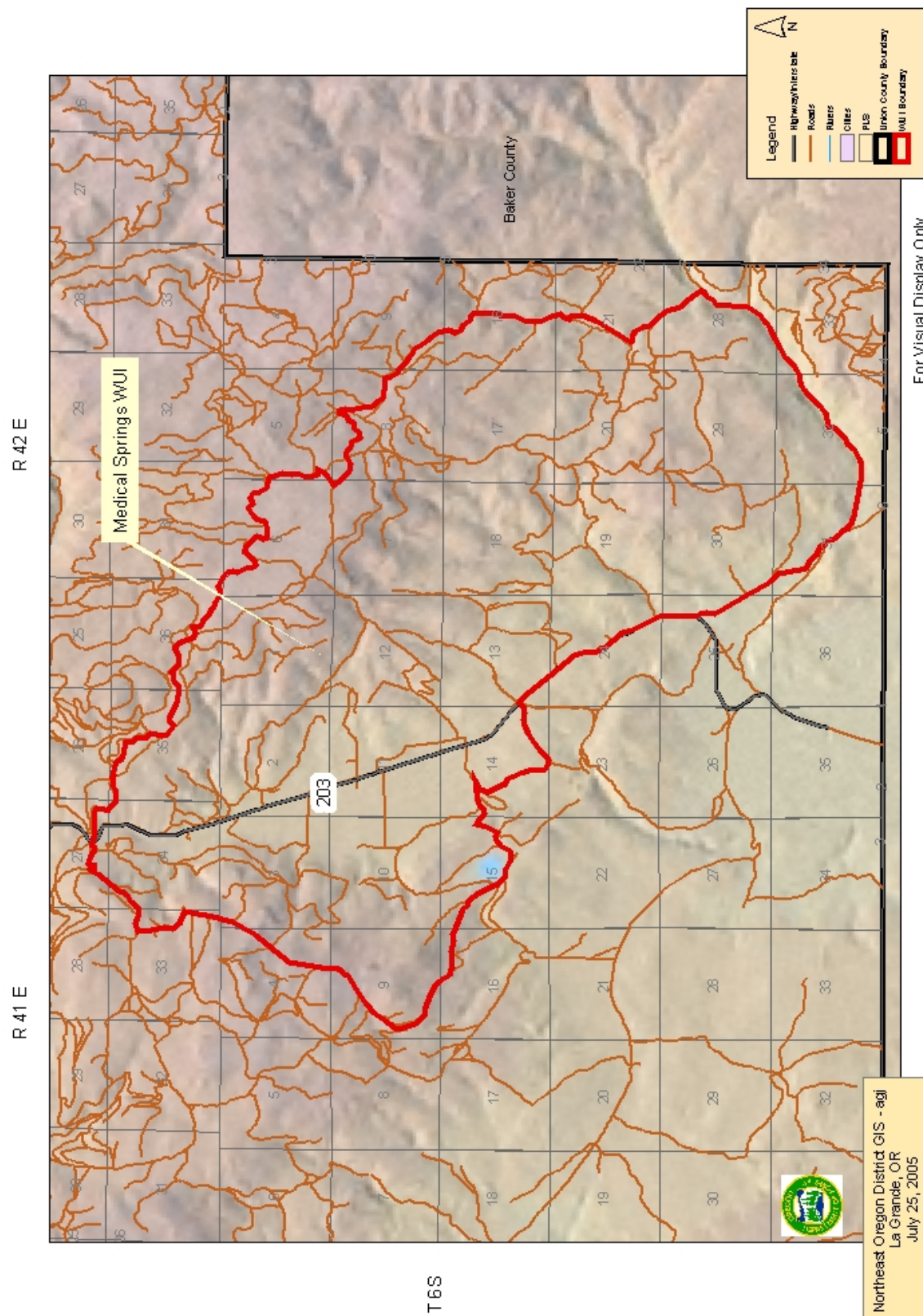
**Communities at Risk:** Medical Springs, Pondosa and adjacent rural residential areas.

**Structural Fire Protection Agency:** Medical Springs Rural Fire Protection District.

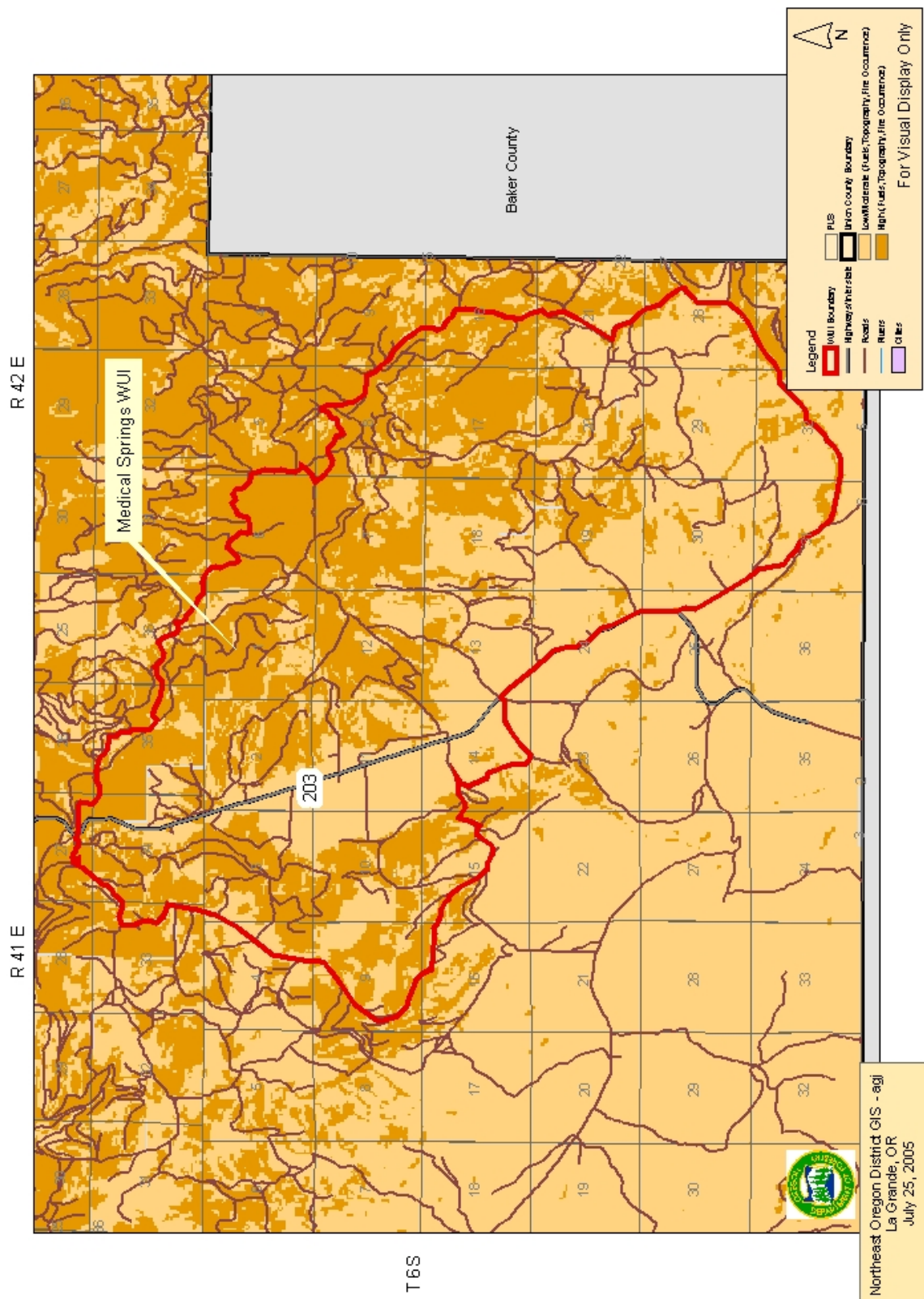
**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Medical Springs (Bald Angel) - Planning	• 3 + years	• USFS

# Union County WUI Boundaries (with Shaded Relief)



# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Kamela

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>60</b>	<b>22</b>	<b>15</b>	<b>5</b>	<b>7.5</b>	<b>109.5</b>	<b>10</b>

**Communities at Risk:** Kamela.

**Structural Fire Protection Agency:** Wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

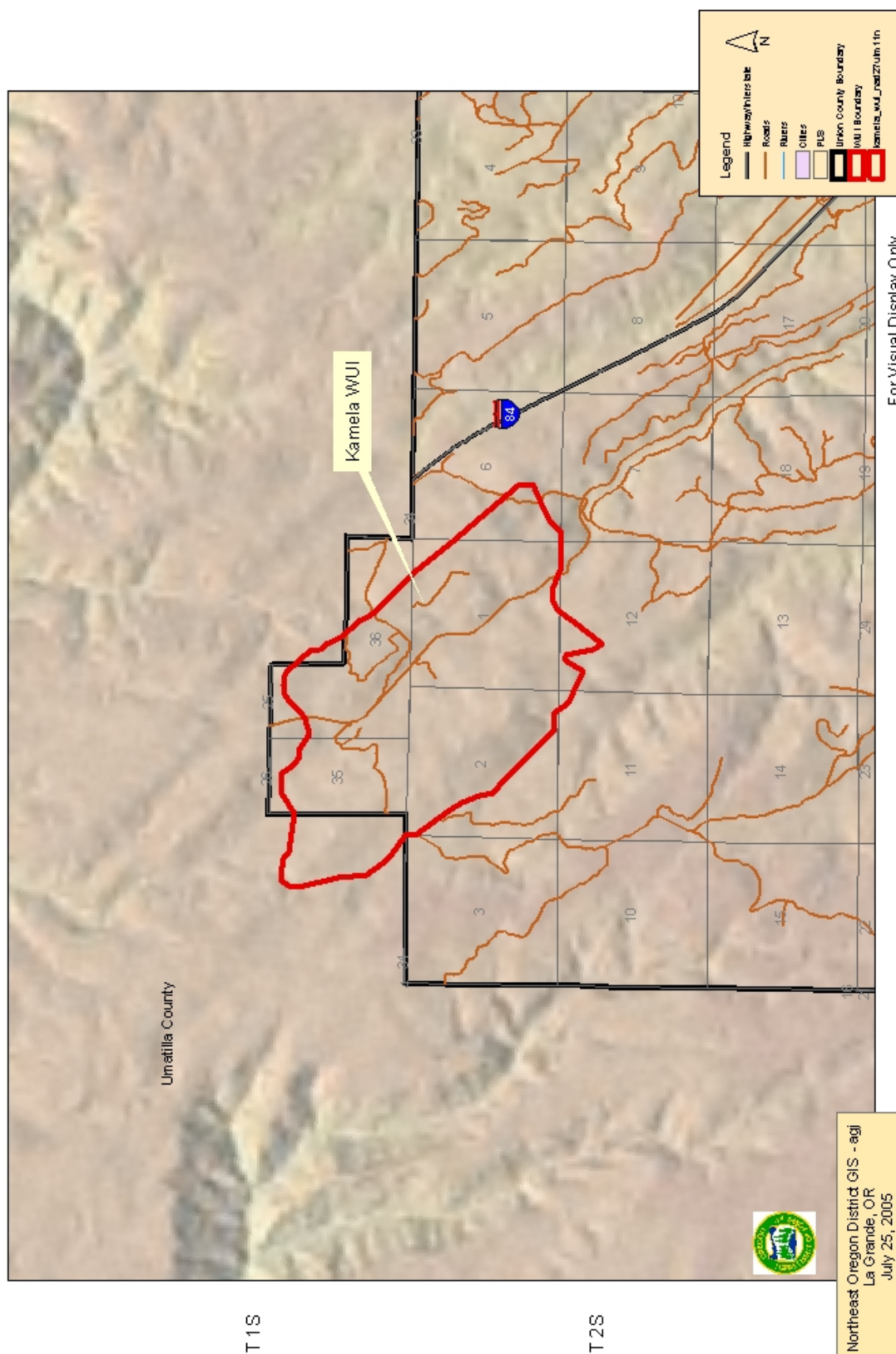
<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
	•	•
	•	•
	•	•
	•	•



# Union County WUI Boundaries (with Shaded Relief)

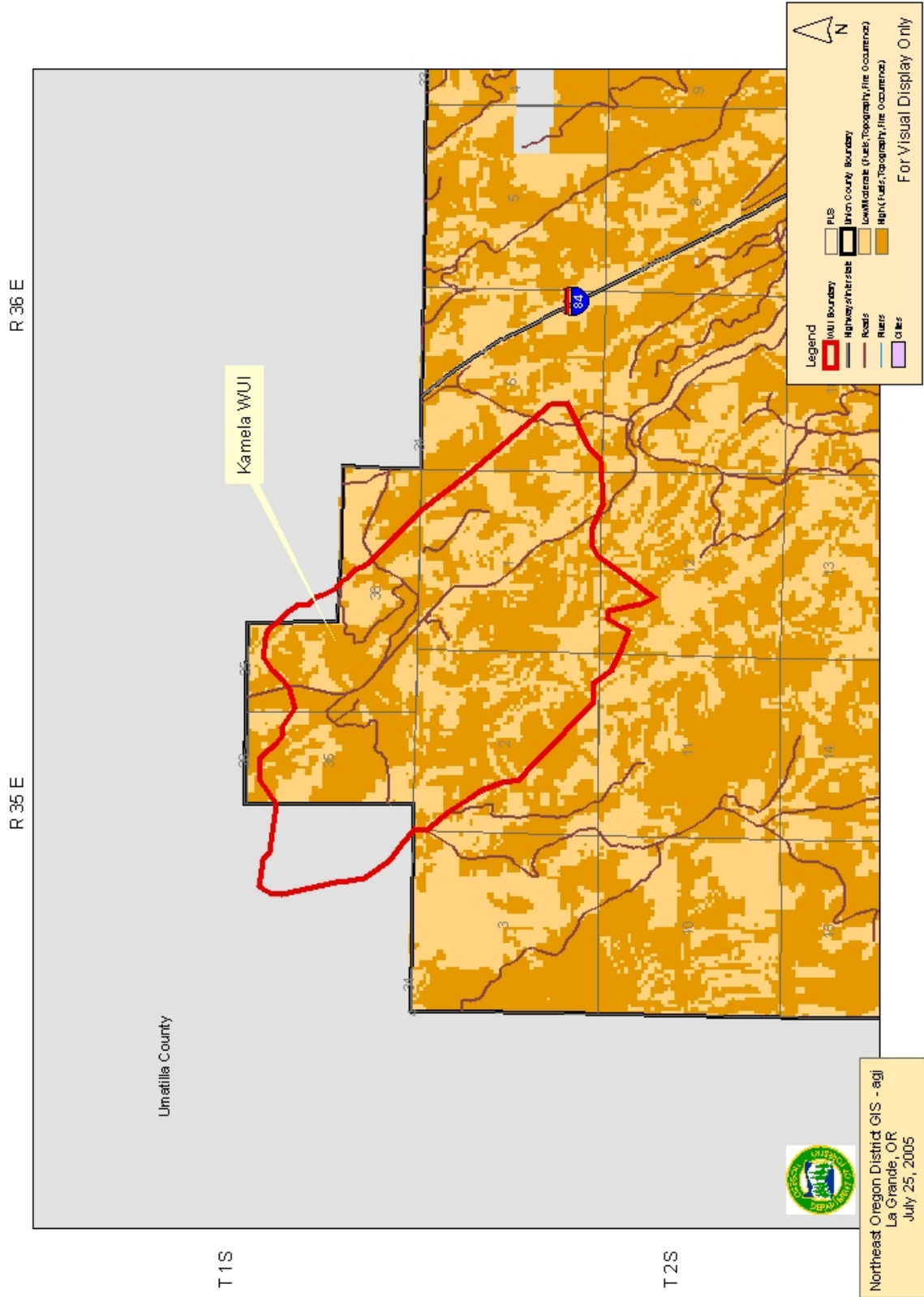
R 36 E

R 35 E



Northeast Oregon District GIS - agl  
La Grande, OR  
July 25, 2005

# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Pumpkin Ridge

**Priority Category:** High

Risk Assessment Factors						
Wildfire Hazard, including: Fire Occurrence, Topography & Total Fuels	Overall Fire Protection & Structural Vulnerability	Values At-Risk	Weather Hazard	Opportunity for Fuels Reduction	Score	Rank
30	34	22.5	10	7.5	104	11

**Communities at Risk:** Pumpkin Ridge, Craig Loop, Ruckle Road and adjacent rural residential areas.

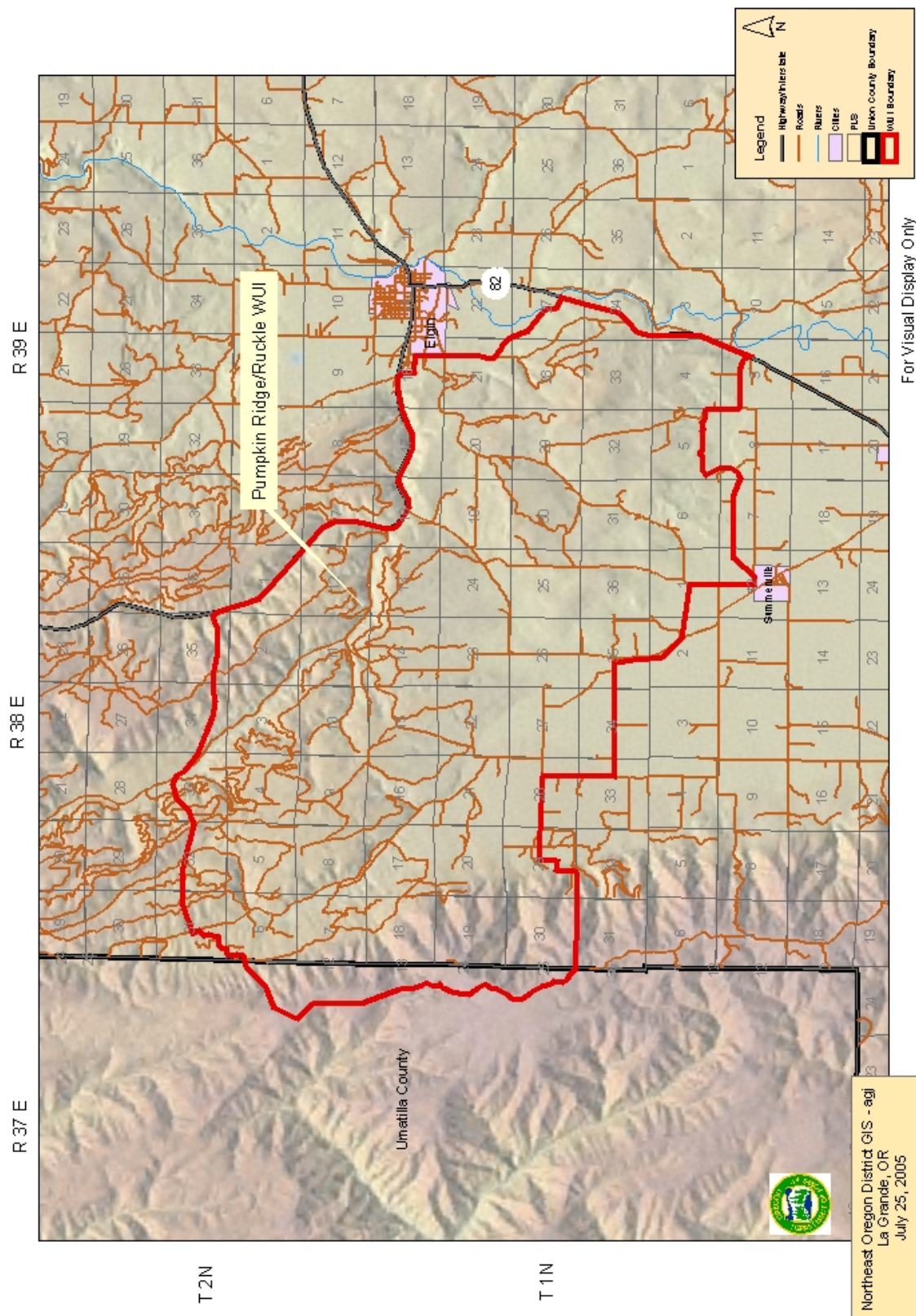
**Structural Fire Protection Agency:** Imbler Rural Fire Protection District.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

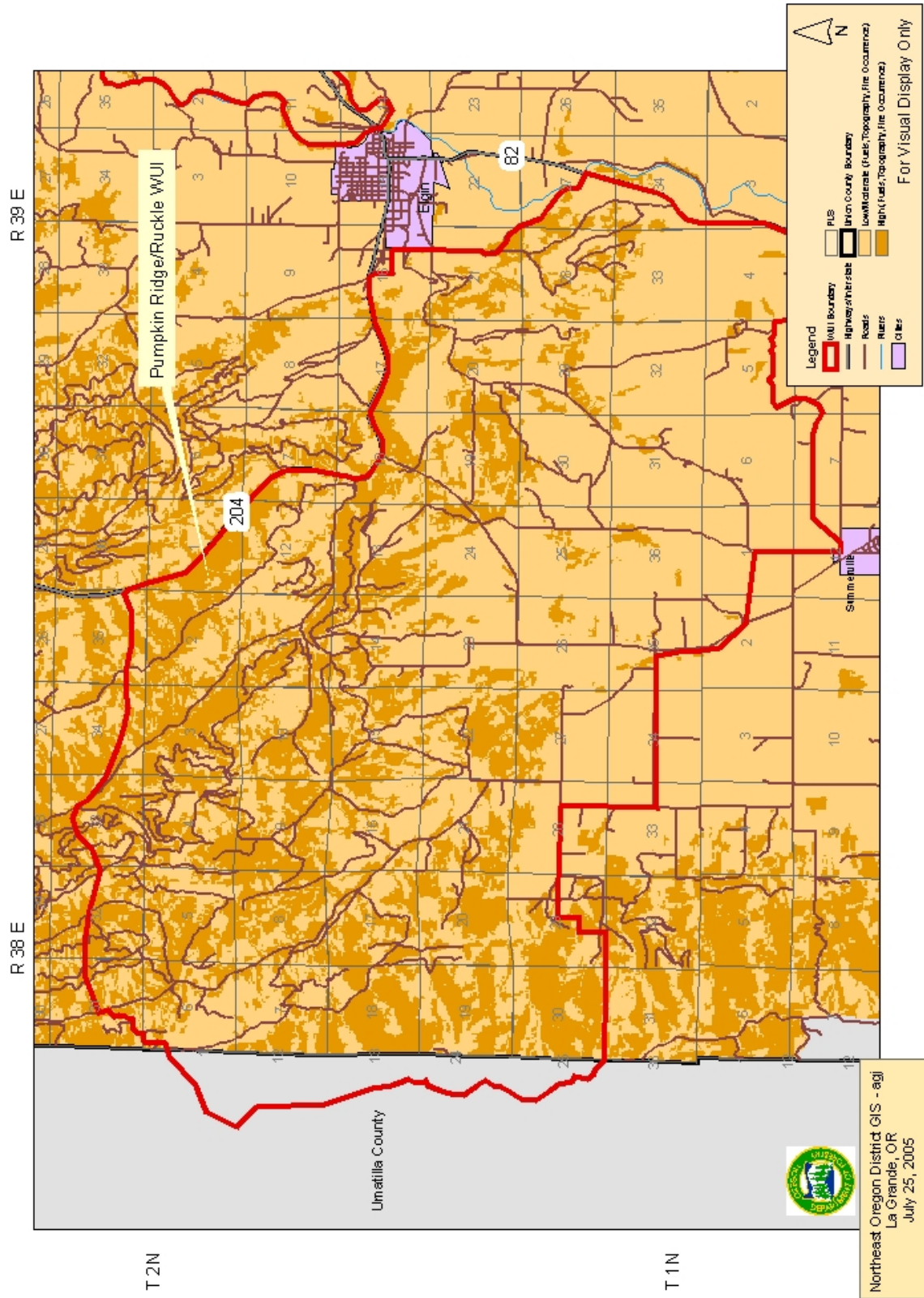
WUI – Specific Projects	Timeframe	Lead Agency/Cooperators
	•	•
	•	•
	•	•
	•	•



# Union County WUI Boundaries (with Shaded Relief)



# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Elkanah

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>30</b>	<b>39</b>	<b>15</b>	<b>10</b>	<b>7.5</b>	<b>101.5</b>	<b>12</b>

**Communities at Risk:** Camp Elkanah.

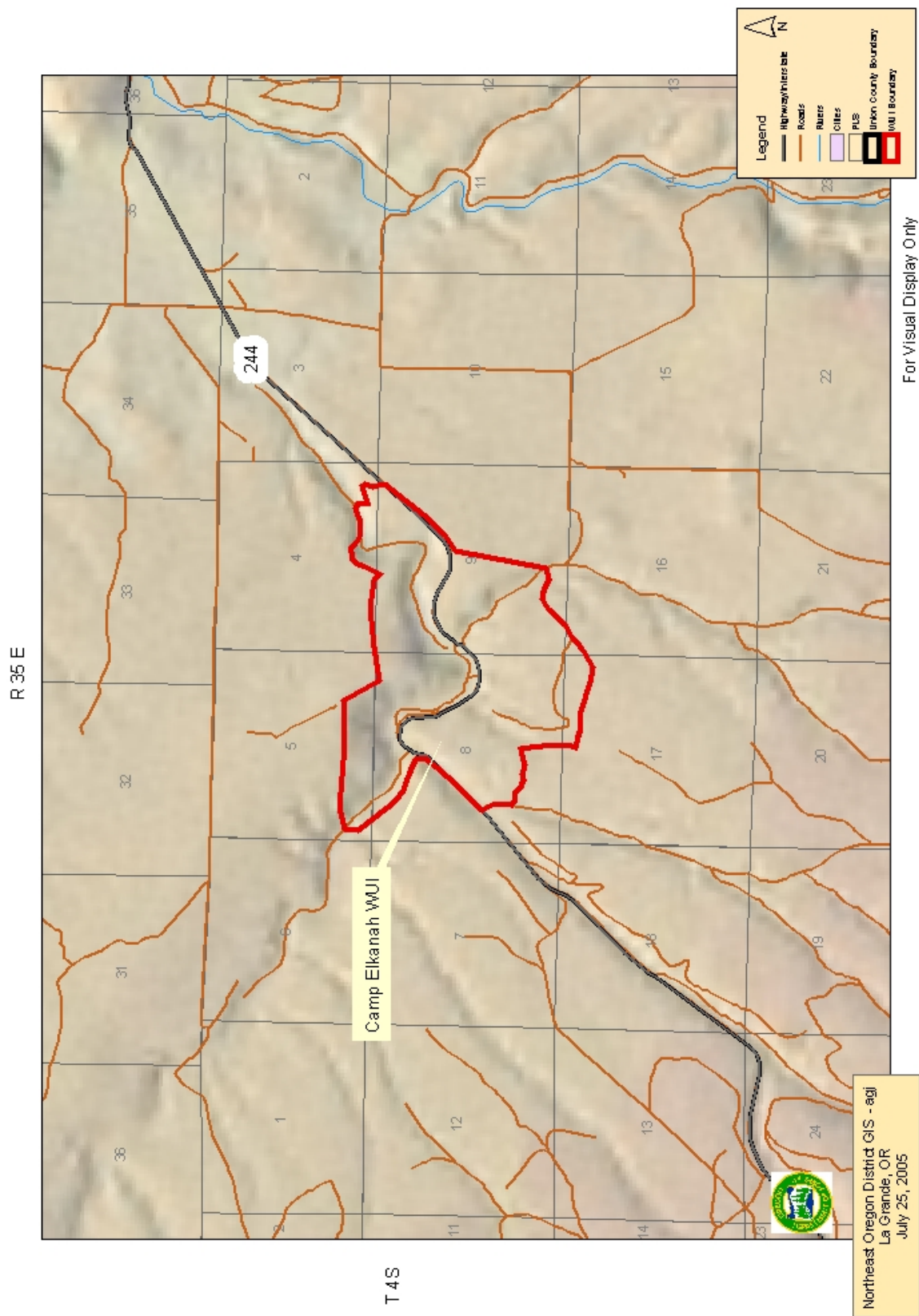
**Structural Fire Protection Agency:** Wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

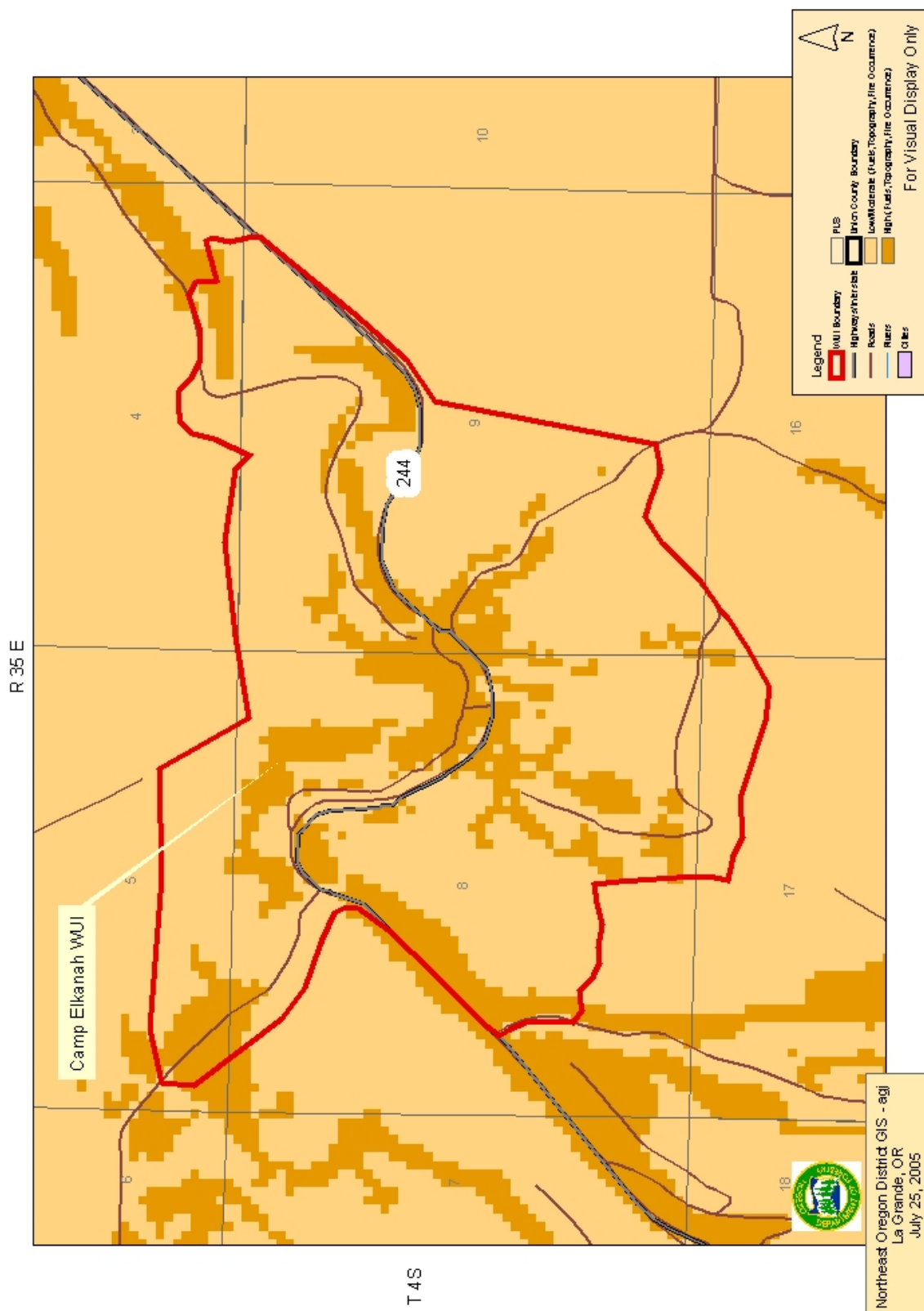
<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Camp Elkanah (Texas Heat) Maintenance	• Ongoing	• USFS; Private Permit Holders
Grande Ronde River Corridor Private Lands	• 3 + years	• ODF; Landowners
Grande Ronde River Corridor Mapping	• 1-2 years	• ODF; Landowners; La Grande RFPD



# Union County WUI Boundaries (with Shaded Relief)



# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Clark/Indian Creek

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>30</b>	<b>30</b>	<b>22.5</b>	<b>10</b>	<b>5</b>	<b>97.5</b>	<b>13</b>

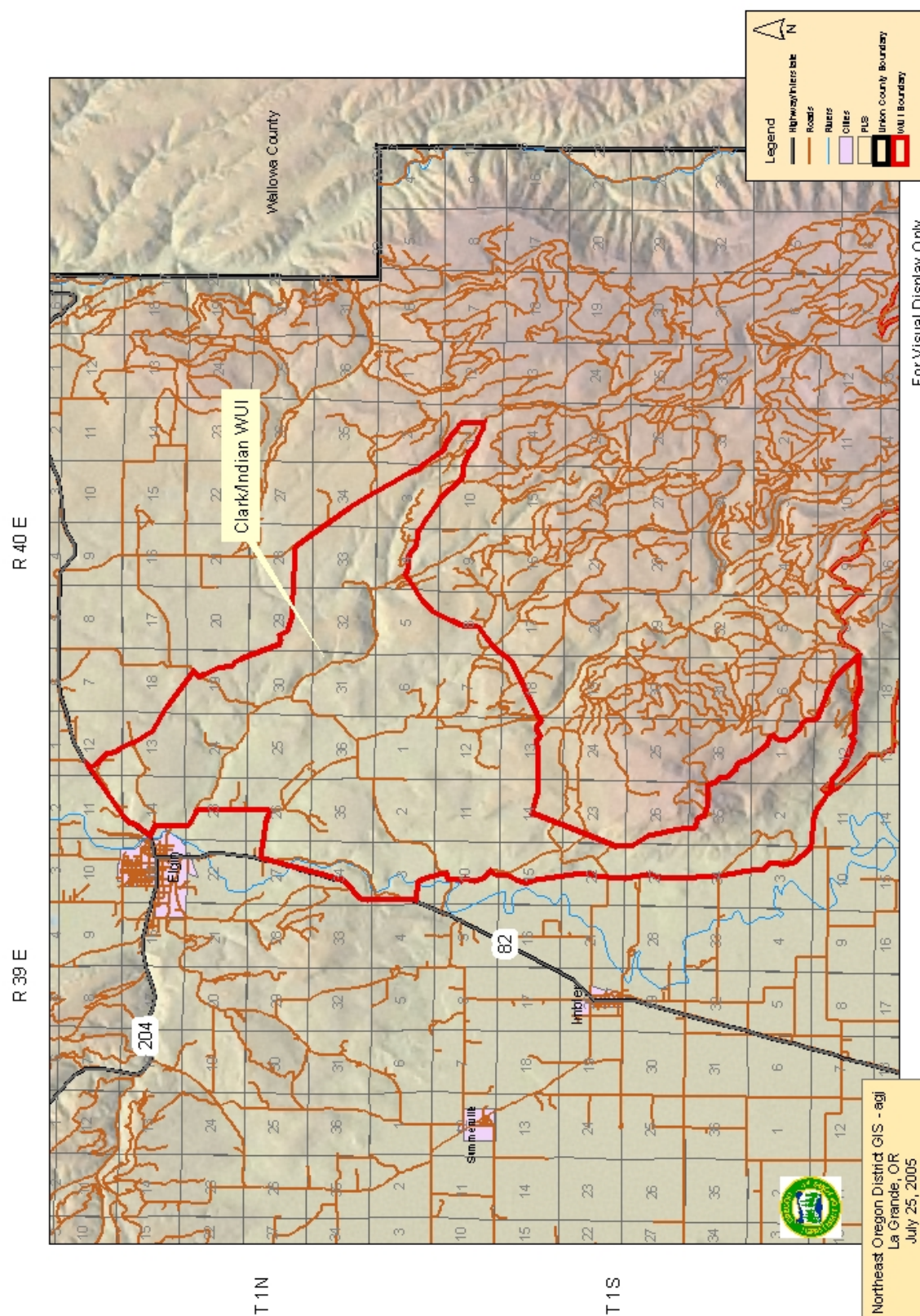
**Communities at Risk:** Clarks Creek, Indian Creek and adjacent rural residential areas.

**Structural Fire Protection Agency:** Elgin Rural Fire Protection District.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Clark Creek Planning	• 3 + years	• USFS; ODF; Landowners; Elgin RFPD; UC Forest Restoration Board

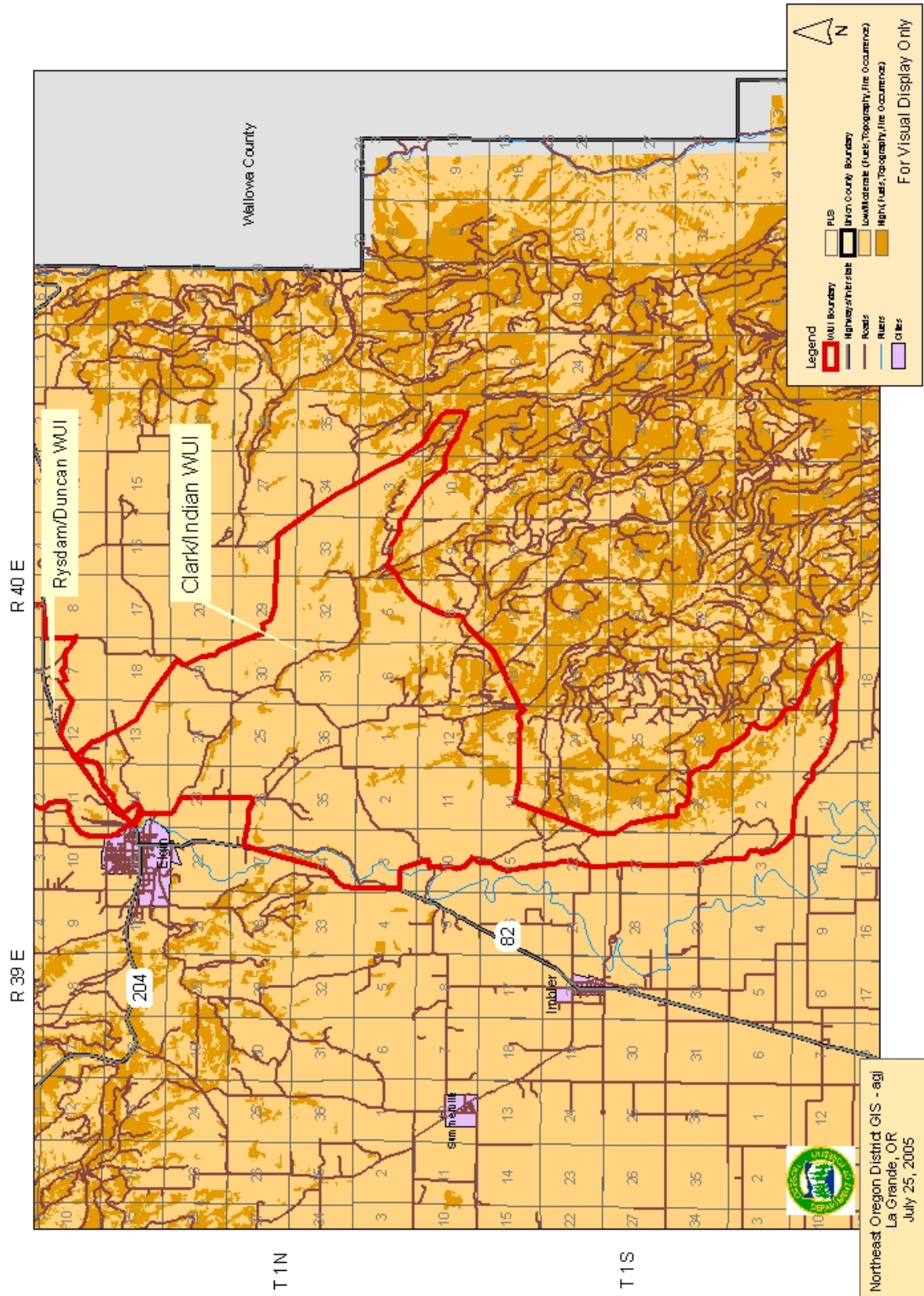
# Union County WUI Boundaries (with Shaded Relief)



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July 25, 2005



# Union County WUI Boundaries (with Wildfire Hazard)





**WUI Name:** Rysdam

**Priority Category:** High

Risk Assessment Factors						
Wildfire Hazard, including: Fire Occurrence, Topography & Total Fuels	Overall Fire Protection & Structural Vulnerability	Values At-Risk	Weather Hazard	Opportunity for Fuels Reduction	Score	Rank
30	29	22.5	10	5	96.5	14

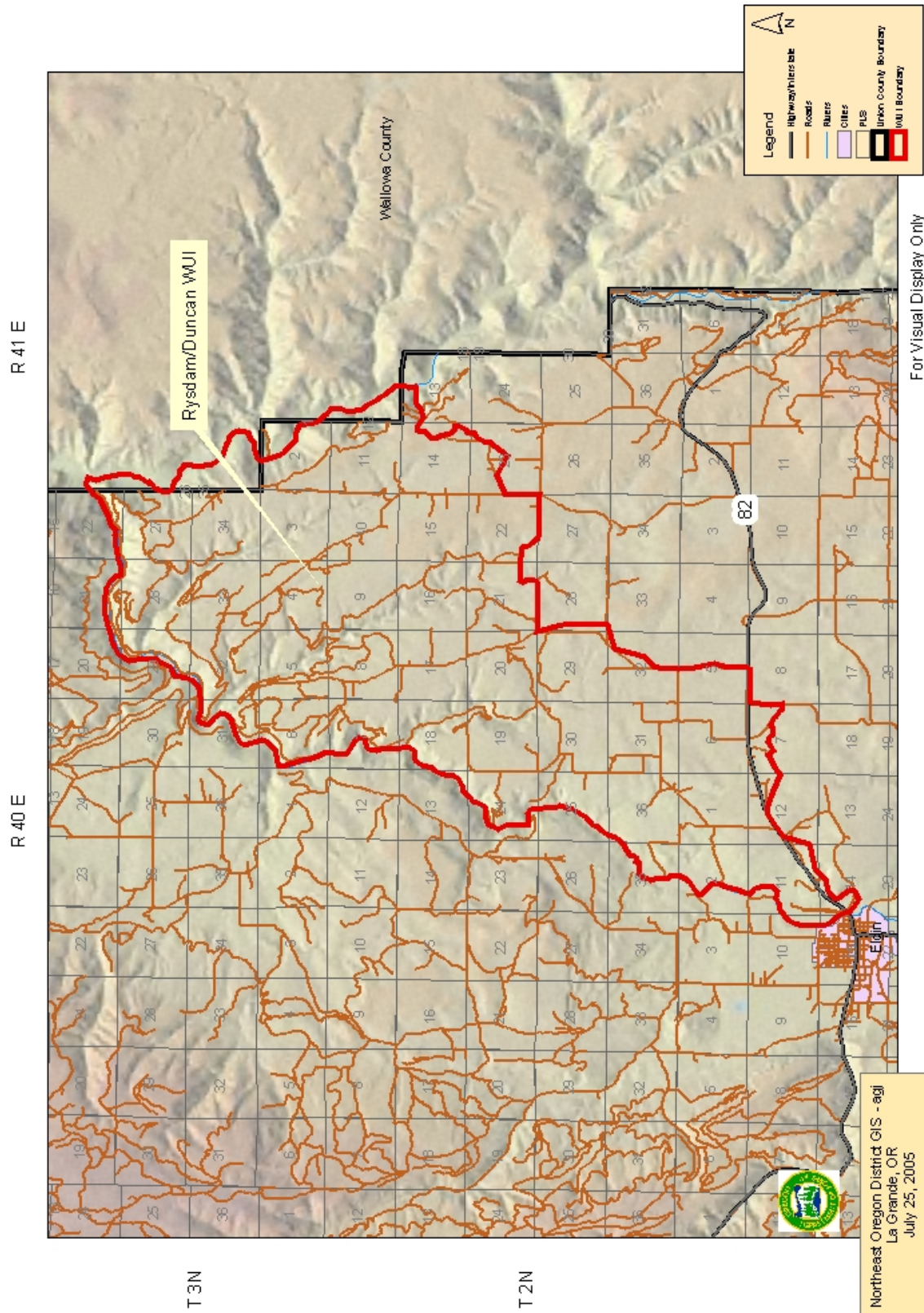
**Communities at Risk:** Cricket Flats, Thompson Road and adjacent rural residential areas.

**Structural Fire Protection Agency:** Elgin Rural Fire Protection District protects about ½ this WUI.

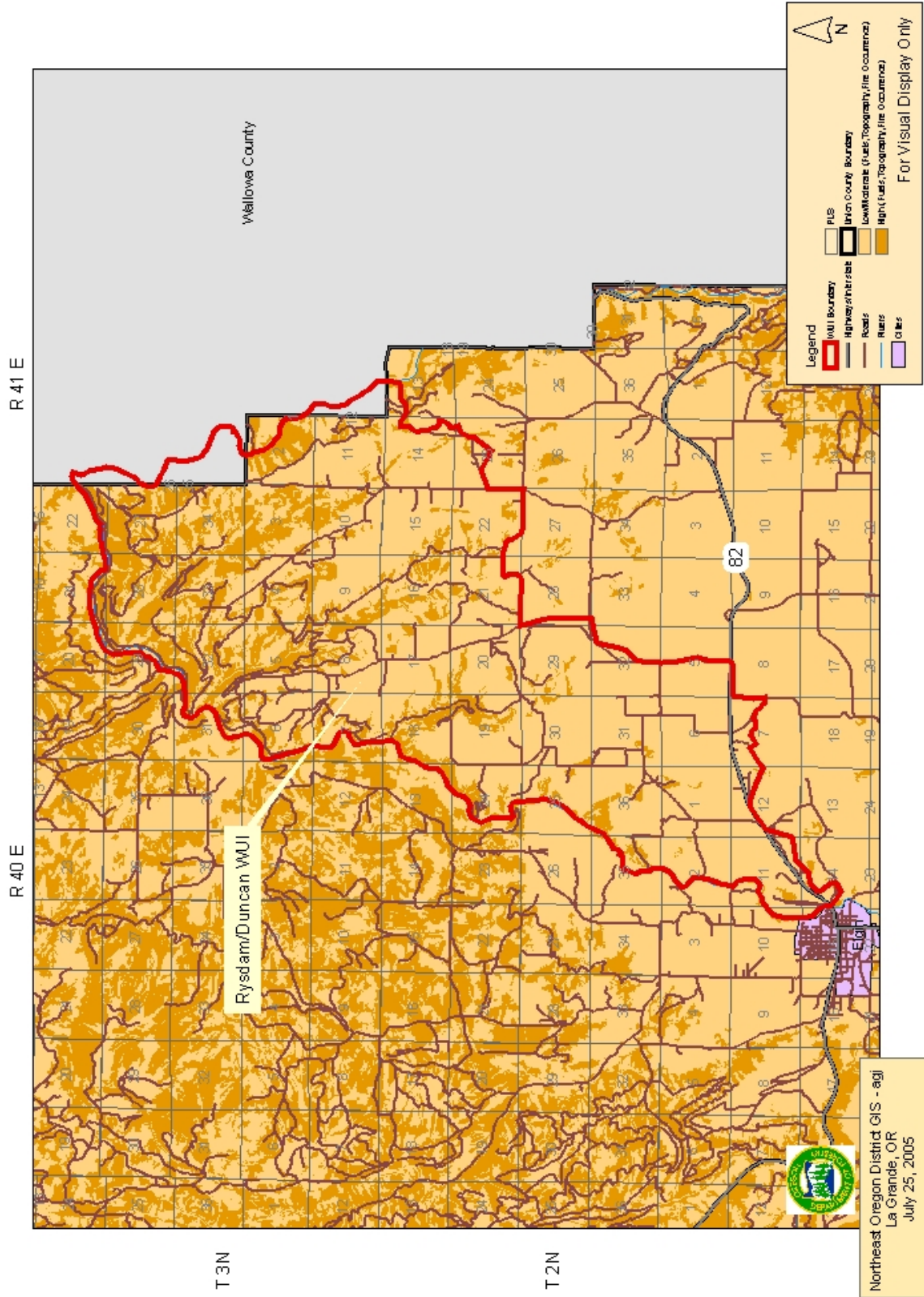
**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

WUI – Specific Projects	Timeframe	Lead Agency/Cooperators
Replace Yarrington Road Bridge	• 1-2 years	• UCPW; ODOT

# Union County WUI Boundaries (with Shaded Relief)



# Union County WUI Boundaries (with Wildfire Hazard)



**WUI Name:** Starkey

**Priority Category:** High

<b>Risk Assessment Factors</b>						
<b>Wildfire Hazard, including: Fire Occurrence, Topography &amp; Total Fuels</b>	<b>Overall Fire Protection &amp; Structural Vulnerability</b>	<b>Values At-Risk</b>	<b>Weather Hazard</b>	<b>Opportunity for Fuels Reduction</b>	<b>Score</b>	<b>Rank</b>
<b>30</b>	<b>33</b>	<b>15</b>	<b>10</b>	<b>7.5</b>	<b>95.5</b>	<b>15</b>

**Communities at Risk:** Starkey and adjacent rural residential areas.

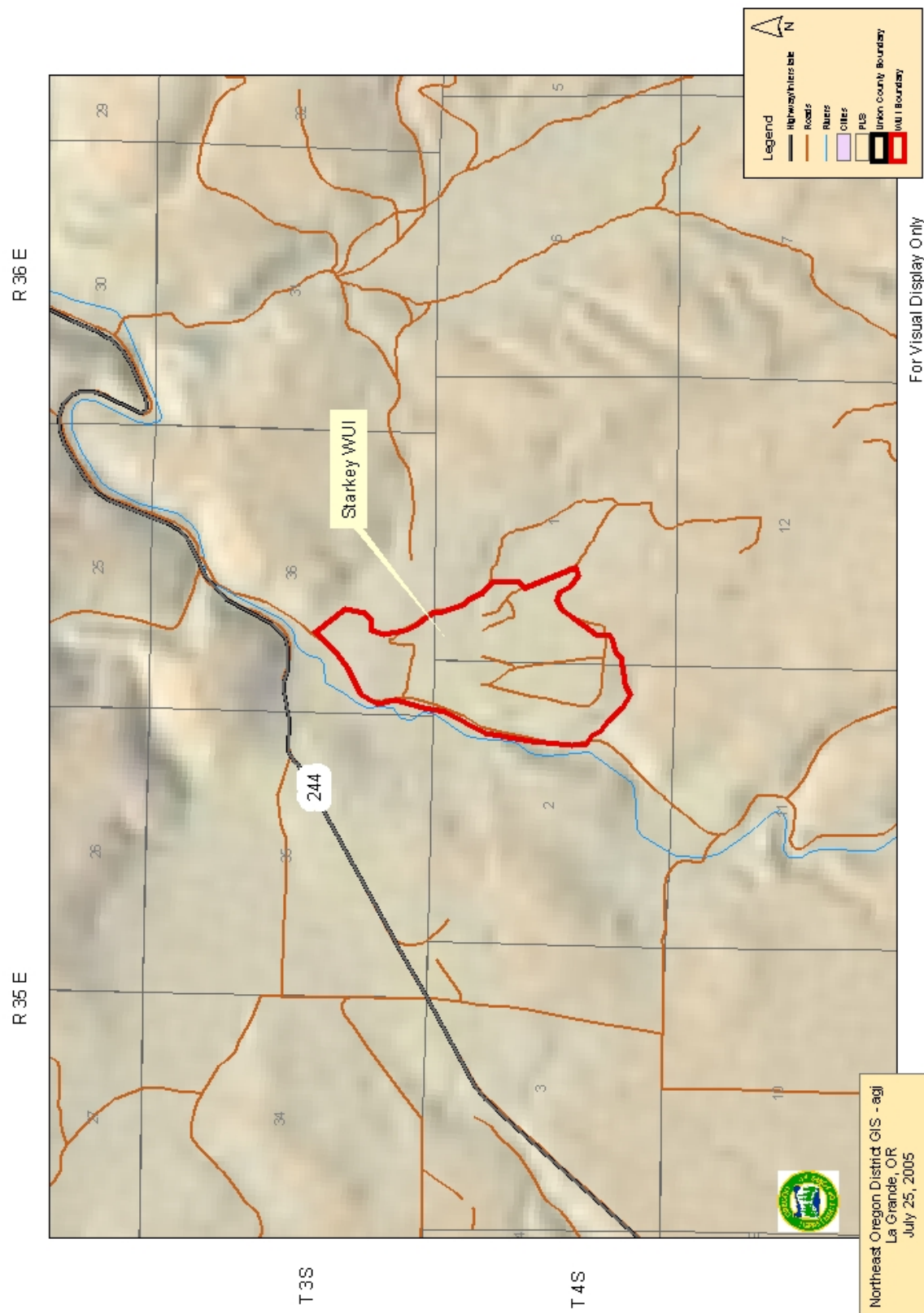
**Structural Fire Protection Agency:** Wildland fire protection only.

**Projects:** Many projects identified in this plan apply to all wildland-urban interface areas because they are broader in scope or represent general outreach messages or educational opportunities. Those listed here are specific to individual interface areas in Union County.

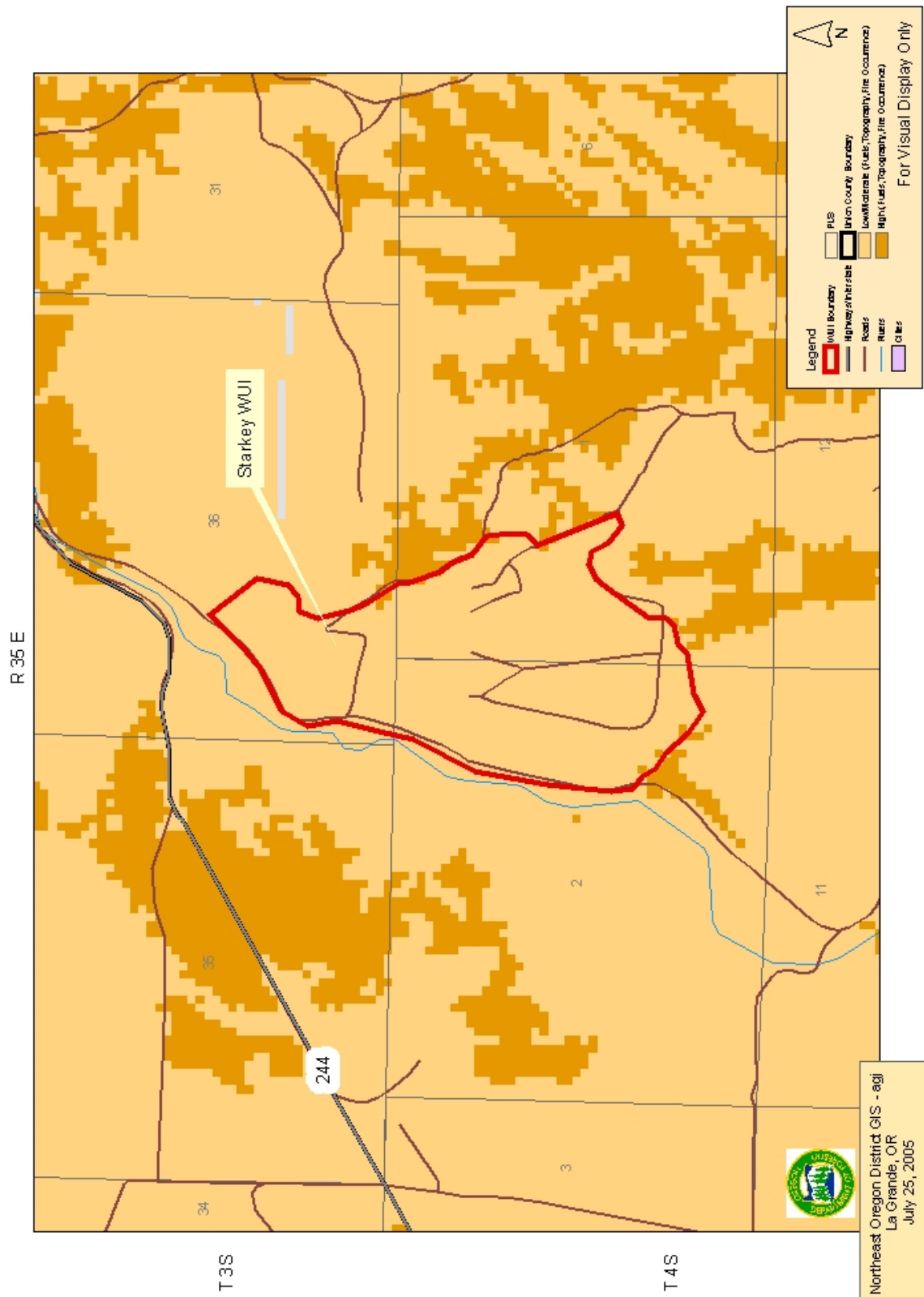
<b>WUI – Specific Projects</b>	<b>Timeframe</b>	<b>Lead Agency/Cooperators</b>
Grande Ronde River Corridor Private Lands	• 3 + years	• ODF; Landowners
Grande Ronde River Corridor Mapping	• 1-2 years	• ODF; Landowners; La Grande RFPD



# Union County WUI Boundaries (with Shaded Relief)



# Union County WUI Boundaries (with Wildfire Hazard)



## ***VIII. Mitigation Action Plan***

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### **Action Items**

See *Section X* for a discussion about project evaluation. The projects, also called action items that were identified by the steering committee, residents, landowners, agencies and other stakeholders are listed below in the priority reflected in the plan's goals and objectives. Projects that further emergency response are most important to the steering committee, followed by identifying and reducing fuel hazards, fostering support for the community wildfire protection plan, and using the plan as a resource and learning tool.

The projects are grouped into one of ten categories and include a brief description, list of project cooperators (the identified lead agency is listed first) and a general implementation timeframe.

### **Grant Funding**

The strategies and needs to mitigate the risk of wildfire and respond to wildfire events are projects to which grant money may be directed. As such, the annual evaluation of the project list must include a consideration of other grant monies and how they are being spent towards the same goals. This ensures efficient use of the grant dollar and the potential ability to leverage grant money for greater benefit to Union County structural and wildland fire agencies. Other grant programs may include the State Homeland Security Equipment Program, Rural Firefighter Assistance / Volunteer Firefighter Assistance Equipment Program, Title III federal funding, FEMA Pre-Hazard Mitigation Funding or Oregon Transportation Investment Act funds, to name a few of the most likely sources.

### ***Response***

1. **Project Title:** Assemble and install address stakes for all county addresses.  
**Description:** Stakes are old; will allow more efficient response.  
**Cooperators:** UC Public Works.  
**Timeframe:** Short Term (3 + years).
2. **Project Title:** Coordinate pre-suppression planning among all fire agencies.  
**Description:** information is specific to topography, ingress/egress, water supply, strategic firefighting locations, staging areas, and communications.  
**Cooperators:** All local structural fire agencies, including state and federal wildland fire agencies, the 911/Dispatch Center and the Northeast Oregon Interagency Fire Dispatch Center.  
**Timeframe:** Short Term (1-2 years).
3. **Project Title:** Establish a rural fire protection district at Morgan Lake complete with equipment, training and personnel.  
**Description:** Provided there were enough interested people.  
**Cooperators:** Landowners; Union County; Structural Fire Agencies.

**Timeframe:** Long Term (3+ years).

4. **Project Title:** Establish a rural fire protection district at Perry and Hilgard area complete with equipment, training and personnel.  
**Description:** Provided there were enough interested people.  
**Cooperators:** Landowners; Union County; Structural Fire Agencies.  
**Timeframe:** Long Term (3+ years).

### *Communications*

1. **Project Title:** Acquire interoperable communications equipment.  
**Description:** Continue to implement the UC Communications Strategic Plan and related projects.  
**Cooperators:** All local structural fire agencies, including state and federal wildland fire agencies, the 911/Dispatch Center and the Northeast Oregon Interagency Fire Dispatch Center.  
**Timeframe:** Short Term (1-2 years).
2. **Project Title:** Implement Union County Strategic Communications Plan.  
**Description:** Plan was developed by 911 Users to strategically replace and upgrade the entire emergency communications network.  
**Cooperators:** All local emergency responders, including state and federal wildland fire agencies, OSP, the 911/Dispatch Center and the Northeast Oregon Interagency Fire Dispatch Center.  
**Timeframe:** Long Term (3+ years).

### *Road System Improvements*

1. **Project Title:** Replace Yarrington Road bridge.  
**Description:** Bridge is load-limited and constrains response and RFPD expansion.  
**Cooperators:** UC Public Works; Oregon Department of Transportation.  
**Timeframe:** Short Term (1-2 years).
2. **Project Title:** Prepare Evacuation Plan for Morgan Lake area.  
**Description:** One sub-standard road must be used by both evacuating residents and emergency response agencies.  
**Cooperators:** UC Emergency Services, Public Works and Sheriff's Office; Oregon Department of Transportation.  
**Timeframe:** Short Term (1-2 years).
3. **Project Title:** Reconstruct Morgan Lake Road.  
**Description:** Travelers could benefit from engineered solutions to this road.  
**Cooperators:** UC Public Works; Oregon Department of Transportation.  
**Timeframe:** Long Term (3+ years).

### *Water Source Development*

1. **Project Title:** Identify and inventory water supplies including access and deficiencies.  
**Description:** Pre-identify water sources for response; updated seasonally.  
**Cooperators:** ODF; USFS; Structural Fire Agencies.  
**Timeframe:** Short Term (1-2 years).



## *Equipment & Training*

1. **Project:** NIMS training.  
**Description:** Conduct National Incident Management System (NIMS) training for emergency responders to ensure continued federal grant funding.  
**Cooperators:** UC Emergency Services.  
**Timeframe:** Short Term (1-2 years).
2. **Project:** Identify methods of funding to purchase up-to-date PPE.  
**Description:** Pool resources in obtaining current PPE.  
**Cooperators:** La Grande RFPD; North Powder RFPD; Union RFPD; Cove RFPD; Imbler RFPD; Elgin RFPD; La Grande FD and Medical Springs RFPD.  
**Timeframe:** Short Term (1-2 years).
3. **Project:** Plan and conduct full-scale exercises.  
**Description:** Involving fire suppression agencies and the community in drills and exercises.  
**Cooperators:** All local structural fire agencies, including state and federal wildland fire agencies.  
**Timeframe:** Short Term (3 + years).
1. **Project:** Identify methods of funding to purchase type III wildland fire engines.  
**Description:** Each RFPD needs engines for wildland response to augment wildland agencies responding in their jurisdictions.  
**Cooperators:** Structural RFPDs.  
**Timeframe:** Short Term (1-2 years).

## *Fuels Reduction*

1. **Project:** Pelican Creek  
**Description:** Prescribed burn.  
**Cooperators:** US Forest Service, La Grande Ranger District.  
**Timeframe:** Short Term (1-2 years).
2. **Project:** Three Cabin Creek  
**Description:** Commercial thinning.  
**Cooperators:** US Forest Service, La Grande Ranger District.  
**Timeframe:** Short Term (1-2 years).
3. **Project:** Mt. Emily  
**Description:** The Mt Emily fuels reduction project area is approximately 7,295 acres in size and is part of a larger analysis area (approx, 40,360 acres) which includes Umatilla National Forest and private and State lands located within three watersheds. The project will utilize mechanical fuels reduction treatments followed by low intensity Rx fire. This project is being coordinated with fuel reduction and "FIREWISE" projects, and education efforts occurring on adjoining private and state lands and the Umatilla National Forest. Priority areas identified within the project area are based on proximity to private values at risk from wildfire, and/or presence of logical locations to base suppression operations. Management activities include, thinning, hand piling, mechanical removal, pile burning as well as low intensity under burning.

**Cooperators:** US Forest service, La Grande Ranger District, Umatilla National Forest, Oregon Department of Forestry, La Grande Office, Rural Fire Protection District, Union County Community Forest Restoration Board, Private and industrial Landowners.

**Timeframe:** Long term (3+ years).

**Stage of Project:** Implementing (Beginning stage, thinning/hand piling).

4. **Project Title:** Cove WUI

**Description:** Manage Vegetation and fuels (via mechanical fuels reduction treatments, followed by low intensity Rx fire) to modify fire behavior and create survivable and defensible space on federal, state, and private lands surrounding the community. Promote “FIREWISE” communities through prevention and education measures.

**Cooperators:** US Forest service, La Grande Ranger District, Oregon Department of Forestry, La Grande Office, Rural Fire Protection District, Union County Community Forest Restoration Board, Private and industrial Landowners.

**Timeframe:** Long term (3+ years).

**Stage of Project:** Planning.

5. **Project Title:** South fork Catherine Creek

**Description:** Manage Vegetation and fuels, (via mechanical removal, piling, followed by low intensity Rx fire) to modify fire behavior and create survivable and defensible space on federal, state, and private lands surrounding the community. Promote “FIREWISE” communities through prevention and education measures.

**Cooperators:** US Forest service, La Grande Ranger District, Oregon Department of Forestry, La Grande Office, Rural Fire Protection District, Union County Community Forest Restoration Board, Private and industrial Landowners Private landowners.

**Timeframe:** Long term (3+ years).

**Stage of Project:** Planning.

6. **Project Title:** Clark Creek

**Description:** Manage Vegetation and fuels, (via mechanical removal, piling, followed by low intensity Rx fire) to modify fire behavior and create survivable and defensible space on federal, state, and private lands surrounding the community. Promote “FIREWISE” communities through prevention and education measures.

**Cooperators:** US Forest service, La Grande Ranger District, Oregon Department of Forestry, La Grande Office, Rural Fire Protection District, Union County Community Forest Restoration Board, Private and industrial Landowners.

**Timeframe:** Long term (3+ years).

**Stage of Project:** Planning.

7. **Project Title:** Medical Springs (Bald Angel)

**Description:** Reduce heavy fuel load conditions, (via mechanical fuel reduction treatments followed by low intensity Rx fire) to minimize wildfire impacts to natural resources and private land ownership.

**Cooperators:** US Forest service, La Grande Ranger District.

**Timeframe:** Long term (3+ years).

**Stage of Project:** Planning.

8. **Project Title:** Camp Elkanah (Texas Heat)  
**Description:** Natural Fuels Prescribed Burn (no harvest units involved). The overall objective of this project is to reintroduce and utilize fire as a disturbance factor in order to maintain ecological systems and processes. This project lies adjacent to WUI defined Elkanah area.  
**Cooperators:** US Forest service, La Grande Ranger District.  
**Timeframe:** Ongoing.  
**Stage of Project:** Maintenance.
9. **Project Title:** Blue Springs  
**Description:** Hazardous fuels reduction, via thinning small diameter understory, hand piling, followed by pile burning.  
**Cooperators:** US Forest service, La Grande Ranger District, Private Permit Holders.  
**Timeframe:** Ongoing.  
**Stage of Project:** Maintenance
10. **Project Title:** Mt. Emily Private Lands  
**Description:** Commercial and pre-commercial thinning and slash disposal.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, Imbler Rural Fire Department, La Grande Rural Fire Department.  
**Timeframe:** Short Term (1-2 years).
11. **Project Title:** Cove Private Lands  
**Description:** Commercial and pre-commercial thinning and slash disposal.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, Cove Rural Fire Department.  
**Timeframe:** Short Term (1-2 years).
12. **Project Title:** Morgan Lake Private Lands  
**Description:** Commercial and pre-commercial thinning and slash disposal.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, La Grande Fire Department, La Grande Rural Fire Department.  
**Timeframe:** Short Term (1-2 years).
13. **Project Title:** Palmer Valley Private Lands  
**Description:** Commercial and pre-commercial thinning and slash disposal.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, Elgin Rural Fire Department.  
**Timeframe:** Long Term (3-5 Years).
14. **Project Title:** Catherine Creek Corridor Private Lands  
**Description:** Commercial and pre-commercial thinning and slash disposal.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, Union Rural Fire Department.  
**Timeframe:** Long Term (3-5 years).
15. **Project Title:** Grande Ronde River Corridor Private Lands  
**Description:** Commercial and pre-commercial thinning and slash disposal.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owner.  
**Timeframe:** Long Term (3-5 years).

## *Mapping & Data Development*

1. **Project Title:** Create a monitoring system to gauge fuels reduction progress over time.  
**Description:** Utilize ground plots.  
**Cooperators:** ODF, USFS, BLM.  
**Timeframe:** Long Term (3+ years).
2. **Project Title:** Identify data gaps.  
**Description:** Coordinate efforts to integrate data sets and share information.  
**Cooperators:** ODF, Union County, Structural Fire Agencies, USFS.  
**Timeframe:** Short Term (3 + years).
3. **Project Title:** Develop a GIS layer of all fire districts/departments including areas with no structural fire protection.  
**Description:**  
**Cooperators:** UC Planning Department, Emergency Services.  
**Timeframe:** Short Term (1-2 years).
4. **Project Title:** Create map books using GIS containing ownership, dwelling location, and site-specific information for each fire district/departments.  
**Description:** information is specific to ownership and dwelling location.  
**Cooperators:** ODF, Union County, Structural Fire Agencies, USFS.  
**Timeframe:** Short Term (1-2 years).
5. **Project Title:** Catherine Creek Corridor  
**Description:** Map homesites and access routes to homes located in this WUI area.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, Union Rural Fire Department.  
**Timeframe:** Short Term (1-2 years)
6. **Project Title:** Grande Ronde River Corridor.  
**Description:** Map homesites and access routes to homes located in this WUI area.  
**Cooperators:** ODF- La Grande Unit, Private Forestland Owners, Union Rural Fire Department.  
**Timeframe:** Short Term (1-2 years)

## *Prevention*

1. **Project:** Resurrect and formalize the Union County Prevention Co-Op.  
**Description:** Co-Op members pay to belong; meet monthly and discuss prevention issues.  
**Cooperators:** All local structural fire agencies, including state and federal wildland fire agencies.  
**Timeframe:** Long Term (3+ years).
2. **Project:** Continue prevention efforts like Firewise and "I'm Concerned...".  
**Description:** Build on progress made with these programs; spread among Union County communities.

**Cooperators:** All local structural fire agencies, including state and federal wildland fire agencies.

**Timeframe:** Short Term (1-2 years).

3. **Project:** Participate annually in Fire Prevention Week.

**Description:** Pool resources to spread fire prevention message.

**Cooperators:** ODF, La Grande Office; UC Emergency Services.

**Timeframe:** Short Term (1-2 years).

4. **Project Title:** Firewise Communities

**Description:** Present 1-day workshop to communities interested in becoming a Firewise Community

**Cooperators:** ODF; Structural Fire Agencies.

**Timeframe:** Short-Term (1-2 years).

### *Partnership Development*

1. **Project Title:** Continue workforce development.

**Description:** Programs through TEC, Oregon Youth Authority and the LHS FFA (wildland fire class) foster partnerships among those who are acquiring firefighting skills and those who need those skills.

**Cooperators:** La Grande High School; Training & Employment Consortium; RiverBend Facility; UC Commissioners, Emergency Services.

**Timeframe:** Long Term (3+ years).

### *Education and Outreach*

1. **Project:** Identify common base information.

**Description:** Develop program for consistency in all public messages.

**Cooperators:** All local structural fire agencies, including state and federal wildland fire agencies.

**Timeframe:** Short Term (1-2 years).

2. **Project:** Identify prescriptive parameters for fuels reduction.

**Description:** Develop to aid private property owners in achieving an ideal forest condition class.

**Cooperators:** USFS; ODF; BLM; UC Forest Restoration Board; OSU Extension Service.

**Timeframe:** Short Term (1-2 years).

Projects are evaluated annually as described in *Section X*.

## **Biomass Utilization**

Federal and state agencies, local government and private forest landowners are using thinning and prescribed burning in strategic locations to reduce forest fuels and wildfire risks. Most of the material generated from fuels reduction activities is not suitable for commercial wood products manufacturing. In many cases, biomass from these activities is left on-site or piled and burned at an additional cost. One alternative outlet for utilizing biomass now is the Warm Hearts/Warm

Homes firewood program. The program distributes firewood to limited capacity citizens across Baker, Union, and Wallowa Counties. Unfortunately the program utilizes a small percentage of the biomass generated and usually utilizes smaller thinning projects. An additional alternative outlet for small diameter wood could help reduce the costs of thinning and help mitigate environmental impacts associated with prescribed burning and wildfires.

Forest biomass is generated by forest fuels reduction, commercial timber harvest; non-commercial thinning and timber stand improvement (TSI) activities. Non-commercial thinning includes pruning and tree removal designed to help shape and guide development of forest stands to meet a variety of goals. It generally does not result in removal of trees that can be used to manufacture products, but it could be used in renewable energy production (heat, steam, electricity, and fuel). Timber stand improvement can accomplish similar goals, but often results in removal of some commercially valuable trees. Wood manufacturing residues including bark, sawdust, chips, and veneer cores are additional sources of raw material for renewable energy production. A biomass plant is currently operating in Grant County, but high transportation cost makes the exportation of small diameter wood material cost prohibitive.

Union County's Forest Restoration Board is exploring co-generation opportunities that utilize biomass as fuel. Heating and cooling public buildings using small biomass generators to offset the cost of electricity and oil is being explored. This appears to be the direction communities want to move in order to address biomass utilization at a manageable scale. Once the Union County Forest Restoration Board has determined the feasibility of this project and more conclusive information is available this section of the plan will be updated.

## ***IX. Maintenance Plan for Fuels Treatment<sup>i</sup>***

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Fuels reduction programs require knowledge of how fire interacts with different vegetation and defining acceptable fire behavior parameters. For example, if one determines that near WUI areas a flame of four feet or less is acceptable, one can then prioritize projects accordingly.

### **Concepts to Consider in Developing a Fuels Maintenance Program**

Once treated timber stands undergo the process of ecological succession in which under story and over story vegetation change over time resulting in incremental changes (often increases) in herbs, grasses, shrubs, and tree regeneration. The regeneration takes place because removing trees and other vegetation creates more growing space. Over story structure changes as residual trees expand their crowns and increase in diameter. These changes continually add biomass (fuel) such as needles, branches and downed logs to the site. Subsequent disturbances caused by insects and disease can kill trees and add more biomass to the forest floor. Although some biomass decays over time in dry southwest, central and eastern Oregon forests dead biomass tends to accumulate faster than it decays resulting in more fuel.

How long before treated areas require re-treatment is dependent on several inter-related factors including:

- Past treatment level (e.g., how much biomass [fuel] was removed initially in the under story and over story);
- Plant association groups;
- Site productivity;
- Rate of fuel accumulation;
- Fuel structure (i.e., condition class)
- Historic fire regime;
- Desired fire behavior (for effective control)
- Climatic regime.

Although condition class and fire regime are primary factors in prioritizing initial treatment areas, strategic location is factored as well. This prioritization method may have less bearing on which areas should be prioritized for future *re-*

*treatment*. For example, it's probably unlikely that managers would allow sites that were condition class 2 or 3 before treatment and treated to condition class 1, to revert back to condition class 2 or 3 before conducting a re-treatment, particularly in the WUI. It seems more likely they would allow a site that was originally in a condition class 2 or 3 and treated to condition class 1 to re-accumulate fuels only to a point or phase that resemble a condition class 1 *transitioning* into a condition class 2. Allowing fuels to accumulate any further would entail a more expensive re-treatment and increase the risk of losing the initial investment made in fuel reduction.

## **Fuels Treatment and Forest Health<sup>ii</sup>**

Fuels treatment has an added benefit beyond reducing danger. Thinning overstocked stands will increase tree diameter growth and enhance tree vigor. Healthier trees are more resistant to pests and disease. Treatment should be site and species specific. Thinning spacing should be managed to take advantage of site specific resources such as water, nutrients and sunlight.

Remember that forests are dynamic and continually growing in diameter, height, and crown width. Fuels reduction activities that include thinning are a good thing, but thinning without consideration for forest health doesn't provide the benefits of pest resistance or good individual tree growth. Also, without future maintenance, the fire risk reduction benefits decline over time.

For more information about proper tree spacing for your timber stand, please contact Paul Oester, OSU Extension Forester, at (541) 963-1010 or Oregon Department of Forestry in La Grande at (541) 963-3168.

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<sup>i</sup> A Conceptual Approach for a Maintenance Strategy for Fuel Treatments in Oregon: Maintaining the Investment, Fitzgerald, Stephen and Martin, Charlie, Oregon State FFHM Committee Report. (July 5, 2004).

<sup>ii</sup> Oester, Paul. *Blue Mountains Renewable Resource Newsletter*. Vol. 20, No. 3, (Fall 2004).



## ***X. Monitoring and Evaluation***

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### **Schedule**

Plan maintenance will be directed by the Union County Commissioners, via the Emergency Services Office and coordinated with the plan's steering committee members, a core group of who have agreed to be a standing committee to assist with monitoring and evaluation. Proposed plan maintenance will be set annually and will consist of a plan review, priority action item re-evaluation and progress evaluation, with a total revision of the plan set for every five years.

A total plan revision every five years is recommended, as the infrastructure needs of Union County change. Specific considerations include: population fluctuations, land use changes, completion of fuels reduction projects, emergency service improvements, computer software/hardware updates, new and revised data, and extreme wildfire hazard fluctuations.

Annual strategies and recommendations will be necessary as various projects and tasks are accomplished and areas at-risk decline in hazard rating. Annual review will be necessary, as county infrastructure needs change. Annual review will be advertised to include representation from the stakeholders who participated in the development of the Community Wildfire Protection Plan.

### **Monitoring**

Continued public collaboration on the Union County Wildfire Protection Plan is necessary to meet identified needs while accomplishing the plan's mission.

Copies of the Community Wildfire Protection Plan are available at the Union County Emergency Services Office, at the Oregon Department of Forestry Office in La Grande, Wallowa-Whitman National Forest headquarters in La Grande, in Union County public libraries. It will also be available both electronically and via the Union County and ODF websites. The websites will provide citizens an opportunity to send comments or questions regarding the plan at any time.

### **Evaluation**

Annual assessment of the identified projects is very important to determine whether or not progress is being made. Units of evaluation were identified corresponding with each of the ten project categories:

1. **Response:** number of projects accomplished, which improve fire agency/emergency service response time.
2. **Communications:** number of identified communication issues resolved that were identified in the plan.

3. **Road System Improvements:** number of transportation problems resolved.
4. **Water Source Development:** number of water sources added.
5. **Equipment/Training:**
  - a) Equipment - number of identified/needed equipment obtained
  - b) Training - number of courses provided.
6. **Fuels Reduction:**
  - a) Number of acres treated for fuels reduction (loading reduction, increased spacing, and/or ladder fuel reduction).
7. **Mapping & Data Development:** number of projects completed or issues resolved.
8. **Prevention:**
  - a) Number of events with prevention message delivery
  - b) Number of prevention courses conducted
  - c) Number of news releases or prevention campaigns conducted
  - d) Number of prevention co-op meetings held.
9. **Partnership Development:** number of partners/agencies/groups involved.
10. **Education and Outreach:**
  - a) Number of people contacted (meetings, courses, etc)
  - b) Number of educational items distributed (brochures, etc).

On an annual basis, the standing steering committee members will assess each identified project using these units of measure to determine progress. This plan does not serve as a means of bypassing the individual processes and regulations of the participating agencies. Each project must adhere to any pertinent local, state or federal rules or guidelines in determining the point of project implementation. The plan is a coordinating document for forest projects related to education and outreach, information development, fire protection and fuels treatment.

## ***XI. Appendix A: Glossary/Acronym List***

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### ***Glossary***

**At-Risk Community:** a group of homes or other improvements (such as utilities or transportation routes) within or adjacent to federal land in which conditions are conducive to a large-scale wildland fire and pose a significant threat to human life or property.

**Community Wildfire Protection Plan:** a plan for at-risk communities identifying and prioritizing areas for hazardous fuels treatments, and recommending methods of treatment.

**Conflagration:** a raging, destructive fire. Often used to describe a fire burning under extreme fire weather. The term is also used when a wildland fire burns into a wildland-urban interface, destroying many structures.

**Crown Fire:** a fire that advances from treetop to treetop or shrubs independent of a surface fire.

**Defensible Space:** an area, typically a width of 30 feet or more, between an improved property and a potential wildfire where the combustibles have been removed or modified.

**Escape Route:** route away from dangerous areas on a fire and should be pre-planned.

**Evacuation:** the temporary movement of people and their possessions from locations threatened by wildfire.

**Extreme Fire Behavior:** a level of fire behavior characteristics that ordinarily precludes methods of direct control. One or more of the following is usually involved: high rates of speed, prolific crowning and/or spotting, presence of fire whirls, a strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environments and behave erratically, sometimes dangerously.

**Fire Behavior:** the manner in which a fire reacts to the influences of fuel, weather and topography.

**Fire Front:** that part of the fire within which continuous flaming combustion is taking place. Unless otherwise specified it is assumed to be the leading edge of the fire perimeter.

**Hazard:** a fuel complex defined by volume, type condition, arrangement and location (topography) that determine the ease of ignition and resistance to control. Hazards may also include the built environment such as constructed improvements, access to those improvements, and water availability.

**Fire Prevention:** activities, including education, engineering, enforcement and administration that are directed at reducing the number of wildfires, the costs of suppression and fire-caused damage to resources and property.

**Fire Protection:** the actions taken to limit the adverse environmental, social, political and economical effects of fire.

**Fire Regime:** periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity and area extent.

**Fire Storm:** violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts, near and beyond the perimeter, and sometimes by tornado-like whirls.

**Fire Weather:** weather conditions that influence fire starts, fire behavior or fire suppression.

**Firebrand:** any source of heat, natural or human made, capable of igniting wildland fuels. Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels. Examples include leaves, pine cones, glowing charcoal and sparks.

**Fuel Condition:** relative flammability of fuel as determined by fuel type and environmental conditions.

**Fuel Loading:** the volume of fuel in a given area generally expressed in tons per acre.

**Fuel Modification:** any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

**Fuels:** all combustible material within the wildland-urban interface, including vegetation and structures.

**Fuel Break:** an area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for fire fighting.

**Greenbelt:** a fuel break designated for use other than fire protection.

**Ground Fuels:** all combustible materials such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat or sawdust that typically support combustion.

**Hazardous Areas:** those wildland areas where the combination of vegetation, topography, weather and the threat of fire to life and property create difficult and dangerous problems.

**Hazard Reduction (see also Mitigation):** any treatment of living and dead fuels that reduces the threat of ignition and spread of fire.

**Ignition Probability:** chance that a firebrand will cause an ignition when it lands on receptive fuels.

**Initial Attack:** the actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

**Ladder Fuels:** fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease.

**Mitigation:** action that alleviates the severity of a fire hazard or risk.

**Overstory:** that portion of the trees in a forest that forms the upper or uppermost layer.

**Preparedness:** 1) Condition or degree of being ready to cope with a potential fire situation. 2) Mental readiness to recognize changes in fire danger and act promptly when action is appropriate.

**Prescribed Burning:** controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions, which allows the fire to be confined to a predetermined area, and to produce the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.

**Risk:** the chance of a fire starting from any cause.

**Structural Fire Agency:** a firefighting organization, usually at the local level, trained and equipped to fight structure fires. Local structural fire agencies may also be trained and equipped to combat wildland fires.

**Suppression:** the most aggressive fire protection strategy, it leads to the total extinguishment of a fire.

**Surface Fuel:** fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.

**Survivable Space:** the characteristics of a home, its materials and design, in concert with the flammable materials in a home's immediate surroundings that result in high ignition resistance from flames and firebrands (burning embers). Survivable space characteristics relate to the ignitability of a home without necessarily including the higher thermal vulnerability of firefighters.

**Tree Crown:** the primary and secondary branches growing out from the main stem, together with twigs and foliage.

**Understory:** low-growing vegetation under a stand of trees. Also, that portion of trees in a forest stand below the overstory.

**Wildfire:** an unplanned and uncontrolled fire spreading through vegetative fuels, at times involving structures.

**Wildfire Causes:** the general causes of wildland fires are 1) natural, like lightning; 2) accidental, like debris burning; and 3) intentional, like arson.

**Wildland:** an area in which development is essentially non-existent, except for roads, railroads, power lines and similar transportation facilities. Structures, if any, are widely scattered.

**Wildland Fire:** any fire occurring on the wildlands, regardless of ignition source, damages or benefits.

**Wildland Fire Agency:** a firefighting organization, usually at the state or federal level, trained and equipped to fight wildland fires. Typically, wildland fire agencies are not trained and equipped to combat structure fires.

**Wildland-Urban Interface:** an area within or adjacent to an at-risk community where wildland fuels intermix with combustible homes and structures. Wildland-Urban Interface areas in Union County are identified in the Union County Community Wildfire Protection Plan.

### ***Acronym List***

**BLM** – Bureau of Land Management

**CAR** – Community at Risk

**CTUIR** – Confederated Tribes of the Umatilla Indian Reservation

**EOC** – Emergency Operations Center

**EOP** – Emergency Operations Plan

**FEMA** – Federal Emergency Management Agency

**HFRA** – Healthy Forests Restoration Act

**NFP** – National Fire Plan

**NOIDC** – Northeast Oregon Interagency Dispatch Center

**ODF** – Oregon Department of Forestry

**ODOT** – Oregon Department of Transportation

**OEM** – Oregon Emergency Management

**OSP** – Oregon State Police

**PLS** – Public Land Survey

**RFPD** – Rural Fire Protection District

**TSI** – Timber Stand Improvement

**UCES** – Union County Emergency Services

**UCZPSO** – Union County Zoning, Partition & Subdivision Ordinance

**USFS** – United States Forest Service

**WUI** – Wildland-Urban Interface

## ***XII. Appendix B: Collaboration Methodology***

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### **Steering Committee**

The Steering Committee met approximately every six weeks to guide the plan's progress. Meetings were held:

August 20, 2003  
November 5, 2003  
January 21, 2004  
February 18, 2004  
April 14, 2004  
May 24, 2004  
June 30, 2004  
July 28, 2004  
September 2, 2004  
September 23, 2004  
October 21, 2004  
December 1, 2005  
February 9, 2005  
March 9, 2005  
March 16, 2005  
July 13, 2005

The Steering Committee met at either the Oregon Department of Forestry Office in La Grande or at the Union County Courthouse. Agendas, sign-in sheets and meeting notes are on file at both the ODF Office and the Union County Emergency Services Office in La Grande.

### **Community Workshops**

The first round of community meetings were held:

*Tuesday, October 12, 2004, at the Elgin Community Center*  
*Thursday, October 14, 2004, at the Imbler City Hall*  
*Tuesday, October 19, 2004, at the Medical Springs Rural Fire Department*  
*Wednesday, October 20, 2004, at the City of La Grande Fire Station.*



The purpose of the meetings was to inform citizens of Union County about the progress of the committee tasked with developing a Community Wildfire Protection Plan for Union County. Topics included discussion of the risk assessment involved in determining high hazard areas around the county, discussion of Union County Emergency Services operations related to wildfire response, and involvement of citizens in defining wildland-urban interface boundaries using hazard, risk, and values that may be affected by threat of wildfire.

***City of Elgin  
Elgin Community Center***

Values at Risk included Spout Springs Ski Resort, Looking Glass Fish Hatchery, and North End of Union County for hunting value.

Concerns that were raised were the possibility of a structure fire carrying out into the wildland and concern for the number of elderly that live outside the City of Elgin, for example Palmer Valley, that may not have the capacity to deal with creating defensible space around their homes.

Idea for outreaching to the public with the questionnaire was to go to the Senior Meals hour at the community center and ask the citizens that attend to fill out the questionnaire.

***City of Imbler  
City Hall***

Values at Risk included Phillips Creek coming down into the Pumpkin Ridge area, homes, children, animals. Concerns were many:

- 1) Pumpkin Ridge is an island in itself. Difficulties responding to incidents in the area include extended response time and lack of visibility with road dust from large vehicles traveling on the gravel roads in the area.
- 2) Ruckle Road, as far as fuels and structural ignitability, seems to be "worse off" than the End Road area.
- 3) Annexation within the Imbler Rural Fire District contains "skips" in assessments. Hence, landowners that are within the fire district may not be covered if the property was never assessed during annexation. Landowner A, B, and C on the same road may be covered, but Landowner D (next parcel up from A, B, and C) may not be covered by the protection of the fire district.
- 4) There have been many "close calls" in the Pumpkin Ridge area, showing risk of ignition and potential for a large fire.
- 5) Fire resources need to make sure they tie in with local people living within a community. Those community residents, in the event of a wildfire, will likely know who to contact in an evacuation, and will know which roads are fit for

travel for emergency vehicles and evacuation routes. (It was felt this isn't done enough.)

- 6) Some of the smaller areas/neighborhoods outside of a city, rural, or volunteer fire protection district "may have to take care of themselves and take more responsibility for their protection." Communities should prepare themselves by developing phone trees and all-hazard neighborhood plans similar to the kind of preparation the citizens living in the Pumpkin Ridge area have done.

Ideas for fire prevention or hazard mitigation:

- 1) Beth Burry, citizen of Pumpkin Ridge and volunteer for the Imbler Rural Fire Department, has tried to outreach to other neighborhoods within the fire district to develop phone trees and all-hazard plans. She has succeeded with the Pumpkin Ridge residents and feels it is because she makes it more of a potluck gathering than a meeting. People seem to respond to that method.

Pumpkin Ridge does have an active phone tree and they have made an agreement with Summerville Baptist to use the church as an evacuation site.

- 2) Union County should come up with some sort of campaign on behalf of the fire districts that informs citizens of the possibility that they may not be covered by a fire district. They should encourage landowners to check with the tax assessor's office to find out what protection they do have.
- 3) Fire prevention shouldn't stop after elementary school. It was felt that 7<sup>th</sup> through 12<sup>th</sup> grade students should be targeted.
- 4) The possibility of adding a substation for Imbler Rural should be explored. With the expansion of fire protection boundaries, responding to an incident is taking longer. Other districts in the county are adding substations, e.g., North Powder.

### ***Medical Springs***

#### ***Medical Springs Rural Fire District - Pondosa Station***

Values at risk included homes and people, and the new fire station. Attendees also mentioned that there were three old cemeteries and the old post office that represented historical value for them. The discussion of values at risk and a boundary for their wildland-urban interface will continue in a meeting the citizens will hold later. They decided to draw in the boundary themselves and contact Angie when the map is complete. Some of their ideas for a boundary included using the rural fire protection district boundary or expanding a 1/2 of a mile on either side of the highway [203] and a 1/4 of a mile from houses. The rural fire district boundary is 120 square miles and the fire district protects 60 homes.

Medical Springs is an active community that takes fire protection seriously. They have worked hard to establish a fire district and build a fire station, buy fire

equipment, and train personnel purely on grant funds. They also have a phone tree that was established as a way to notify them in case of an escaped inmate from Powder River Correctional Facility.

Concerns:

- 1) During past events, the county has not activated the phone tree, possibly because not everyone knew about it. The people of Medical Springs want to be notified in the event of an emergency. Just call the first person on the list to activate the tree.
- 2) Telephone is the best way to get a hold of folks in the Medical Springs area. Some of them, depending on location of residence, only get mail three times a week and radio signal is weak. Radio stations they do get are KCMB-104.7 on FM and 1490 AM.

***La Grande***  
***City of La Grande Fire Station***

Values at Risk include:

- 1) Roadless areas, wildlife, old growth, and water quality.
- 2) Consider fire use before suppression. Let fire run its course.
- 3) "I'd like to see money spent on protecting public lands rather than human interests."
- 4) Consider the "big-scape."
- 5) Looking at burned areas left behind by wildfires is not necessarily bad or ugly. Fire has a positive role to play.

Concerns:

- 1) There should be restrictions on building homes in the wildland-urban interface. For example, Owsley Canyon represents an area where access is poor, vegetation hazard is high and close to homes, and building materials would not withstand a large fire. "Should restrictions be put in place for current structures?"
- 2) Long-term planning should include planning for liabilities and outcomes of hazards.
- 3) "Other values of the forest" won't be considered when planning for fuels treatment projects.
- 4) "We should fight fire with fire. Prescribed burning should be aggressive, both in planning and use. However, we need to make sure we keep in mind the best use of the land, wildlife, smoke management, etc."
- 5) We are passifying ourselves when just using a mechanical approach. Prescribed fire needs used more as a tool for reducing the fine fuels.
- 6) "Should you use a soils layer to determine potential fuel hazard?"

- 7) The county planning department needs to establish stringent regulations for new building or modification of existing buildings located in the wildland-urban interface.
  - 8) There was a concern raised regarding the use of federal money used to help people that can "afford to clean up." But, some money should still be made available.
  - 9) "Offering a one-time amount of grant money for initial clean-up is ok, but maintenance should be the responsibility of the landowner" from that point forward.
  - 10) Use of National Fire Plan funds should be funneled more toward emergency services needs like improving access routes. It should be used to promote emergency service and fire response.
  - 11) There is a tendency to save forest products and resources by preventing fire from running its course.
  - 12) Too much money is spent for treating a small amount of acres.
  - 13) Priorities should be well thought out in order to gain the most protection. We aren't going to completely prevent a large fire event.
- 

The second round of community meetings were held:

*Monday, April 18, 2005, at the Cove Ascension School*

*Tuesday, April 19, 2005, at the Elgin City Hall*

*Thursday, April 21, 2005, at the La Grande Rural Fire Hall (Island City)*

The purpose of the meetings was to view and discuss draft Wildland-Urban Interface area boundaries. Topics also included communities at risk from wildfire and potential project ideas to address fire hazard and risk.

**Cove  
Ascension School**

Comments:

- 1) Increased communication about cost-share opportunities and other financial benefits should take place between the ODF and Cove RFPD / residents.
- 2) More promotion of agency projects should take place in the Cove area to increase awareness of risk reduction.
- 3) Explore the possibility of bio-mass opportunities (such as Fuels for Schools).

***Elgin  
City Hall***

Comments:

- 1) Several minor comments were made specific to identified Wildland-Urban Interface areas that slightly changed the boundary.
- 2) General support of the plan was voiced.

***Island City  
La Grande Rural Fire Hall***

Comments:

- 1) Support for fuels reduction projects in high-risk areas was expressed by a landowner in the Mt. Emily Wildland-Urban Interface area.

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**Press Releases Submitted**

October 1, 2004  
NEWS RELEASE  
FOR IMMEDIATE RELEASE  
Contact: Dara Decker (541) 963-1009

**PUBLIC WORKSHOPS SET FOR UNION COUNTY'S COMMUNITY WILDFIRE  
PROTECTION PLAN**

A series of community workshops will take place during October 2004 to review fire risk, identify community priorities for wildfire protection, and discuss emergency services relevant to wildfires. The workshops will take place on (pick the workshop that fits your schedule):

October 12, 2004	Tuesday	Elgin Community Center	6:30 to 8 p.m.
October 14, 2004	Thursday	Imbler City Hall	6:30 to 8 p.m.
October 19, 2004	Tuesday	Medical Springs RFPD	6:30 to 8 p.m.
October 20, 2004	Wednesday	La Grande Fire Station	6:30 to 8 p.m.

Representatives from the County Board of Commissioners, County Emergency Services and Sheriff's Office, Oregon Department of Forestry (ODF) and United States Forest Service (USFS) will attend and lead the discussions.

This is the first of two rounds of community workshops for you to learn about the Union County Community Wildfire Protection Planning process, to understand areas of Union

County that are at risk of wildfires and to tell us the forestland attributes of Union County that you value the most. The second round of community workshops will use GIS mapping to combine the areas-at-risk information with values identified by you to produce maps for discussion and refinement. The maps will become part of the Union County Community Wildfire Protection Plan and will guide risk reduction strategies. The second round of workshops will take place in communities other than those listed above to allow greater opportunity for citizens to participate.

Union County's fire planning effort is part of a broader national initiative launched by the White House and the Western Governor's Association following the extreme fire season of 2000. A report assessing the impacts of those wildfires highlighted the need for investment to reduce fire risk, and the importance of expanding local collaboration in the planning and implementation of such projects.

The planning process includes an evaluation of wildfire risk in relation to important community values, including private and commercial property, watersheds, wildlife habitat, and recreational areas. The process will also evaluate and prioritize strategies to protect areas of high risk. Union County could potentially benefit from grant opportunities that become available for community projects where community wildfire protection plans have been developed through a collaborative process.

The guiding principle is to have states and local governments as full partners with federal agencies in making decisions that relate to the goals of wildfire risk reduction, including prioritizing fuels reduction on private land. Union County is supporting the effort with Title III funds from the U. S. Department of Agriculture. The USFS and ODF provide additional funding and support.

Any questions about this process may be directed to:

Dara Decker (541) 963-1009, UC Emergency Services Officer and Committee Co-Chair

Angie Johnson (541) 963-3168, National Fire Plan Planning Coordinator, ODF-NE Oregon District and Committee Co-Chair

###

April 11, 2005  
NEWS RELEASE  
FOR IMMEDIATE RELEASE  
Contact: Dara Decker (541) 963-1009

## **FINAL ROUND OF WORKSHOPS SET FOR COMPLETION OF UNION COUNTY COMMUNITY WILDFIRE PROTECTION PLAN**

Citizens of Union County participated in a series of public meetings that were held throughout Union County last October meant to introduce them to the committee members who are preparing the county's Community Wildfire Protection Plan, and familiarize them with the process involved with putting a CWPP together. The second round of community workshops is set for this month. Citizens are encouraged to pick the meeting most convenient to them; the material presented will be the same at all meetings. The workshops will consist of discussing high hazard wildland-urban interface (WUI) areas and communities-at-risk, review the list of priority WUI areas of the county, and discuss ideas for projects within the WUI areas based on outcomes of the hazard assessment conducted. Also, a rough draft of the plan is available for review and comment. Representatives from the County and Oregon Department of Forestry will provide information and lead the discussions. Other agencies and fire departments that are participating in the planning effort will also be available for questions. The schedule for meetings is as follows (all will be from 6:30 p.m. to 8:30 p.m.):

April 18, 2005	Monday	Cove Ascension School (Kimsey Commons)
April 19, 2005	Tuesday	Elgin City Hall
April 21, 2005	Thursday	La Grande Rural FPD (Island City)

Union County's fire planning effort is part of a broader national initiative launched by the White House and the Western Governor's Association. Assessing the consequence of wildfire in Union County highlighted the need for investment to reduce fire risk. The importance of expanding local collaboration in the planning and implementation of projects geared at influencing the work plans of both the USFS and BLM improves fire prevention and suppression, reduces hazardous fuels, restores fire-adapted ecosystems, and promotes community assistance. Grant opportunities exist for community projects where community wildfire protection plans have been developed through a collaborative process.

Any questions about this process may be directed to:

Angie Johnson, NFP Planning Coordinator, ODF	(541) 963-3168
Dara Decker, Union County Emergency Services Officer	(541) 963-1009

###

## **Website**

The Union County website ([www.union-county.org](http://www.union-county.org)) and the Oregon Department of Forestry website ([www.odf.state.or.us/areas/eastern/northeast/default.asp](http://www.odf.state.or.us/areas/eastern/northeast/default.asp)) were utilized to post copies of the draft plan, share risk assessment information, advertise community workshops and display the Values-At-Risk Questionnaire for download and completion. A final copy of the plan will be posted to both websites after adoption and the websites will be available for the duration as a communication tool for communities to express comment or concern about protection from wildfire.

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## **Values-At-Risk Questionnaire / Blue Mountain Survey**

### ***Values-At-Risk Questionnaire***

The Values-At-Risk Questionnaire was a grassroots effort by the Steering Committee to invite comments on the forest attributes valued most by residents. The questionnaire was posted on the Emergency Services website and was published in The Observer October 14-16, 2004 and October 19-21, 2004. It was also made available at community workshops and placed in community libraries and city halls throughout Union County (specifically: North Powder City Hall, La Grande Library, La Grande City Hall, La Grande Senior Center, Island City City Hall, Summerville City Hall, Union City Hall, Union Library, Cove City Hall, Cove Library, Imbler City Hall, Elgin City Hall and Elgin Library). The questionnaire was also distributed on the Eastern Oregon University campus and with the Union County Search and Rescue Unit. Questionnaire outcomes are included on the next page.



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## Responses to Question #5 from questionnaire

### **Union County Community Wildfire Protection Plan Questionnaire Values List**

#### **Q5 – List 3 attributes you value most about your community:**

##### ***Elgin***

1. Small community atmosphere
2. Quiet and peaceful (3)
3. Beauty/scenic value (1)
4. Clean air/water
5. Timber resource/productivity
6. Wildlife/habitat
7. Natural trees and vegetation
8. Water resource
9. Friends

#### **Q5 – List 3 attributes you value most about your community:**

##### ***Imbler***

1. No tavern
2. No cemetery
3. No taxi

#### **Q5 – List 3 attributes you value most about your community:**

##### ***Island City***

1. Clean air/water (1)
2. Small community atmosphere (1)
3. Neat and attractive community
4. Natural trees and vegetation
5. Good government
6. Good retail mix

#### **Q5 – List 3 attributes you value most about your community:**

##### ***Pumpkin Ridge/Summerville***

1. Forest/land (3)
2. Wildlife/habitat (4)
3. Friends/neighbors (8)
4. Family (1)
5. Animals
6. Home/property (1)
7. Open space (1)
8. Love the location (2)
9. Beauty/scenic value (4)
10. Community safety
11. Rural character (2)
12. Willingness to work together (1)
13. Small community atmosphere (1)
14. Forgiving
15. Quiet and peaceful

16. Mixed uses
17. Transition between forest and agricultural land
18. Hiking trails
19. Private land adjacent to federal land

#### **Q5 – List 3 attributes you value most about your community:**

##### ***Cove***

1. The town
2. Love the location
3. Friends/neighbors (3)
4. Beauty/scenic value (2)
5. Schools
6. Helpful
7. Quiet and peaceful
8. Freshness
9. Mountains
10. Small community atmosphere
11. Timber
12. Home/property
13. Recreation
14. Wine
15. Knowing how to help in case of fire

#### **Q5 – List 3 attributes you value most about your community:**

##### ***Union***

1. Small community atmosphere (3)
2. Historical nature of community (3)
3. Rural character
4. Fishing
5. Hiking
6. Horseback riding
7. Sense of community/community pride (5)
8. Volunteerism (1)
9. Quiet and peaceful (2)
10. Clean air/water
11. Beauty/scenic value (2)
12. Friends/neighbors (2)
13. Community safety
14. Catherine Creek (1)
15. Open space
16. Wildlife/habitat

#### **Q5 – List 3 attributes you value most about your community:**

##### ***North Powder***

1. Beauty/scenic value
2. Climate
3. Rural character
4. Agriculture
5. Quiet and peaceful
6. Small community atmosphere

**Q5 – List 3 attributes you value most about your community:**

***Rural County***

1. Beauty/scenic value
2. Quiet and peaceful
3. Rural character
4. Forested habitat
5. Hunting
6. Fishing
7. Skiing
8. Horseback riding

**Q5 – List 3 attributes you value most about your community:**

***Outside Union County***

1. People (2)
2. Green lawns
3. Small community atmosphere (3)
4. Clean air/water (2)
5. Open space
6. Home/property
7. No traffic
8. Clean community
9. Community safety (1)
10. Convenient to larger cities

**Q5 – List 3 attributes you value most about your community:**

***Did not specify***

1. Wildlife/habitat (1)
2. Forest
3. Recreation
4. Home/property
5. Clean air/water
6. Electrical power
7. The town
8. People
9. Environment (1)
10. Greenery
11. Conservation

**Q5 – List 3 attributes you value most about your community:**

***La Grande***

1. Communication
2. Social support
3. Rural character (2)
4. Friends/neighbors (22)
5. Small community atmosphere (13)
6. Sense of community/community pride (10)
7. Community appearance (6)
8. Recreation (5)
9. Wildlife/habitat (16)
10. Timber resource/productivity (4)
11. Beauty/scenic value (11)
12. Economy (1)

13. Quiet and peaceful
14. Livability (3)
15. Fishing (3)
16. Hunting (2)
17. Clean air/water (6)
18. Forest/land (11)
19. Mountains (4)
20. University (12)
21. Community safety (5)
22. Diversity
23. Climate (2)
24. Rural character (5)
25. Many churches
26. Downtown
27. Few hazards
28. Love the location (1)
29. Possessions (1)
30. 30' from fire hydrant
31. Inexpensive cost of living (2)
32. Agriculture (2)
33. Wilderness
34. Fun
35. Bowling alley
36. Home/property (4)
37. Public services
38. Search and Rescue
39. Open Space (1)
40. Medical facilities

## Responses to Question #7 from Questionnaire

### **Union County Community Wildfire Protection Plan Questionnaire Values List**

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Elgin***

10. Fire threatens my home and the beauty of the area.
11. A wildfire would devastate the scenic value, timber resources and clean air and water.
12. Our 30 acres would be devastated and our timber lost.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Island City***

1. Fire would threaten local business.
2. Dense smoke would be difficult to endure.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Pumpkin Ridge/Summerville***

1. Fire would destroy wildlife and their habitat. (2)
2. Fire would destroy houses. (2)
3. Fire would destroy trees and land. (1)
4. Fire would destroy the scenic beauty of our area. (2)
5. I live by a non-treatable wilderness.
6. Wildfire could lead to death.
7. Fire could destroy the view of trees on Mt. Emily like it did Mt. Harris.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Cove***

1. Fire could burn down the town.
2. Burned stuff isn't pretty and my house might burn down.
3. Fire is both good and bad; it helps the mountains but if out of control will take the freshness of the landscape away.
4. The backdrop may burn and homes may be destroyed.
5. I want to be helpful to other people in case of fire.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Union***

1. If mountains are charred, why hike them?
2. We don't have the urban interface area like Cove, Starkey, Mt. Emily, etc.
3. Loss of life, natural resources and community.
4. Burning causes poor air quality and degrades scenery.
5. Wildfire would ruin the trees and streams.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***North Powder***

1. A fire would destroy the view of the forest, harm wildlife habitat and encourage the growth of noxious weeds.
2. Fire would burn crops and ranching.
3. People would move away.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Rural County***

1. A wildfire would affect the beauty of the area by destroying the trees.
2. Threaten wildlife, erode soils, pollute waterways and desecrate the landscape.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Outside Union County***

1. Values are burned up.
2. Fire would ruin the landscape and the air would stink.
3. Smog...
4. The air would get smoky.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***Did not specify***

1. Fire would affect the landscape in many ways; the trees would be gone.
2. Management is needed to prevent fires.

#### **Q7 – If you answered yes to #6, please list how:**

##### ***La Grande***

1. Fire would destroy appearance and habitat.
2. All could be destroyed in a major event.
3. Loss of scenery for decades and a loss in real estate values.
4. Destruction of habitat, view sheds and trees.
5. The safety of the community would be compromised by an unchecked threat of wildfire.

6. I wouldn't be able to enjoy the livability, recreation and wildlife of the area.
7. I live at the base of the mountains and I enjoy the wildlife.
8. It would destroy habitat for the wildlife, which would affect sportsman's activities.
9. Physical beauty would be impacted.
10. Fire would destroy property, lives and wildlife.
11. Wildfire would burn timber, kill animals and possibly ruin habitat.
12. Fire would ruin some of the buildings and homes that have been here for years.
13. Fire would burn the trees on the mountains.
14. There would be dust but no trees, shrubs, beauty, wildlife or erosion control.
15. The scenic beauty, nice neighborhood and wonderful downtown would be destroyed.
16. Lost landscape, life and timber.
17. The views, air quality and recreational opportunities would be impacted.
18. There would be no hunting, camping or nature.
19. I recreate in the woods and fire would be a threat; thin and hand pile.
20. The landscape wouldn't be so great anymore.
21. Fire would burn the trees to nothing.
22. Possible destruction of the land.
23. The scenery and wildlife would no longer exist.
24. Loss of habitat for animals.
25. Fire would affect the wildlife population.
26. Fire could burn down the fun.
27. Wildlife!
28. There could be structural damage and love ones lost.
29. Fire damages the looks.
30. My home or school could burn!
31. Fire could burn over the highway when I want to go home.
32. Wildfire would burn down my house, be expensive to local government and cause loss of my neighborhood.
33. Wildfire could be detrimental to safety.
34. A wildfire would burn the grazing land and the trees.
35. There would be total destruction, loss of homes and life.
36. The surrounding area could burn down.
37. If a wildfire went through, the mountains would be burned and not as pretty.
38. Fire would burn private property (homes), cause smoke and smog and trees would burn.
39. The town, land and wildlife could be destroyed.
40. There would be no trees, no deer/elk and no Tree City USA for the 14<sup>th</sup> year.
41. The town, natural resources and jobs would be reduced by a large wildfire.
42. Fire would destroy the clean and beautiful scenery; it would take years to replenish.
43. People and trees could be burned to death.

## **Blue Mountain Survey**

The Blue Mountain Wildland-Urban Interface Wildfire Study was a scientifically engineered study meant to gage residents' understanding of wildfire issues in high-risk areas. The survey was mailed out using statistical sampling techniques in Union, Baker and Wallowa Counties. Survey outcomes are included here:

# **Blue Mountain Wildland-Urban Interface Wildfire Study S U M M A R Y O F R E S U L T S**

September 2003

**Surveys Mailed:** 847  
**Surveys Returned:** 225 (26.6%)

### **Question 1. Are you a forest landowner?**

Yes: 86%  
No: 14%  
Total Responses: 218

### **Question 2. Do you live on your forested property?**

Yes: 72%  
No: 28%  
Total Responses: 184

### **Question 3. How many forested acres do you own?**

Total Acres: 14,814  
(345,814 with Boise Solutions)  
Average Acres per Respondent: 84  
Total Responses: 176

### **Question 4. Please indicate the geographic area in which your forested property is located. (If you own property in more than one area, please mark all that apply).**

Mt Emily: 42  
Cove: 9  
Morgan Lake: 10  
Pumpkin Ridge: 23  
Ruckle Rd: 23  
Upper Lostine Subdivision: 0  
Wallowa Lake Basin: 0  
West of Wallowa Lk: 0

Alder Slope: 0  
Imnaha River Woods: 0  
Ferguson Ridge/Prairie Ck: 0  
Sumpter Valley: 25  
Stices Gulch: 5  
Base of Elkhorn Mtns: 55  
Sparta: 0  
Halfway/Pine Valley: 1  
Ukiah: 0  
Meacham: 2  
Weston Mtn/Tollgate: 1

Total Responses: 196

### **Question 5. How high do you feel the risk of a wildfire is in your neighborhood?**

High: 31%  
Med: 57%  
Low: 12%  
Total Responses: 183

### **Question 6. If a wildfire occurred in your area, what factors would place you and/or your home at risk?**

A. Neighboring properties with high fuel load.

High: 70%  
Low: 30%

B. Response time/capability/equipment of local fire agencies.

High: 54%  
Low: 46%

C. Fuel loads on your properties.

High: 41%

Low: 59%

D. Flammability of your structures.

High: 43%

Low: 57%

E. Access to your property.

High: 25%

Low: 75%

F. Construction material used on home.

High: 43%

Low: 57%

G. Position of home on slope.

High: 24%

Low: 76%

H. Loss of services and utilities.

High: 45%

Low: 55%

Total Responses: 147

**Question 7. Do you have a plan for what you would do if there were a fire in your neighborhood?**

Yes: 54%

No: 46%

Total Responses: 184

**Question 8. Have you participated in National Fire Plan activities?**

Yes: 28%

No: 72%

Total Responses: 185

**Question 9. Defensible space refers to the area between a house and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and to provide an opportunity for firefighters to effectively defend the house. Sometimes a defensible space is simply a homeowner's properly maintained back yard. How knowledgeable do you feel you are regarding creating defensible space?**

High: 54%

Med: 38%

Low: 8%

Total Responses: 179

**Question 10. Have you worked around your home to create a defensible space?**

Yes: 83%

No: 17%

Total Responses: 172

**Question 11. If you did do this work, did you use National Fire Plan cost share assistance?**

Yes: 18%

No: 82%

Total Responses: 166

**Question 12. How interested are you in learning more about creating defensible space?**

High: 36%

Med: 38%

Low: 26%

Total Responses: 176

**Question 13. Where is the greatest need for fuels reduction work?**

Private lands: 41%

U.S. Forest Service: 53%

Industrial Forest Land: 6%

Total Responses: 203

**Question 14. How concerned are you about your scenic view being impacted by National Fire Plan Fuels Reduction work?**

Very Concerned: 16%

Somewhat Concerned: 29%

No Concern: 55%

Total Responses: 185

**Question 15. If you were interested in learning more, what kind of informational format would you prefer?**

A. Direct mailed brochures: 22%

B. Centralized workshops  
or classes: 9%

C. Video: 9%

D. Hands-on demonstrations: 8%

E. Self-guided tour of  
demonstration areas: 8%

F. Local television: 2%

- G. Radio: 2%
- H. Internet website: 9%
- I. Neighborhood workshop: 10%
- J. Individual consultation: 14%
- K. Newspaper insert: 7%

**Question 16. Please rate your level of concern regarding building a defensible space around your home (1=very little concern; 4=extreme concern).**

Amount of physical work required.

- 1: 44%
- 2: 31%
- 3: 17%
- 4: 8%

Amount of time required.

- 1: 39%
- 2: 32%
- 3: 18%
- 4: 11%

Financial cost required.

- 1: 31%
- 2: 18%
- 3: 28%
- 4: 23%

Doing the work yourself.

- 1: 51%
- 2: 25%
- 3: 11%
- 4: 13%

Hiring a contractor/forestry professional.

- 1: 39%
- 2: 14%
- 3: 19%
- 4: 28%

The aesthetic value of your property.

- 1: 28%
- 2: 20%
- 3: 26%
- 4: 26%

Neighborhood covenants/restrictions.

- 1: 72%
- 2: 12%
- 3: 8%
- 4: 8%

Amount of maintenance required.

- 1: 48%
- 2: 34%
- 3: 10%
- 4: 8%

**Question 17. How much would you be willing to pay to reduce the wildfire risk that your home faces?**

- Very little: 40%
- Some: 55%
- A lot: 5%

Total Responses: 166

**Question 18. Are you aware of the financial assistance available for treating fuels on homeowners'/ landowners' properties?**

- Yes: 55%
- No: 45%

Total Responses: 183

**Question 19. If so, are you interested in applying for some of these funds?**

- Yes: 58%
- No: 42%

Total Responses: 160

**Question 20. If not, why would you be reluctant?**

- A. Not interested in assistance: 19%
- B. Don't need it: 45%
- C. Don't want to do any work: 0
- D. Government requirement/ regulation issues: 36%

Total Responses: 91

**Question 21. Would you be willing to put on an educational program for your neighborhood?**

- Yes: 25%
- No: 75%

**Total Responses: 173**



## **Local Radio / Newspaper**

The Observer and two local radio groups, KCMB and KUBQ, were utilized to advertise the planning effort and promote participation opportunities. The Observer also provided copies of photos from the 1973 Rooster Peak Fire. Copies of articles and ads are included in the next five pages (not numbered - photocopies and faxed material).

*(If you are viewing this document on-line, then you will need to contact Angie Johnson, (541) 963-3168, or Dara Decker, (541) 963-1009, to see copies of the articles and ad.)*

## ***XIII. Appendix C: Union County Emergency Operations Plan - Wildland Fire Annex***

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### **Wildland Fire**

#### **I. PURPOSE**

The purpose of this hazard specific annex is to provide an outline of the roles and responsibilities of the different agencies that may be involved in an urban / wildland interface fire.

The goal of this wildland fire annex is to ensure the safety of life and property during a wildfire event.

Many agencies and jurisdictions within the county could be involved if a wildfire threatens people and property. It will take coordination and cooperation of all agencies to adequately protect the lives and property of Union County citizens.

#### **II. SITUATIONS AND ASSUMPTIONS**

##### **Situation**

Union County is predominately rural, with many outlying farms and ranches. Some areas in Union County have no available structural fire protection.

Union County covers approximately 2,038 square miles of land committed to various uses. Resource land uses like agriculture, timber, grazing and aggregate mining, along with other uses such as residential, commercial and industrial development are present in Union County, and may be protected by several different agencies, each with specific boundaries and jurisdictions.

All areas of the county are subject to thunder and lightning storms throughout the spring, summer, and fall months, which can cause many fires per year. As 49% of Union County is publicly owned, many hunters, hikers and other outdoor enthusiasts take advantage of outdoor recreation in Union County, which can be a cause for concern related to human-caused wildfire ignitions.

##### **Assumptions**

The protection of life and property is paramount in decisions relating to firefighting procedures.

With numerous agencies and jurisdictions potentially becoming involved, coordination and cooperation among agencies is vital in achieving maximum fire suppression.

Assistance through mutual aid agreements may be necessary, and mutual aid agreements are in place among rural fire protection districts (RFPDs) and wildland fire suppression agencies.

Resource procurement assistance may be necessary through the county and private contractors.

The first responding RFPD or agency will assume Incident Command (regardless of jurisdiction) until relieved by the responsible agency. If the wildland fire remains within one jurisdiction, that RFPD/agency assumes Incident Command and uses the Incident Command structure. If the wildland fire incident involves more than one state/federal agency or any municipality and a state/federal agency, then the Unified Command structure will be used.

All affected agencies or municipalities will be notified through the 911 Center, Northeast Oregon Interagency Dispatch Center (NOIDC), or the Emergency Services Officer.

### **III. CONCEPT OF OPERATIONS**

#### **General**

Primary responsibility for incident command and control rests with agency representatives. The on-scene commander has the authority to deploy departmental resources. The incident command/unified command system will be used in all county emergency situations. Each agency will maintain contact as best as they can to ensure proper coordination.

#### **Preparedness**

1. Update mapping of area jurisdictions, and provide to all mutual aid agencies.
2. Preplan and coordinate communications and frequency use.
3. Identify vulnerable areas and plan for their defense or evacuation.
4. Pre-plan and be familiar with evacuation plans and routes.
5. Be familiar with requirements for requesting State and Federal disaster assistance in a timely manner.
6. Agencies will ensure all equipment is in operational working order.
7. Make available public information handouts on how citizens can prevent and defend their property, and lives.
8. Train and exercise regularly; then review and update. Overall response among affected agencies will be strengthened and streamlined by practicing together in drills and scenarios on a regular basis.

## **Response**

All affected departments/agencies within the county with response obligations are as follows:

### **1. 911/DISPATCH RESPONSE:**

- Maintain standard 911 service.
- Maintain standard dispatch protocol.
- Maintain incident communications unless the lead dispatcher determines that the EOC must be opened to assume incident communications.
- Relay emergency warning as directed by the Incident Commander.
- Notify NOIDC of wildland fires burning within one mile of the protection boundary.

### **2. FIRE SERVICE RESPONSE:**

- Containment and control of fires.
- Related rescue events (if trained).
- Hazardous materials expertise (up to their individual qualifications) and containment (if trained).
- Request additional resources from existing mutual aid agreements.
- Request activation of the State Conflagration Act (County Fire Chief) according to state guidelines.

### **3. LAW ENFORCEMENT RESPONSE:**

- Preservation of law and order.
- Implementation of warning system.
- Provide security, traffic and crowd control.
- Assist in evacuation and egress procedures.

### **4. PUBLIC WORKS RESPONSE:**

- Logistical support associated with the incident.
- Debris removal.
- Road maintenance on a priority basis.

## **IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES**

### **General**

Organizational response procedures practiced on a day-to-day basis will be familiar during disaster situations and augmented as necessary. Support will be provided by other agencies or through contractors as the events dictate.

### **Task Assignments**

*Union County Fire Agencies:*

1. Coordinate all fire control and rescue activities between all affected

- agencies within fiscal policies.
2. Provide on-scene hazardous materials expertise up to qualifications, then request hazardous materials regional team.
  3. Request and coordinate mutual aid response from other agencies.
  4. Provide on-scene prevention and code enforcement to minimize the incident.
  5. Provide support and assistance for warning, sheltering, evacuation, and other public safety operations as needed.

Those duties (as outlined above) pertain to all activities within district boundaries. Mutual aid assistance to Union County cities or RFPDs is outlined in current agreements.

*Oregon Department of Forestry* will take the lead role in fire suppression and manpower relating to private forested lands.

*U.S. Forest Service* will take the lead role in fire suppression and manpower relating to federal forest lands.

The *Bureau of Land Management* has contracted with the US Forest Service for initial attack responsibilities on BLM land in Union County. An agreement is in place between the BLM and the USFS specifying that the nearest resources to the incident, regardless of ownership or suppression responsibility, are deployed for initial attack.

*Union County Law Enforcement Agencies:*

1. Responsible for uninterrupted law enforcement activities, to the extent possible, within the unincorporated areas of Union County during emergency conditions.
2. Request the evacuation of residents affected by incident.
3. Coordinate outside law enforcement assistance in unincorporated areas.
4. Initiate Warning and Communications functions.
5. Provide direction and support for other response departments and public safety agencies (fire, public works).
6. Direct traffic control.
7. Assist with affected area security.
8. Coordinate, assist with evacuation procedures.
9. Assist the Sheriff and coordinate outside resources when necessary.

*Oregon State Police* will assist county law enforcement with site security, evacuation, and technical expertise as requested.

Law enforcement is responsible for those duties, as outlined above, within their jurisdiction.

*Union County Public Works Agencies:*

1. Provide equipment, manpower, and materials necessary for logistical support to assist in fire suppression.
2. Maintain communications link with EOC.
3. Be available to support cities inquiries and requests.
4. Repair and restore vital facilities and essential services.
5. Utilize and coordinate outside private resources at the county's disposal.
6. Assist utilities in essential emergency repairs.
7. Assist other public safety agencies in search and rescue, evacuation, site security, and other pertinent response functions as time and manpower permit.

ODOT will participate in wildland fire emergencies as outlined in the *ODOT Emergency Operations Plan, Annex E – Incident Management, Appendix 4 – Wildland Fire*. ODOT may also provide assistance and coordination for road maintenance and debris removal activities on the city/county road system in concert with public works officials.

*Union County Emergency Services:*

1. Notify and update Union County Commissioners on the situation.
2. Activate the EOC if required.
3. Notify Oregon Emergency Management of situation.
4. Advise adjacent counties of potential mutual aid requests.
5. Alert sheltering organizations of crisis potential.
6. Prepare emergency declaration if required.
7. Prepare a county public information release.

*State of Oregon Departments:*

Involvement of state agencies other than what is normally provided for on a day-to-day basis will require a local emergency declaration requested by the county and approved by the Governor.

*Union County Unprotected Areas:*

Union County has approximately 50,890 acres of unprotected land. When a wildfire event is imminent and meets the criteria for activating the State Conflagration Act, the Union County Fire Chief will request assistance and support for wildland fire suppression.

## **V. DIRECTION AND CONTROL**

Routine operations will be handled by individual departments/agencies' standard operating procedures. During heightened emergency conditions requiring activation of the EOC, the department head/agency representatives will coordinate activities from the EOC. Each department/agency will name an alternate to cover any shift change or the absence of the primary responder.

It may also be necessary to staff individual command posts (incident command) with supervisory personnel. The major activity at the site will dictate overall incident command. Each department ranking officer at the command post will establish and maintain communications, direct emergency operations, and coordinate all requests for assistance through agency representatives at the EOC. When on-scene capabilities are exceeded, outside assistance will be requested and coordinated from the EOC.

## **VI. CONTINUITY OF GOVERNMENT**

Lines of succession within each department and division are outlined in established standard operating procedures. The Incident Commander (IC) and Command Post (CP) location will be quickly identified and relayed to all responding agencies.

The Union County line of authority succession is listed in the Basic Plan, Section XI.

During a "declared" emergency event, consideration may be given to utilizing State Emergency Management personnel to fill vacant key positions.

Procedures must be followed to ensure protection of all vital county and individual departmental records, whether disaster related or from everyday operations. Safe storage facilities, not prone to disaster events (i.e. flood damage) should be utilized where possible.

## **VII. ADMINISTRATION AND SUPPORT**

### **Communications**

Communications play a vital role during department/agency response, which are primarily handled through the Union County 911/Dispatch Center and supported by EOC participation. Any resources responding to a county wildfire incident will be assigned a radio frequency from either 911 or NOIDC.

To the extent possible, state/federal agency radio frequencies should be programmed into local fire agency radios and local fire agency radio frequencies should be programmed into state/federal agency radios. Additionally, any new frequencies used in Union County should be programmed into all agencies' handheld and mobile radios.

### **911 Center / NE Oregon Interagency Dispatch Center Interface**

Due to the fact that numerous agencies and departments will respond to a wildland fire of any size, communications can become hectic, especially for dispatching agencies. To minimize confusion and streamline communications as much as possible, 911 and NOIDC have come to the following agreement:

At this time, NOIDC and 911 do not share radio frequencies. If a fire occurs on or near a mutual boundary, federal, state and rural fire agencies shall be dispatched. 911 will dispatch rural fire districts via radio and call NOIDC to advise them of the incident. Since the dispatch centers do not share radio frequencies, 911 will maintain radio communications with the rural fire districts and NOIDC will maintain radio communications with federal and state responders. Incident Command may maintain radio contact with NOIDC and may choose federal or state frequencies to handle all communications. NOIDC and 911 will communicate via phone when necessary.

### **Administration**

The timely and efficient response of public safety agencies during emergency events requires extraordinary coordination between field units and the EOC. Priorities assigned by department heads will facilitate an orderly and efficient use of response personnel. Records generated during emergency events will be collected and filed chronologically. Good record keeping procedures are essential for review, future planning, and event reconstruction. Resource lists are available in the Emergency Services Office.

## **VIII. ANNEX DEVELOPMENT AND MAINTENANCE**

It is the responsibility of the county and each city's public safety agencies to ensure its own operational capability.

The Emergency Services Officer will coordinate with all agencies for the maintenance of this Annex and coordinate input from each response agency.

### **APPENDICES** *(inquire at Emergency Services Office)*

- Appendix 1 – Emergency Response Log
- Appendix 2 – Disaster Area Permit
- Appendix 3 – Conflagration Act
- Appendix 4 – Resource Lists



## ***XIV. Appendix D: Sources***

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### *Website Sources*

<http://www.fireplan.gov/reports/351-358-en.pdf>

<http://www.nwfireplan.gov>

<http://www.fireplan.gov/content/home>

<http://www.fireplan.gov/reports/7-19-en.pdf>

<http://www.whitehouse.gov/infocus/healthyforests/toc.html>

<http://www.fema.gov/fima/planning10.shtm>

[http://www.odf.state.or.us/DIVISIONS/protection/fire\\_protection/prev/sb360/docs/overview.pdf](http://www.odf.state.or.us/DIVISIONS/protection/fire_protection/prev/sb360/docs/overview.pdf)

### *CWPP References*

#### **Section I - Introduction**

<http://www.communitiescommittee.org/pdfs/cwpphandbook.pdf>

<sup>ii</sup> Oregon Emergency Management; *Emergency Management Plan, Natural Hazards Mitigation Plan, Fire Chapter*, (December 2003).

<sup>iii</sup> Oregon Department of Forestry; *Forest, Farms and People: Land Use Change on Non-Federal Land in Eastern Oregon, 1975-2001* (August 2004).

[http://www.odf.state.or.us/DIVISIONS/resource\\_policy/resource\\_planning/Annual\\_Reports/EORDZ.pdf](http://www.odf.state.or.us/DIVISIONS/resource_policy/resource_planning/Annual_Reports/EORDZ.pdf)

#### **Section II - Union County Profile**

<sup>i</sup> *The Climate of Oregon: From Rain Forest to Desert*, Taylor, George H. and Hannan, Chris, Corvallis, OR: OSU Press (1999) pp. 80.

<sup>ii</sup> Ibid, pp. 8-9.

<sup>iii</sup> Taylor, *Climate of Oregon*.

<sup>iv</sup> *Union County Population Analysis and 2020 Forecast; Final Draft*, The Benkendorf Associates Corporation, (January 25, 2001) pp. 1.

<sup>v</sup> *Union County 2002 Strategic Plan*, Elesco Limited and Auyer Consulting, (June 2002) pp.15.

<sup>vi</sup> Union County Assessment and Tax Collection Department, (March 2005).

#### **Section V - Community Outreach and Education**

<sup>i</sup> Union County Zoning, Partition and Subdivision Ordinance, Siting Standards for Dwellings and Structures and Development and Fire Siting Standards (Adopted November 2, 1983).

#### **Section VI - Wildfire Risk Assessment**

<sup>1</sup> This document was authored by Angie Johnson, Oregon Department of Forestry-Northeast Oregon District, and edited by Trish Wallace, US Forest Service-Wallowa-Whitman office. The hazard assessment was conducted by both Trish and Angie.

<sup>2</sup> *Expanded Fire Condition Class Definition Table*. Available at <http://www.frcc.gov>.

## **Section IX - Maintenance Plan for Fuels Treatment**

<sup>i</sup> A Conceptual Approach for a Maintenance Strategy for Fuel Treatments in Oregon: Maintaining the Investment, Fitzgerald, Stephen and Martin, Charlie, Oregon State FFHM Committee Report. (July 5, 2004).

<sup>ii</sup> Oester, Paul. *Blue Mountains Renewable Resource Newsletter*. Vol. 20, No. 3, (Fall 2004).

Greg Larkin/300

Greg Larkin/1

March 3, 2023

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Re: Docket No.

PUC Request Nos.

DUE DATE

CPC-5

Greg Larkin 26-61

March 10, 2023

Please provide responses to the following request for data by the due date.

Please note that all responses must be posted to the PUC Huddle account.

Contact the undersigned before the due date noted above if the request is

unclear or if you need more time. Please note that all questions in this request

are regarding Mr. Bastasch's testimony, Exhibit 1100 submitted on Feb. 21, 2023

and requesting responses relating to his testimony.

## DISCOVERY QUESTIONS FROM GREG LARKIN TO IDAHO POWER

Topic or Keyword:

### INTRODUCTION:

Mr. Bastasch made many references to decisions made by the Oregon Department of Energy and Energy Facility Siting Council. Regarding the Oregon Department of Energy (ODOE) and the Energy Facility Siting Council (EFSC) evaluation of Noise: Concerns with their review and decisions include multiple items reflected in Mr. Bastasch's testimony including: A failure to apply the plain language of the rules to the Noise determination: Failing to require the completion of the Noise Mitigation Plans prior to issuance of a Site Certificate. Failure to use the common definition of "infrequent". Failing to address noise amounts at specific Noise Sensitive Properties; Failing to exclude from baseline noise levels excluded sources of noise ; Averaging impacts over the entire length of the transmission line as opposed to applying the rules identifying specific locations where noise levels are to be determined; Failure to provide mitigation for impacts outside residence's, etc.

Errors in the use of the state standards and rules regarding noise impact Oregon Citizens and landowners directly as they result in lost safety and health, lost property value, lost future income and economic stability and will result in future litigation regarding the impacts of noise exceedances which will be transferred to utility customers through rate increases.

The Oregon Public Utility Commission is charged with completing an independent review to determine if Idaho Power completed due diligence prior to applying for a Certificate of Public Convenience and Necessity including:

1. Determining whether Idaho Power has determined where noise exceedances are projected to occur by use of the DEQ Noise Statutes and rules and what the impacts of the exceedances are.
2. Determining whether or not Idaho Power completed an assessment of the Health and Safety impacts to citizens exposed to noise exceedances based upon the noise levels at specific residences and pre-existing conditions of citizens exposed to noise exceedances.

3. Determining that Idaho Power has identified mitigation that will be implemented to address noise exceedances prior to applying for a Certificate of Public Convenience and Necessity.

They are not charged with determining whether or not Mr. Larkin's medical issues when exacerbated by B2H noise are legitimate. He is one of multiple people living in locations which will be exposed to noise above DEQ standards who's issues should have been identified and mitigated for by Idaho Power prior to requesting a Certificate of Public Convenience.

The following questions are intended to document a failure of Idaho Power to accurately evaluate the noise impacts of the development on exposed citizens including identifying pre-existing conditions that may be exacerbated due to the noise from the transmission line. They are directed to Idaho Power to obtain responses regarding comments and actions reflected in the testimony of their expert witness, Mr. Bastasch. Given the weight placed upon the testimony by other Idaho Power witnesses as well as EFSC and ODOE, it is important to review the basis for his decisions.

## NOISE RULES AND STATUTES AND ROLE OF EFSC AND ODOE

Page 4, Mr. Bastasch states that EFSC has historically evaluate noise under OAR 340, Division 035 “even though ODEQ no longer enforces this rule”.

Q-26: Is it true that the DEQ Noise Control Program statutes and administrative rules remain in force?

Q-27: Is EFSC required to “ensure that proposed facilities meet the State noise regulations”? (Idaho Power Exhibit 1102: ODEQ Staff Guidance on Noise Control Issues (July, 2003).

Q-28: Did the above memo, or any other document, rule, statute or court decision you are aware of provide local governments or other agencies the authority to interpret or take any action other than applying and enforcing DEQ in OAR 345-035-0035 including the ODEQ Sound Measurement Procedure Manual or as required by ORS 467.030? Are you aware of any exception other than entities were allowed to develop and enforce their own rules so long as they are

at least as strict as the state rules? Examples would include such things as determining alternative method, interpretations or procedures.

## RULES AND STATUTES ESTABLISHING THE EVALUATION OF THE NOISE RULES

Since there are significant areas where there is disagreement regarding the plain language and meaning of the noise statutes and rules, I am providing statute and rule excerpts that relate to Mr. Bastasch's testimony for reference in responses to my questions in italics & my notes regarding relevance in red:

## DEFINITIONS

OAR 345-035-0015

*(5) "**Ambient Noise**" means the all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.*

*(7) "**Any One Hour**" means any period of 60 consecutive minutes during the 24-hour day.*

*(9) "**Commission**" means the Environmental Quality Commission.*



*(12) “Department” means the Department of Environmental Quality.*

*(59) “Statistical Noise Level” means the noise level which is equaled or exceeded a stated percentage of the time. An L10 = 65 dBA implies that in any hour of the day 65 dBA can be equaled or exceeded only 10% of the time, or for 6 minutes.*

Oregon Statute Assigning Responsibility to the Environmental Quality  
Commission for development of Oregon Noise Rules

## **ENABLING STATUTE**

***467.030 Adoption of noise control rules, levels and standards. (1) In accordance with the applicable provisions of ORS chapter 183, the Environmental Quality Commission shall adopt rules relating to the control of levels of noise emitted into the environment of this state and including the following:***

***(b) Requirements and specifications for equipment to be used in the monitoring of noise emissions.***

*(c) Procedures for the collection, reporting, interpretations and use of data obtained from noise monitoring activities.*

*(2) The Environmental Quality Commission shall investigate and, after appropriate public notice and hearing, shall establish maximum permissible levels of noise emission for each category established, as well as the method of measurement of the levels of noise emission.*

NOISE RULES DEVELOPED TO MEET REQUIREMENTS OF ORS 467.030:'

*OAR 345-035-0035*

*(3) Measurement:*

*(a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in **Sound Measurement Procedures Manual (NPCS-1)(Exhibit 204)** or to such other procedures as are approved in writing by the Department; Note: Department is defined in the rule, and procedures to be followed are in NPCS-I.*

*(b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:*

*(A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;*

*(B) That point on the noise sensitive property line nearest the noise source.*

**Note: Required measurement point is identified as located outside the home.**

*New Sources Located on Previously Unused Site:*

- (i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels*

*specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, ...* **Note:** The plain language specifically states that an exceedance occurs when the noise increases 10 Dba “in any one hour” which is defined in the rule above as meaning a period of 60 minutes in a 24 hr. period. The rule also states that the exceedance is to be measured at the measurement point described in the rule.

- (ii) *The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)–(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement*

## EXCEPTIONS

*OAR 345-035-0035*

*(6) Exceptions: Upon written request from the owner or controller of an industrial or commercial noise source, **the Department** may authorize exceptions to section (1) of this rule, pursuant to rule 340-035-0010 (Exceptions), for:*

*(a) **Unusual and/or infrequent events;***

*(b) Industrial or commercial facilities previously established in areas of new development of noise sensitive property;*

*(c) Those industrial or commercial noise sources whose statistical noise levels at the appropriate measurement point are exceeded by any noise source external to the industrial or commercial noise source in question;*

*(d) Noise sensitive property owned or controlled by the person who controls or owns the noise source;*

*(e) Noise sensitive property located on land zoned exclusively for industrial or commercial use. **Note: The only possible basis for Idaho Power to request an Exception would be if they could prove that exceedances would be unusual or infrequent.***

## VARIANCES

### **467.060 Variances; issuance, revocation or modification; grounds; rules. (1)**

The **Environmental Quality Commission** by order may grant specific variances from the particular requirements of any rule or standard to such specific persons or class of persons or such specific noise emission source, upon such conditions as it may consider necessary to protect the public health, safety and welfare. The specific variance may be limited in duration. The commission shall grant a specific variance only if it finds that strict compliance with the rule or standard is inappropriate because:

**(a) Conditions exist that are beyond the control of the persons applying for the variance;**

**Note: The applicant chose the route as well as made the decision to pick a portfolio that included this transmission line. They could have chosen another method(s) of meeting their need.**

*(b) Special circumstances render strict compliance unreasonable, unduly burdensome or impractical due to special physical conditions or cause;*

***(c) Strict compliance would result in substantial curtailment or closing***

down of a business, plant or operation; **Note: Multiple other methods were suggested to Idaho Power to address their stated need. Not building the Boardman to Hemingway Transmission line would not result in closing down their business or operation. In fact, building the transmission line exposes Idaho Power to multiple additional risks, as identified in submissions to this action as well as previous comments on the EIS, Site Certificate and Integrated Resource Plans that they would not be exposed to if they did not build the transmission line. or**

(d) No other alternative facility or method of operating is yet available. **Note: Rooftop solar is available and it is documented that over 25% of Idaho's electricity needs could be met through this resource, microgrids are being used which could provide electricity to households and businesses, a more robust use of Conservation as is demonstrated by Oregon would significantly reduce electricity needs, development of combined renewable energy projects in Idaho similar to Wheatridge in Oregon combining wind power, solar power and battery backup working together to provide consistent, reliable electricity could and should be developed in Idaho near the customers. This would add the advantages of rreduced line loss, reduced fire risk, reduced vulnerability to weather, terrorism, etc. which large transmission lines are vulnerable to.**

*(2) The commission by rule may delegate to the Department of Environmental Quality, on such conditions as the commission may find appropriate, the power to grant variances and to make the finding required by subsection (1) of this section to justify any such variance.*

*(3) In determining whether or not a variance shall be granted, the commission or the department shall consider the equities involved and the advantages and disadvantages to residents and to the person conducting the activity for which the variance is sought. **Note: Equity losses to Oregon Citizens has not been considered in relation to the decision to allow a variance. Direct impacts to citizens due to noise is just one of multiple areas of equity loss to Oregon Citizens. Reduced private land values, stress, disruption of wildlife habitat and corridors, impacts on reduced quality of recreational opportunities, damages to quality of life, views, increased costs of agricultural and forest activities, and on and on. The advantages stated by the developer are focused on perceived benefits that do not benefit Oregon residents and are, therefore, not relevant to this decision.***

*(4) A variance may be revoked or modified by the commission. The commission may revoke or modify a variance if it finds:*



*(b) Material misrepresentation of fact in the variance application or other representations of the variance holder;*

*(d) A material change or absence of any of the circumstances set forth in subsection (1)(a) to (d) of this section. **Note: The absence of any of the decision criteria precludes the issuance of a variance even if ODOE or EFSC had the power to approve one.***

#### QUESTION REGARDING ESTABLISHING EXISTING AMBIENT NOISE LEVELS

Q-29: Do you agree that the rules contained in OAR 345-035 and the ODEQ Sound Measurement Procedure Manual (Sept. 4, 19874)(Idaho Power Exhibit/1105) are the rules that were promulgated to meet the requirements of ORS 467.030?

Page 12 of Mr. Bastasch testimony states that the monitoring plan was consistent with the monitoring requirements for measuring ambient sound level as laid out in the Sound Measurement Procedures Manual, NPC-1. This manual states it was developed to “establish procedures to implement the provisions of the Environmental Quality Commission. Further, if the practices and procedures herein are adhered to, the result will be a uniform enforcement program which

will accomplish the intent of the Legislature and fulfill the Commission's responsibility under ORS Chapter 467."

Q.30. Did the methods, procedures and interpretations used by Idaho Power comply with the Sound Measurement Procedures Manual NPC-S-I incorporated into the DEQ noise rules? Please specifically include in your response comments on the following:

A. Did the Ambient Noise Level calculations include the requirements of 4.6.1(e) requiring the removal of noise readings from external sources such as sounds from such things as passing vehicles, traffic, aircraft, and in the case of MP-11 passing trains as required by 4.6.1(e) of

B. Were sound readings from external sources such as those described above included in the statistical noise level calculations for Ambient Noise Levels at the Monitoring locations?

C. Do you agree that removal of the noise from external sources such as those indicated in Question A. above and listed on Page 30 of Tetra Tech's August 2013 Supplemental Baseline Sound Survey for the Tub Mountain, Burnt River and

East of Bombing Range Road Alternat Corridors could result in a lower Ambient Sound level but not a greater Ambient Sound level where these “external sounds” occur?

D. Would lower baseline noise levels result in more NSR’s exceeding the Ambient Degradation Standard?

E.. Does the Ambient Degradation Standard apply only to the late nighttime period from 12;00 a.m. till 5:00 a.m.?

On Page 13 of Mr. Bastasch’s testimony he states that the ambient sound level was established at an “outdoor” location as is required by the DEQ Handbook.

Q-31: How does mitigation involving such things as sound reducing windows address exceedances of the Ambient Degradation Standard outside residences where the exceedances are projected to occur?

Q-32: If the baseline sound measurements had been taken inside the homes and the projected noise levels also completed for noise levels inside the home, is it reasonable to believe that the Ambient Degradation Standard requiring the

increase in sound not exceed 10 dBA over the sound level prior to constructing the transmission line would also show the standard as being exceeded?

Q-33: Is it your contention that the legislature intended that people would be required to stay inside their homes when corona noise events occur?

Q.-34: Please identify areas where the procedures, outcomes and interpretations used to establish the ambient measurements did not apply the plain language of the DEQ handbook incorporated into their rules.

Include items which were or were not complied with:. If not complied with, state the reasons and describe how it was determined that the procedures used were equal to the statutorily required rules contained in the Noise Procedures Manual, Page 1, Section 1.2 listing the Authority to provide the direction contained in NPCCS-1. Include in your comments the following items from the NPCCS-I Handbook requirements:

A. Basis for including information regarding noise levels inside peoples homes when the noise measurements are to occur outside the homes. NPCCS-I, Page 5, Site 4.2.1.

B. Were measurements included when the wind speed exceeded 10 mph? NPCS-I, Page 7, Section 4.5.2(a).

C. Were measurements included when precipitation would affect results? NPCS-I, Page 7, Section 4.5.2(b)

D. Were ambient sound measurements, projected future sound levels, and frequency of exceedances based upon results for impacts occurring during “any consecutive 60 minute period” of each day? NPCS-I, Page 8, Section 4.5.5.

E. Was the ambient noise level determined for consecutive 60 minute periods that included weekends, different time periods and different days? If so, please explain how this resulted in baseline data that did not emphasize either noise peaks or unusual quiet. NPCS-I, Pages 8-9, Section 4.5.6

F. Were the baseline noise measurements for MP-11 taken during snow conditions where there may have been snow accumulation or wet

streets? Were other noise measurements taken during snowy conditions?

NPCS-1 Page 9, Section 4.5.6

G. Did the projected ambient statistical noise levels projected for the transmission line include all noise sources generated by the noise source?

NPCS-I, Page 9, Paragraph 4.

H. Did the current Ambient Noise Level measurements identify and exclude the external or extraneous noise sources such as passing vehicles, trains or other sources which could have contaminated the results? NPCS-1, Page 21 Section 4.6.1(c) and example on Page 28 identifying readings excluded and why.

On Page 15 of Mr. Bastasch's testimony, he states that supplemental monitoring produced results "very similar" to the original monitoring in the Morgan Lake area.

Q-35. How many monitoring locations were originally completed in the Morgan Lake Area?

Q.-36: Please compare the baseline noise results from each of the supplemental monitoring locations with the 32 dBA baseline noise level assigned to the 63 residences where MP-11 results were assigned. Did you find that the results from the supplemental monitoring locations provided a consistent reading for baseline noise amounts which supported assigning the same baseline noise level to the 63 locations assigned the baseline noise level of MP-11?

On Page 15 Mr. Bastasch states that the projected noise levels were for a line operating above normal levels.

Q.-37: The plain language of the procedures in the Noise Handbook indicate that the Baseline Noise level is to be determined by removing all external noise sources such as traffic, railroads, removing readings when wind speed is above 10 mph and when moisture could impact results. Please predict how many residences would exceed the Ambient Degradation Standard if all external noise sources, readings with wind above 10 mph and when moisture could have impacted results were

removed from the Baseline Noise Level. Compare the results with a projected noise level of 2 dBA less than was used in the application(2dBA is the noise reduction you indicated would have been in place had the projected noise been based upon typical operating loads.

### REGARDING VARIANCES:

Please refer to the rules provided in the introduction regarding variances when responding to the following questions;:

Page 8 of Mr. Bastasch's testimony:

Q.-38: Who is authorized to grant variances under DEQ statutes and rules? Is any other agency granted this authority in statute, rule, court decisions that you are aware of?

Q.-39: Could Idaho Power develop alternate facilities or methods of operating such as developing energy projects in Idaho or undergrounding transmission lines to avoid the need for a variance to the noise rules?



## REGARDING EXCEPTIONS:

Page 7, Bottom of Page.

It is stated that ODEQ rules authorize exceptions for “unusual or infrequent events”.

Q-40:. According to ODEQ rules, what agency or group is allowed to authorize an exception?

Page 10, Middle of Page you use the statement “infrequent foul weather events”.

Q-41. In your expert’s opinion, noise exceedances of the Ambient Degradation Standard occurring during a portion of how many days per year would be considered “infrequent”.

On Page 17 Mr. Bastasch gives the percentage of the time when foul weather occurred at the weather monitoring stations during the 4 year period analyzed.

Q.-42: Is the Ambient Degradation Standard based upon the percentage of time during a year when exceedances occur, or the number of days during which corona noise would exceed the standard during at least one hr. of the 24 hr. day? Please provide a rule or statute reference to support your answer.

Q-43:. Is the percentage of foul weather occurring during a 365 day year used to establish whether and how often the Ambient Degradation Standard is exceeded? Please provide a rule or statute reference to support your statement.

Q.-44: Is it true that the figure used for determining the Ambient Degradation Standard Exceedances is the amount stated in the last line of Page 17, "The frequency of days with one hour or more of foul weather was 13 percent for the entire Project area and 22 percent for La Grande."

Q.-45: Do you consider an average of 47 days per year or in the case of La Grande, 80 days per year noise levels exceeding the standard to be "infrequent"?

On Page 18 of Mr. Bastasch's testimony, he gives figures for how often weather would indicate there would be noise exceedances between 12:00 a.m. and 5:00 a.m.

Q.-46: Does the Ambient Degradation Standard only apply to the hrs. from 12:00 a.m. till 5:00 a.m.? If not, please explain how this figure has any meaning in relation to whether there are exceedances to the Ambient Degradation Standard during at least one hr. of a 24 hr. day.

On Page 19, Mr. Bastasch states that Idaho Power was conservative in the use of late-night period, not using all wind conditions and makes several statements regarding the impact of wind on baseline sound levels.

Q.-47: Is it true that for the monitoring positions, the average difference between night time and late-night baseline noise levels is less than 1 dBA , in 7 instances there was no change, and in two instances there was an increase of 1 dBA during late night as opposed to all night measurements? (Table 1.5 pf Exhibit X Application for Site Certificate) How many additional exceedances of the Ambient Degradation Standard occurred during the late-night baseline noise levels and the night time noise levels?

Q.-48: How is it considered a “conservative estimate” when you use the period from 12:00 till 5:00 a.m. to establish baseline noise and only consider weather creating corona noise occurring during the period from 12:00 a.m. till 5:00 a.m.? Please provide a reference from the DEQ rules indicating this is the timeframe for establishing baseline noise. Please provide a rule reference allowing consideration of only the exceedances between 12:00 a.m. and 5:00 a.m. to be considered in determining exceedances of the noise Ambient Degradation Standard.

Include in your answer the following references upon which you based your conclusions:

- a. Areas in your testimony which used only the exceedances between 12:00 and 5:00 a.m..
- b. Areas in your testimony where you used “average” exceedances to support your testimony rather than addressing noise at specific locations.

.`Q.-49: Please provide documentation regarding the number of NSR’s who will exceed the Ambient Degradation Standard when using the

procedures required by the DEQ rules. Use the noise levels when the transmission line is functioning at typical voltage levels (2 dBA less than that used). Provide the baseline noise levels using the entire day, but excluding the times when the wind speed exceeds 10 mph, when the precipitation is greater than 5 mm/hr and excluding the items identified in Section 4.6.1(e) of the Sound Measurement Procedures Manual (See Table B-1, Test Engineers Log, Tetra Tech, January 2013, B-1, B-2 & B-3 of Idaho Power's Site Certificate Application)

On Page 21 of Mr. Bastasch's testimony he quotes the basis for EFSC allowing an exception to the Ambient Degradation Standard.. EFSC states the reason for allowing an exception include; "exceedances along the transmission line would be an infrequent event because exceedances are expected to occur less than two percent of the total hours in a given year (because they are projected to occur during foul weather, and foul weather events are infrequent in the project area, and other circumstances need to occur simultaneously to result in an exceedance, i.e. low ambient noise environment and transmission line operating at full capacity."

Q-50:. Do you agree that the DEQ rules support the use of the number of 24 hr days during a 365 day year when there is at least one hr. during the day when the Ambient Degradation Standard is not being met? If not, please provide the statute or rule reference to support this.

Q.-51: Is a low ambient noise environment and the transmission line operating at full capacity a necessary prerequisite to exceedances of the Ambient Degradation Standard or is it simply a situation where the existing baseline noise level is exceeded by 10 dBA or more during a portion of a day? Please include in your response whether or not exceedances at my property could occur when the transmission line is running at less than full capacity.

On page 22 Mr. Bastasch discusses Noise Rules as they are applied to BPA.

Q.-52: Is it true that NEPA reviews based upon Federal statutes and rules do not include a determination regarding the Ambient Degradation Standard requirements? Please provide documentation that these

discussions included the Ambient Degradation Standard if you believe they also were intended to apply to the Ambient Degradation Standard.

Q.-53: Do the DEQ rules state that noise measurements are to **occur outside the home**?

Q.-54: Is there any place in DEQ rules or statutes that indicate that noise levels are to be considered at any location other than the location outside the home where the measurements are taken?

Page 23, Statement that EFSC considered protection of Health, safety and welfare of Oregon citizens, feasibility and cost of noise abatement, past, present, and future patterns of land use, relative timing of land use changes and other legal constraints and determined these factors all supported the granting of an exception.

Q.-55: Did EFSC require Idaho Power to determine the health and safety conditions of the individuals exposed to noise exceedances prior to determining this issue supported the granting of an exception? If so, how was that accomplished?

Q-56: Were the actual costs of abatement procedures ever determined?

Please indicate the costs of the abatement procedures that are being proposed to address the noise exceedances.

Q-57: Did the Energy Facility Siting Council or EFSC evaluate the timing and impact of future land use changes with and without the transmission line prior to authorizing an exception? Where was this done?

Q.-58: What noise abatement procedures were considered and what was the cost assigned to those procedures?

Q.-59: Was there a determination regarding whether the transmission line would impact future changes in land use beyond what would be expected without the transmission line? Please include potential for the creation of an “energy corridor” and how that will impact citizens and costs to citizens and the state.

Q.-60: What other legal constraints were considered relevant to a decision to allow a variance?



Last paragraph on this page 5: You state that there are no designated quiet areas within the site boundary or within the vicinity of the Project.

Q-61: Does the Management Plan for the Morgan Lake Park specifically state that the park is to provide quiet, peaceful or other terms that would indicate it is by definition in the DEQ rules a “Quiet Area”.? Do the Protected Areas that the transmission line is going to cross qualify as “quiet areas” according to the definition in the DEQ noise rules?

Recognizing that Mr. Bastasch is not an attorney, he has provided his testimony regarding the Oregon Statutes and Rules as being consistent with their language. It is, therefore, legitimate to ask given his presentation of himself as an expert on these rules whether or not it is his understanding that the way he implemented the rules is consistent with the plain language of the rules as required by court decisions stating that agencies lack the authority to interpret rules of another agency, or in fact their own agency in a manner that is inconsistent with their plain meaning unless the plain meaning is not clear as supported by:

An administrative **rule interpreting the issuing agency's own ambiguous regulation** may receive substantial deference. *Auer v. Robbins*, 519 U. S. 452, 461-463. So may an interpretation of an ambiguous statute, *Chevron U. S. A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U. S. 837, 842-845, **but only "when it appears that Congress delegated authority to the agency generally to make rules carrying the force of law, and that the agency interpretation claiming deference was promulgated in the exercise of that authority,"** *United States v. Mead Corp.*, 533 U. S. 218, 226-227. Otherwise, the interpretation is "entitled to respect" only to the extent it has the "power to persuade." *Skidmore v. Swift & Co.*, 323 U. S. 134, 140. Pp. 8-9.

Kiser v Wilke 588 US\_\_Q019 Kiser US Supreme Court. Where the decision was:

Kagan's opinion stated that the Auer deference is "sometimes appropriate and sometimes not," and states that the *Auer* deference can only be considered when "a regulation is genuinely ambiguous," the court has

exhausted traditional tools of [statutory construction](#), "the agency's construction of its rule must still be reasonable", the rule must be an authoritative statement by agency higher-up officials; it must implicate agency expertise; and it cannot create unfair surprise.

#### CLOSING:

Per the issues addressed in the above questions, there are critical areas where the impacts of the noise to be generated by the Boardman to Hemingway transmission line were not correctly established in compliance with state statutes and rules. They establish that there has not been a determination of the impacts to health, safety and costs to Oregon citizens as a result of the development of this transmission line and bring into doubt the ability to establish that the transmission line can be justified based upon the costs and benefits to Oregon citizens. These issues support a decision to deny the request that a Certificate of Public Convenience and Necessity be issued.

Greg Larkin/300

Greg Larkin/34

/s/ Greg Larkin Greg Larkin, Intervenor

59655 Morgan Lake Rd.

La Grande, Oregon 97850

### CERTIFICATE OF SERVICE

On March 3, 2023 I provided by First Class Mail copies of the above document and Exhibits to:

John C. Williams

PO Box 1384

La Grande, OR 97850

/s/ Greg Larkin Greg Larkin, Intervenor

59655 Morgan Lake Rd.

La Grande, Oregon 97850



# 2020 Fire Weather Annual Summary

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SOUTH CENTRAL AND SOUTHEAST  
WASHINGTON  
CENTRAL AND NORTHEAST OREGON

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National Weather Service, Pendleton  
Mary Wister, Fire Weather Program Manager

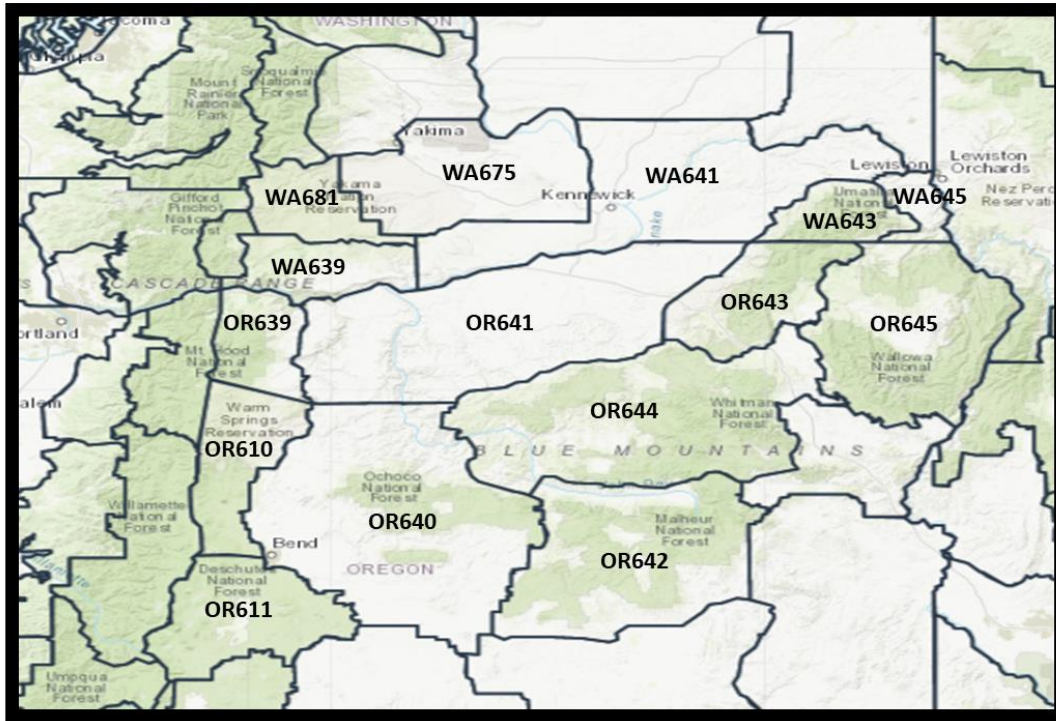


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# Fire Weather Zones



**Note:** Minor changes were made to fire zones WA675 and WA639 in 2020. The Kittitas County portion of WA675 was annexed with WA676 in NWS Spokane's fire weather area. A small area of southeast Skamania County in NWS Portland's zone WA660 was annexed with WA639.



# Fire Activity Summary

The 2020 fire season in south central and southeast Washington and central and northeast Oregon was extremely active, especially when compared to the fire seasons in 2018 and 2019. Most of the large wildfires initiated from a thunderstorm outbreak on August 16, and a windstorm on September 7 was responsible for large wildfire spread and highly dangerous fires that spread in fine fuels throughout the Columbia Basin.

According to the Northwest Area Coordination Center, there were 1,638 fires in Washington and 2,211 fires in Oregon that have combined burned over two million acres of land. Approximately 75% of the number of fires in the inland Northwest were human caused compared to lightning. Numerous thunderstorms on August 16 were responsible for some of the most significant fires in eastern Washington and eastern Oregon--Lionshead, White River, Green Ridge, Frog, North Brownstown, and Taylor Pond. Lionshead was the second largest fire in the Pacific Northwest at 204,385 acres. Pearl Hill, east of Bridgeport, WA was the largest fire at 223,730 acres that burned predominantly through dry grass.

Labor Day, September 7, was a devastating day for this area. Northeast winds gusting to 45-55 mph caused downed trees and electrical wires, rapidly spreading fires, and blowing dust. At least several homes were lost in Basin City and Prosser and multiple structures were burned throughout the region. Three railroad bridges in Benton and Franklin Counties were also destroyed. The northeast winds continued for several days, and this caused the Lionshead Fire in the Warm Springs Reservation to spread over the Cascade crest and down the western slopes, eventually merging with the Beachie Creek Fire. Fires in Washington and Oregon claimed 14 lives in early September, although no fatalities were reported in NWS Pendleton's forecast area.

Poor air quality for over a week in early September was added to the mix as wildfire smoke blanketed the Pacific Northwest. Air Quality Advisories were issued throughout Washington and Oregon with monitors reporting conditions considered unhealthy or hazardous. Moderate to heavy rainfall that was observed from the coast to the Cascades with two separate systems during the second half of the month helped to suppress fires and alleviate the hazardous air quality.

## 2020 Wildfires in NWS Pendleton's Forecast Area

**White River Fire**  
Start: Aug. 16-17  
Contained: Sep. 28  
Cause: lightning  
Size: 17,383 acres

**P515 Fire**  
Start: Aug. 16  
Contained: Sep. 12  
Cause: lightning  
Size: 4,603 acres

**Lionshead Fire**  
Start: Aug. 16  
Contained: Oct 30 est.  
Cause: lightning  
Size: 204,385 acres

**Green Ridge Fire**  
Start: Aug. 16  
Contained: Sep. 1  
Cause: lightning  
Size: 4,338 acres

**Mosier Creek Fire**  
Start: Aug. 12  
Contained: Aug. 19  
Cause: human  
Size: 985 acres

**North Brownstown**  
Start: Aug. 17  
Contained: Aug. 23  
Cause: human  
Size: 5,981 acres

**Evans Canyon Fire**  
Start: Aug. 31  
Contained: Sep. 15  
Cause: unknown  
Size: 75,817 acres

**Taylor Pond Fire**  
Start: Aug. 16  
Contained: Aug. 20  
Cause: lightning  
Size: 34,792 acres

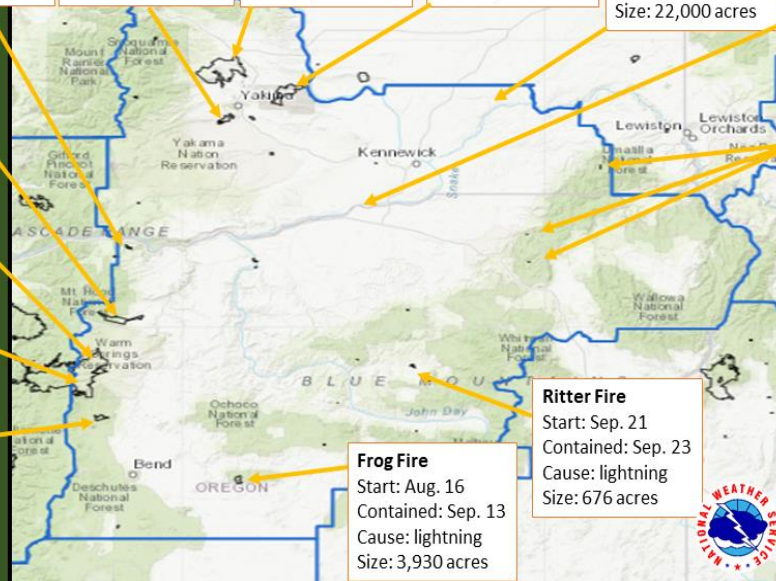
**Kahlotus Fire\***  
Start: Sep. 7  
Contained: Sep. 9  
Cause: human & wind driven  
Size: 22,000 acres

**Paterson Fire\***  
Start: Sep. 7  
Contained: Sep. 9  
Cause: human & wind driven  
Size: 1,000 acres

**Meacham Complex including Hager Ridge, Horse and Rattlesnake**  
Start: Aug. 19  
Contained: Aug. 31  
Cause: lightning  
Size: 268 acres

**\* Why are there no fire perimeters for the Paterson and Kahlotus fires?**

Fire perimeters are often determined by infrared airborne flights at night. Both large fires were in grassy fuels and controlled quickly on September 7.



# Weather Review

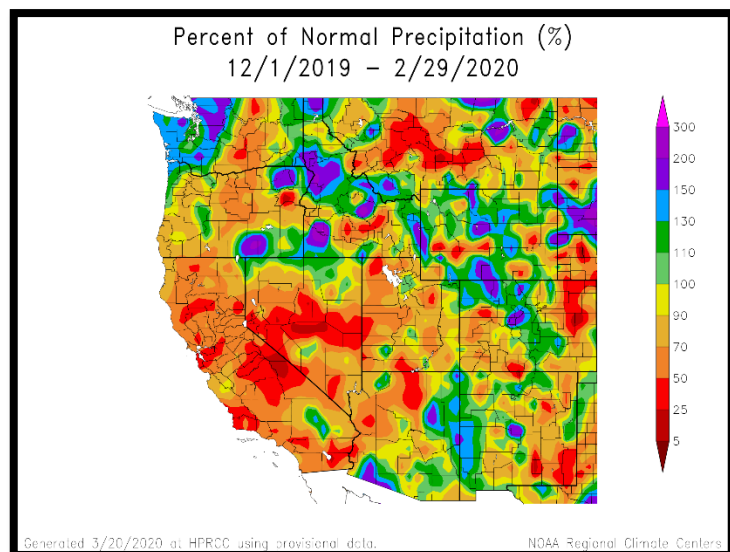
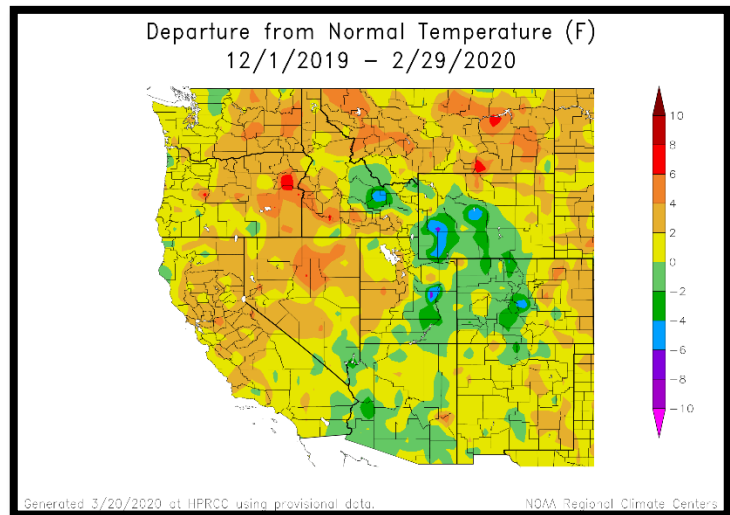
## WINTER (DECEMBER 2019-FEBRUARY 2020)

Across NWS Pendleton's forecast area, it was warmer than average during the winter, but precipitation varied from mostly dry conditions in the Lower Columbia Basin down to central Oregon but above average in the northeast mountains and along the Washington Cascades.

**December 2019** was warm and dry throughout the forecast area. A dry westerly flow dominated most of the month with periods of breezy to windy conditions. Precipitation was 20-70% of normal.

A westerly flow continued for most of **January 2020**, yet Pacific frontal systems provided orographic mountain showers unlike the drier westerly flow the previous month. Areas that are typically rain shadowed from the Cascades were left out of most precipitation. Mountain snowpack greatly improved in January.

**February 2020** was most memorable for the widespread flooding that occurred on February 6-7. Heavy snow fell in the mountains at the start of the month. A moist westerly flow increased snow levels and resulted in warm rain on snow for fast snowmelt runoff. Most dry and warm conditions were observed the latter half of the month.



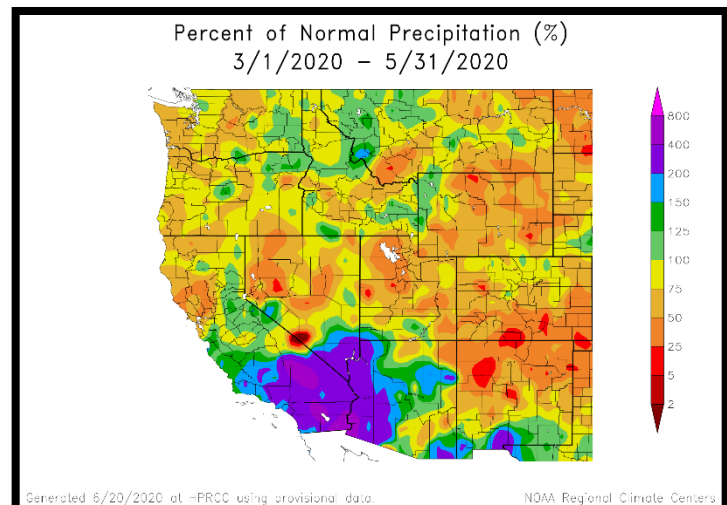
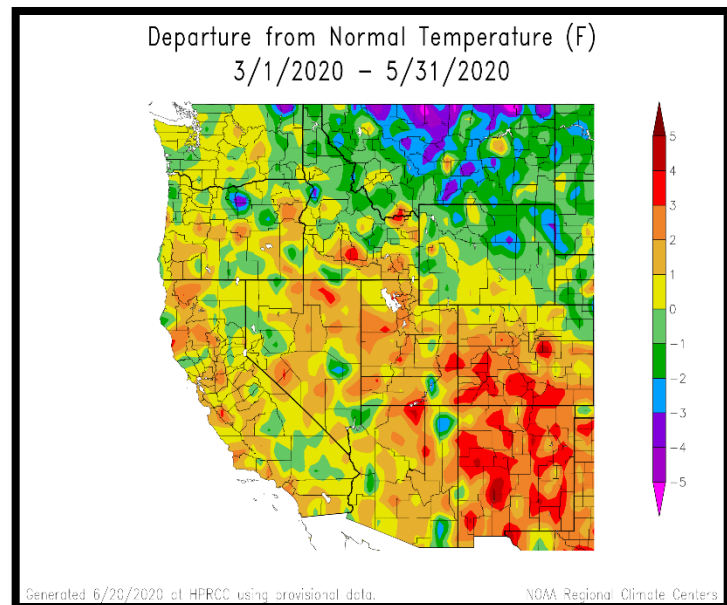
## SPRING (MARCH-MAY 2020)

In general, both temperatures and precipitation averaged near seasonal during the spring.

**March 2020** had several winter systems at the start of the month that brought snow, including at the lowest elevations of the Columbia Basin. They were not significant winter storms but cold enough for the month to fall below average on temperatures. Precipitation was near average.

Although April is typically one of the wettest months of the year, **April 2020** was a dry and warm month. There were a few thunderstorms during the month that brought heavy rain and gusty winds but not enough to improve the precipitation deficit. Precipitation was 20-70 percent of normal for most of the region, and the US Drought Monitor increased from “Moderate Drought” to “Severe Drought” along the Cascade Range.

Precipitation in **May 2020** varied from near to above normal precipitation. Heavy rain and flooding was observed in the northeast mountains and nearby valleys during the beginning of the month. A major thunderstorm outbreak on May 30 brought heavy rain to portions of the forecast area, mainly across central and north central Oregon.





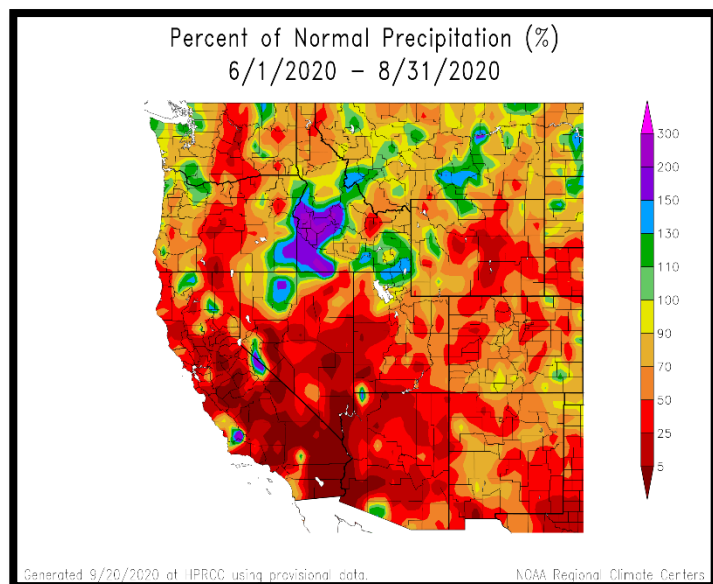
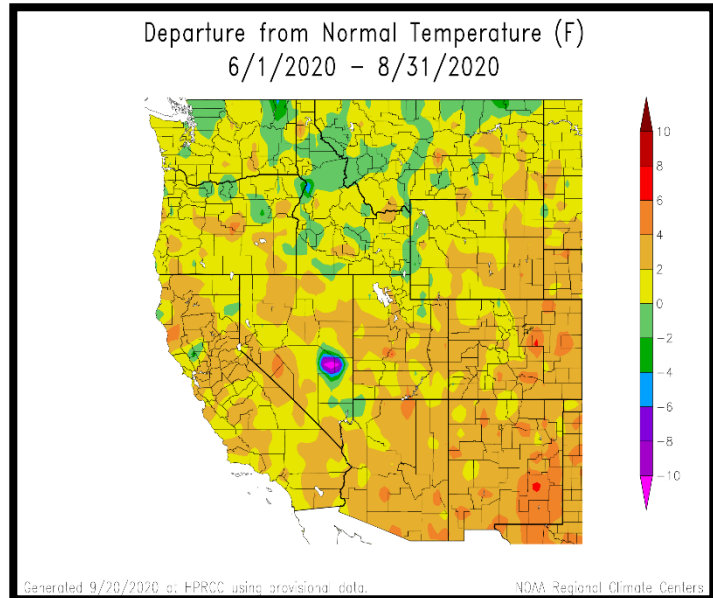
## SUMMER (JUNE-AUGUST 2020)

The summer was hot and dry, especially in July and August.

**June 2020** was a rather quiet month, weather wise with near normal temperatures and near to above normal precipitation. Wallowa County was unseasonably wet and averaged about 150-200% of normal for the month. No significant storm systems were noted.

**July 2020** was hot and dry for eastern Washington and eastern Oregon which is nothing out of the ordinary. Temperatures were near normal and precipitation below normal. A heat wave brought several days of 100+ temperatures in many of the lower elevations. Some lower elevation grass fires started from a few thunderstorms.

**August 2020** was incredibly dry with near to above average temperatures during the month. Thunderstorms on August 16-17 produced little to no rainfall, resulting in numerous fire starts. The east slopes of the Oregon Cascades were hit particularly hard with lightning. Severe wind gusts were also reported with many of the thunderstorms during the two-day period. Triple digit temperatures were also observed during the mid-month.



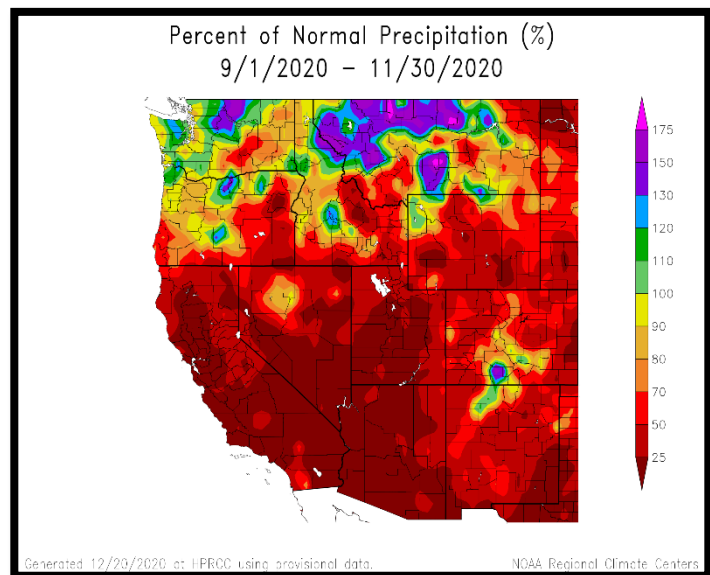
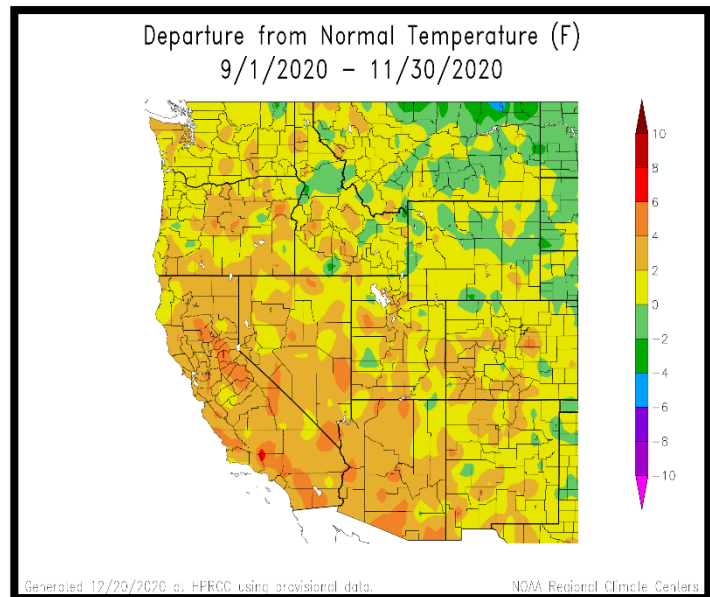
## FALL (SEPTEMBER-NOVEMBER 2020)

The fall season began with an unprecedented wind storm on Labor Day but ended relatively quiet for October through November despite a few periods of heavy rain and mountain snow.

**September 2020** will be known as one of the most active months for wildfires in Washington and Oregon, and the Labor Day wind storm is largely to blame. Winds gusting to 45-55 mph were common during this highly unusual cold front for September. Several days after the historical event, smoke from the west transported east of the Cascades and blanketed the region with thick smoke that continued for a week. Little precipitation was observed during the month, and drought conditions increased to D3 (extreme drought) along the Cascades.

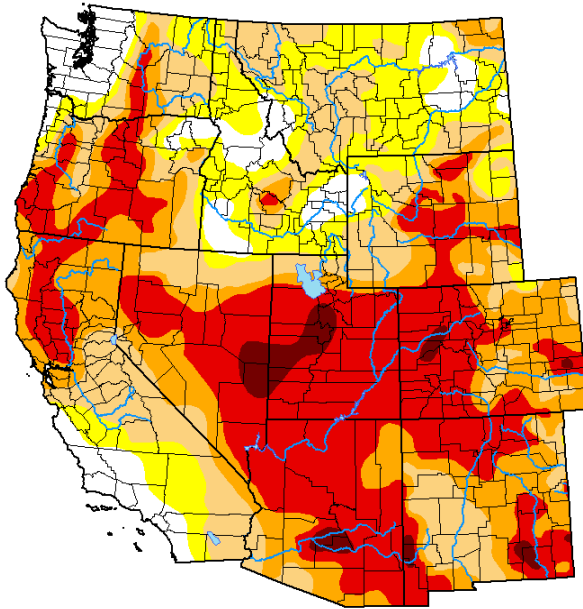
**October 2020** began warm and dry but ended cooler than average with a few winter systems bringing snow to the mountains, albeit light. Record cold temperatures were observed at the end of the month.

A few frontal systems during **November 2020** brought rain and mountain snow, and the average precipitation for the month was near to above average for most areas. Record daily rainfall amounts were set for many of the lower elevations on November 5, and a heavy snow event occurred in the mountains on November 13-14.



## United States Drought Monitor

September 29, 2020



### Intensity:

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Dry weather that persisted during the spring and summer 2020 pushed drought conditions to higher categories. Along the Cascade Range of Oregon and southern Washington, drought intensity reached to D3, or extreme drought, conditions.

# Lightning Strikes June 1-Sept 30, 2020

*Data provided by the Northwest Coordination Center Predictive Services, Portland*

DATE_	Z_610	Z_611	Z_639	Z_640	Z_641	Z_642	Z_643	Z_644	Z_645	Z_675	Z_681
01-Jun-20	0	0	0	0	0	0	0	0	0	0	0
02-Jun-20	0	0	0	0	0	0	0	0	0	0	0
03-Jun-20	0	0	0	0	0	0	0	0	0	0	0
04-Jun-20	0	0	0	0	0	0	0	0	0	0	0
05-Jun-20	0	0	0	0	0	0	0	0	0	0	0
06-Jun-20	0	0	0	4	6	76	92	205	235	0	0
07-Jun-20	0	0	1	2	13	1	0	5	0	0	0
08-Jun-20	0	0	0	0	0	0	0	0	0	0	0
09-Jun-20	0	0	0	0	0	0	0	0	0	0	0
10-Jun-20	0	0	0	1	0	67	0	19	0	0	0
11-Jun-20	0	43	0	112	99	1	13	51	22	0	0
12-Jun-20	74	129	57	99	77	0	5	0	0	146	13
13-Jun-20	0	4	0	40	50	26	103	175	18	8	0
14-Jun-20	0	0	0	0	0	0	0	2	20	0	0
15-Jun-20	0	0	0	0	0	0	0	1	15	0	0
16-Jun-20	0	0	0	0	6	0	1	0	0	0	0
17-Jun-20	0	0	27	17	22	0	0	0	0	0	6
18-Jun-20	0	0	0	0	0	0	0	0	1	0	0
19-Jun-20	0	0	0	0	0	0	0	0	0	0	0
20-Jun-20	0	0	0	0	0	0	0	0	0	0	0
21-Jun-20	0	0	0	0	0	0	0	0	0	0	0
22-Jun-20	0	0	0	0	0	0	0	0	0	0	0
23-Jun-20	0	0	0	0	0	0	0	0	0	0	0
24-Jun-20	0	0	0	0	0	0	0	0	0	0	0
25-Jun-20	0	0	0	0	0	0	0	0	3	0	0
26-Jun-20	0	0	0	0	0	0	0	0	0	0	0
27-Jun-20	0	0	0	0	0	0	0	0	0	0	0
28-Jun-20	0	0	0	0	1	0	0	0	1	0	0
29-Jun-20	0	0	5	40	106	17	1	13	15	21	0
30-Jun-20	0	0	0	0	9	0	17	2	20	0	0
01-Jul-20	0	0	0	0	0	0	0	0	0	0	0
02-Jul-20	0	0	0	0	0	0	0	0	0	0	0
03-Jul-20	0	0	0	0	0	0	0	0	0	0	0
04-Jul-20	0	0	0	0	0	0	0	0	0	0	0
05-Jul-20	0	0	0	0	0	0	0	0	0	0	0
06-Jul-20	0	0	0	0	0	0	0	0	0	0	0
07-Jul-20	0	3	1	26	101	13	110	111	26	0	0
08-Jul-20	0	0	0	0	0	0	0	0	0	0	0



09-Jul-20	0	0	0	0	0	0	0	0	0	0	0
10-Jul-20	0	0	0	0	0	8	9	1	160	0	0
11-Jul-20	0	0	0	0	0	0	0	0	0	0	0
12-Jul-20	0	0	0	0	0	0	0	0	0	0	0
13-Jul-20	0	0	0	0	0	0	0	0	0	0	0
14-Jul-20	0	0	0	0	0	0	0	0	0	0	0
15-Jul-20	0	0	0	0	0	0	0	0	0	0	0
16-Jul-20	0	0	0	0	0	0	0	0	0	0	0
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18-Jul-20	0	0	0	0	0	0	0	0	0	0	0
19-Jul-20	0	0	0	0	0	0	0	0	0	0	0
20-Jul-20	0	0	0	0	0	0	0	0	0	0	0
21-Jul-20	0	0	0	0	0	0	0	0	0	0	0
22-Jul-20	0	0	0	0	0	7	0	0	0	0	0
23-Jul-20	0	0	0	1	0	39	0	0	2	0	0
24-Jul-20	0	0	0	0	0	13	0	0	0	0	0
25-Jul-20	0	0	0	0	0	0	0	0	0	0	0
26-Jul-20	0	0	0	0	0	0	0	0	0	0	0
27-Jul-20	0	0	0	0	0	0	0	0	0	0	0
28-Jul-20	2	18	0	16	8	4	0	4	0	0	0
29-Jul-20	0	50	0	55	0	76	2	122	49	0	0
30-Jul-20	2	0	0	1	10	19	4	202	22	0	0
31-Jul-20	0	0	0	0	0	0	0	0	0	0	0
01-Aug-20	0	0	0	0	0	0	0	0	0	0	0
02-Aug-20	0	0	0	0	0	0	0	0	0	0	0
03-Aug-20	0	0	0	0	0	0	0	0	0	0	0
04-Aug-20	0	0	0	0	0	0	0	0	0	0	0
05-Aug-20	0	0	0	0	0	0	0	0	0	0	0
06-Aug-20	122	368	3	38	20	116	42	336	81	22	13
07-Aug-20	0	0	0	0	0	0	0	0	3	0	0
08-Aug-20	0	0	0	0	0	0	0	0	0	0	0
09-Aug-20	0	0	0	0	0	0	0	0	0	0	0
10-Aug-20	0	0	0	0	0	0	0	0	0	0	0
11-Aug-20	0	0	0	0	0	0	0	0	0	0	0
12-Aug-20	0	0	0	0	0	0	0	0	0	0	0
13-Aug-20	0	0	0	0	0	0	0	0	0	0	0
14-Aug-20	0	0	0	0	0	0	0	0	0	0	0
15-Aug-20	0	0	0	0	0	0	0	0	0	0	0
16-Aug-20	0	0	0	0	0	0	0	0	0	0	0
17-Aug-20	51	80	8	80	15	1	0	29	0	3	0
18-Aug-20	62	0	2	138	513	132	0	56	96	11	0
19-Aug-20	0	0	0	73	85	126	364	258	389	0	0

20-Aug-20	0	0	0	0	1	0	16	0	7	0	0
21-Aug-20	0	0	0	0	0	0	0	0	0	0	0
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23-Aug-20	0	0	0	0	0	0	0	0	0	0	0
24-Aug-20	0	0	0	0	0	0	0	0	0	0	0
25-Aug-20	0	0	0	13	0	32	0	0	0	0	0
26-Aug-20	0	0	0	3	0	12	0	72	44	0	0
27-Aug-20	0	0	0	0	0	15	0	0	7	0	0
28-Aug-20	0	0	0	0	0	0	0	0	0	0	0
29-Aug-20	0	0	0	0	0	0	0	0	0	0	0
30-Aug-20	0	0	0	0	0	0	0	0	0	0	0
31-Aug-20	0	0	0	0	0	0	0	0	0	0	0
01-Sep-20	0	0	0	0	0	0	0	0	0	0	0
02-Sep-20	0	0	0	0	0	0	0	0	0	0	0
03-Sep-20	0	0	0	0	0	0	0	0	0	0	0
04-Sep-20	0	0	0	0	0	0	0	0	0	0	0
05-Sep-20	0	0	0	0	0	0	0	0	0	0	0
06-Sep-20	0	0	0	0	0	0	0	0	0	0	0
07-Sep-20	0	0	0	0	0	0	0	0	0	0	0
08-Sep-20	0	0	0	0	0	0	0	0	0	0	0
09-Sep-20	0	0	0	0	0	0	0	0	0	0	0
10-Sep-20	0	0	0	0	0	0	0	0	0	0	0
11-Sep-20	0	0	0	0	0	0	0	0	0	0	0
12-Sep-20	0	0	0	0	0	0	0	0	0	0	0
13-Sep-20	0	0	0	0	0	0	0	0	0	0	0
14-Sep-20	0	0	0	0	0	0	0	0	0	0	0
15-Sep-20	0	0	0	0	0	0	0	0	0	0	0
16-Sep-20	0	0	0	0	0	0	0	0	0	0	0
17-Sep-20	0	0	0	0	0	0	0	0	0	0	0
18-Sep-20	0	0	0	0	0	0	0	0	0	0	0
19-Sep-20	20	20	28	40	27	28	0	71	47	0	6
20-Sep-20	0	0	0	0	0	0	0	0	2	0	0
21-Sep-20	0	0	0	0	0	0	0	0	0	0	0
22-Sep-20	0	0	0	0	0	0	0	0	0	0	0
23-Sep-20	0	0	0	0	0	0	0	0	0	0	0
24-Sep-20	0	0	0	0	0	0	0	0	0	0	0
25-Sep-20	0	0	0	0	0	0	0	0	0	0	0
26-Sep-20	0	0	0	0	0	0	21	0	3	0	0
27-Sep-20	0	0	0	0	0	0	0	0	0	0	0
28-Sep-20	0	0	0	0	0	0	0	0	0	0	0
29-Sep-20	0	0	0	0	0	0	0	0	0	0	0
30-Sep-20	0	0	0	0	0	0	0	0	0	0	0

# Red Flag Warning Events and Verification

Date	Zones	Reason	Verification	Lead Time
June 26	OR641	Wind/Low RH	Missed Event	.
June 27	WA641, WA675, OR641 <i>All zones preceded by a watch</i>	Wind/Low RH	Yes—WA641 and OR641 No—WA675	5.52 hrs.
July 11	WA641, WA675, OR641 <i>All zones preceded by a watch</i>	Wind/Low RH	Yes--All	25.17 hrs.
July 16	OR641	Wind/Low RH	Missed Event	
July 27- 28	OR611, OR640, OR642, OR644, OR645 <i>All zones except OR645 preceded by a watch</i>	Abundant Lightning	Yes--All	25.91 hrs.
July 30- 31	WA643, OR643, OR644, OR645 <i>All zones preceded by a watch</i>	Abundant Lightning	No--All	
July 31	OR644 (ext)	Abundant Lightning	No	
July 31	WA639, WA641, WA675, OR639, OR641	Wind/Low RH	Yes—WA641, WA675, and OR641 No—WA639 and OR639	8.12 hrs.
August 1	OR641	Wind/Low RH	No	
August 5- 6	OR610, OR611, OR642, OR643, OR644, OR645	Abundant Lightning	Missed Event	

August 11	WA639, WA641, WA675, OR610, OR639, OR640, OR641 <i>All zones except OR610 preceded by a watch</i>	Wind/Low RH	Missed Event— OR610  Yes—All other zones	20.68 hrs.
August 16	*OR610, OR611, *OR639, OR640, OR641 *OR642, OR643, OR644, OR645 <i>*Zones preceded by a watch</i>	Abundant Lightning	Yes—OR610, OR611, OR639, OR640, OR642, OR644  No—OR641, OR643, and OR645	25.48 hrs.
August 17	OR641, OR642 (ext), OR644 (ext), WA643, WA645	Abundant Lightning	Yes—OR642 and OR644 Missed Event— OR641, WA643, WA645	18.10 hrs.
August 24	WA643, WA645, OR611, OR640, OR642, OR643, OR644, OR645 <i>All zones preceded by a watch</i>	Abundant Lightning	Yes—OR642 and OR645  No—WA643, WA645, OR611, OR640, OR643, OR644, OR645	32.90 hrs.
August 29	WA639, WA641, WA675, WA681, OR610, OR639, OR640, OR641 <i>All zones preceded by a watch</i>	Wind/Low RH	Yes—WA641, WA675, OR610, OR640, OR641  No—WA639, WA681, OR639	32.13 hrs.
Sept. 7-8	WA639, WA641, WA675, WA681, OR610, OR611, OR639, OR640, OR641, OR642	Wind/Low RH	No—WA681 and OR611  Yes—All other zones	38.77 hrs.
				Average: 21.61 hrs.

## 2020 RED FLAG WARNING TOTALS

TOTAL # OF WARNINGS	65	POD	0.78
TOTAL # OF EVENTS	54	FAR	0.35
VERIFIED WARNINGS	42	CSI	0.55
MISSED WARNINGS	12	ALT (Min)	1296.87
UNVERIFIED WARNINGS	23	ALT (Hrs)	21.61
WATCHES ISSUED	70	Total Min	70031
VERIFIED WATCHES	34		
WARNINGS PRECEDED BY WATCHES	53		

## 2020 RED FLAG WARNING SYNOPTIC TOTALS

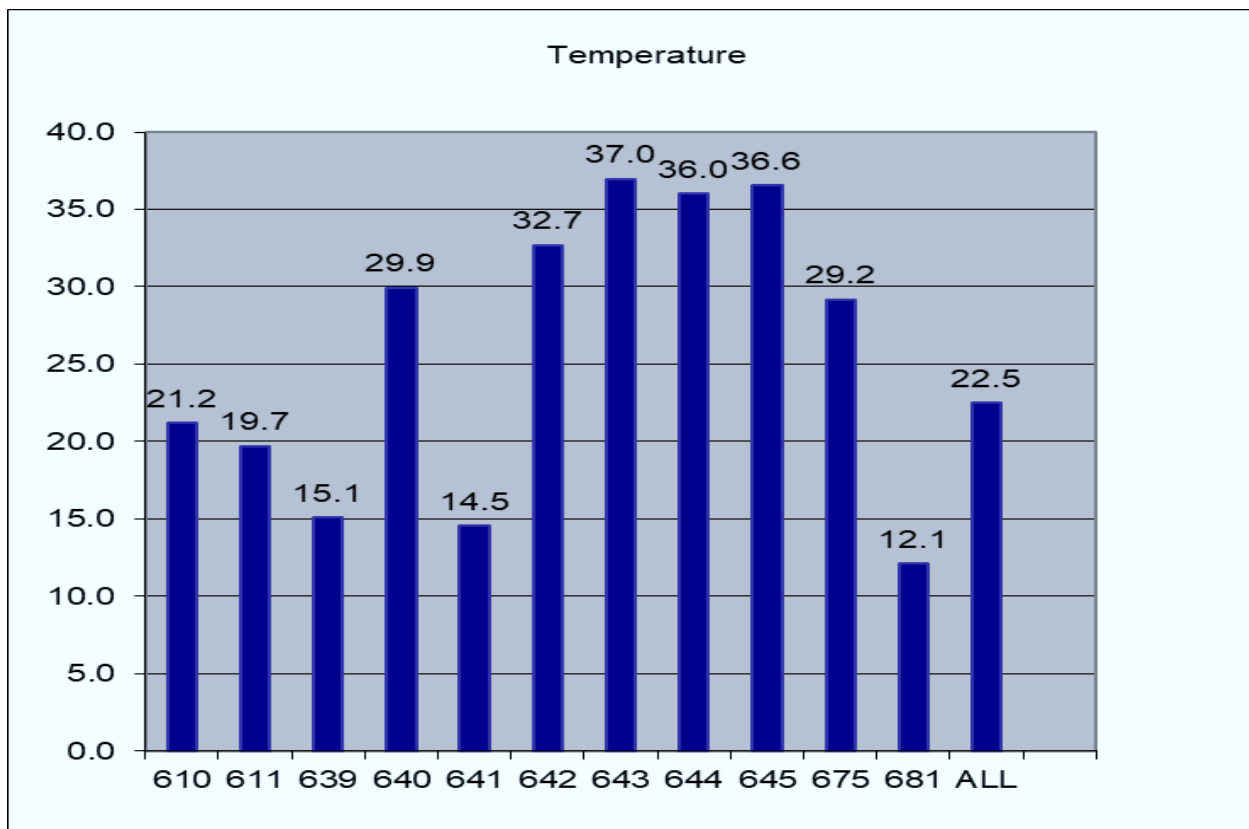
TOTAL # OF WARNINGS	36	POD	0.90
TOTAL # OF EVENTS	30	FAR	0.25
VERIFIED WARNINGS	27	CSI	0.69
MISSED WARNINGS	3	ALT (Min)	1464.07
UNVERIFIED WARNINGS	9	ALT (Hrs)	24.40
WATCHES ISSUED	36	Total Min	43922
WARNINGS PRECEDED BY WATCHES	30		

## 2020 RED FLAG WARNING DRY T-STORM TOTALS

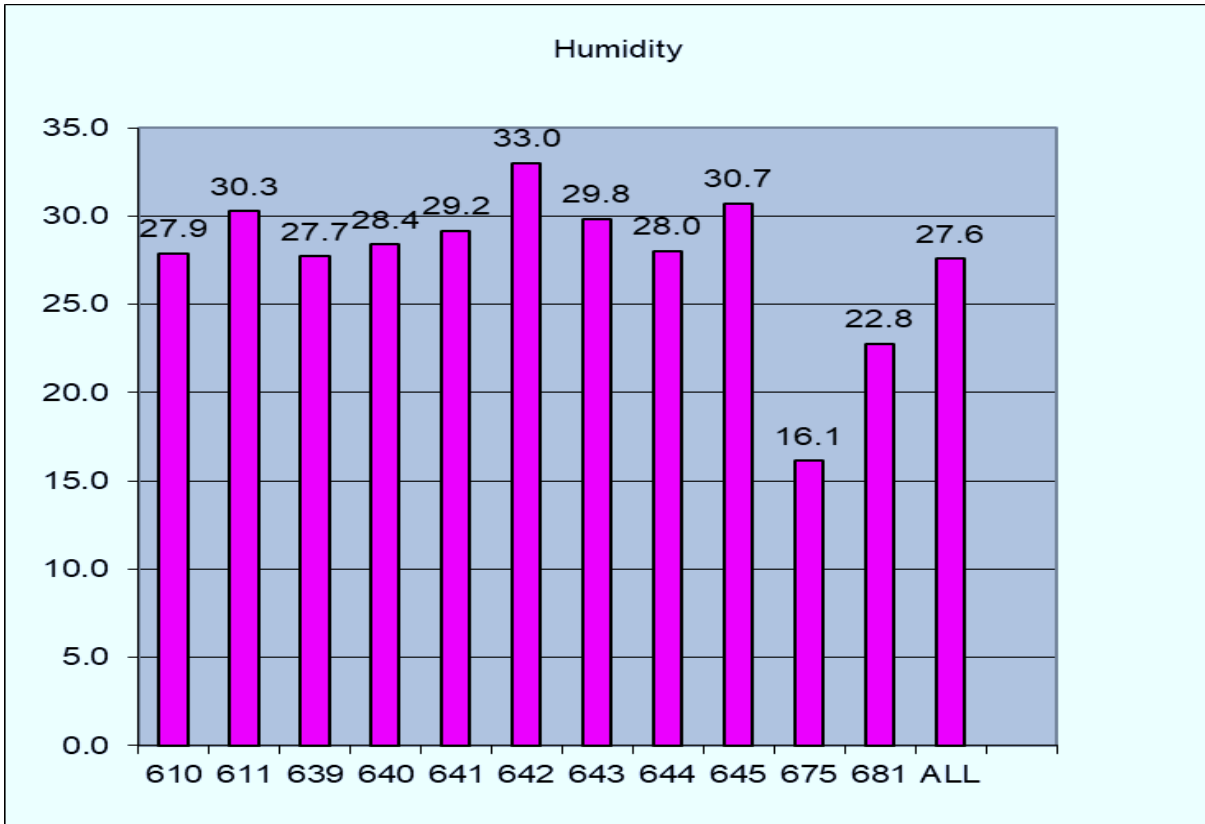
TOTAL # OF WARNINGS	29	POD	0.63
TOTAL # OF EVENTS	24	FAR	0.48
VERIFIED WARNINGS	15	CSI	0.39
MISSED WARNINGS	9	ALT (Min)	1087.88
UNVERIFIED WARNINGS	14	ALT (Hrs)	18.13
WATCHES ISSUED	34	Total Min	26109
WARNINGS PRECEDED BY WATCHES	23		

# National Fire Danger Rating System (NFRDS) Verification

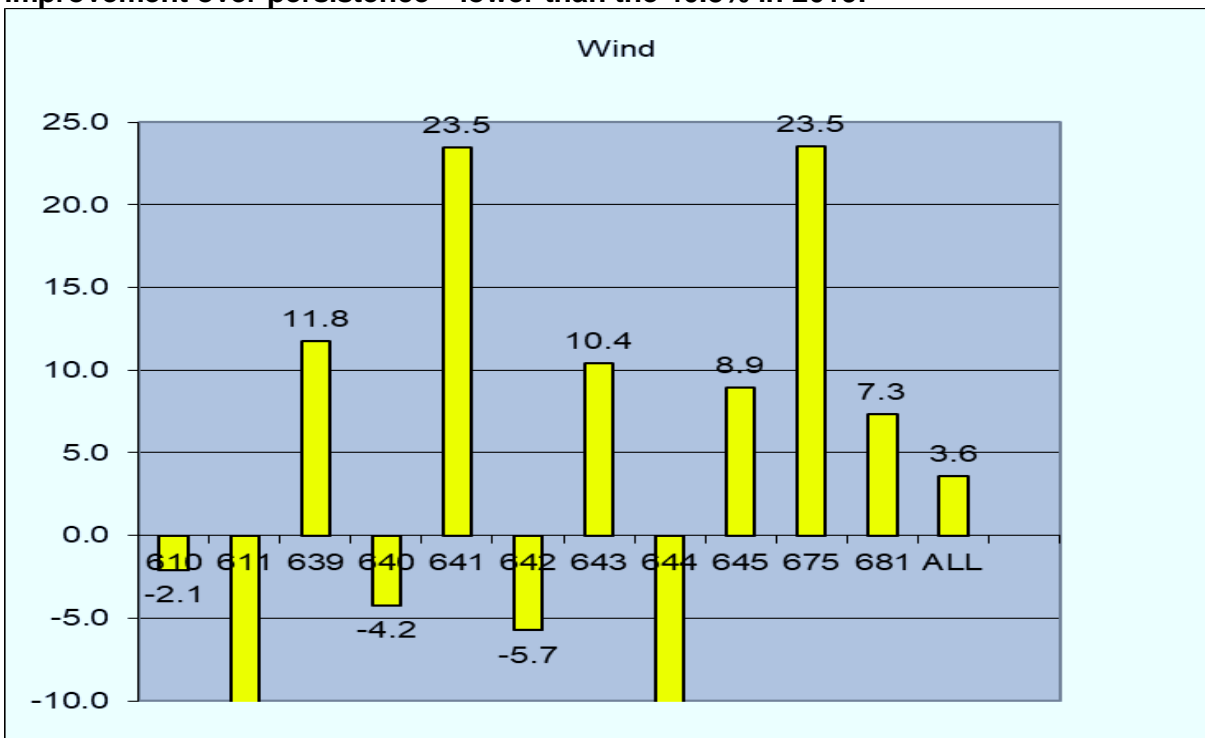
National Weather Service Offices provide input into the National Fire Danger Rating System via next day forecasts covering a variety of weather and weather related elements. Forecast comparisons against actual observations taken the following day at 1300 PST (1400 PDT) determine the amount of error with 1 point counted for each degree or mph of difference. The following charts show NWS Pendleton forecast percentage improvement over a persistence forecast for temperature, relative humidity, and wind speed averaged across each zone followed by the average of all stations in the final column. The June 1 through September 30 time frame is covered.



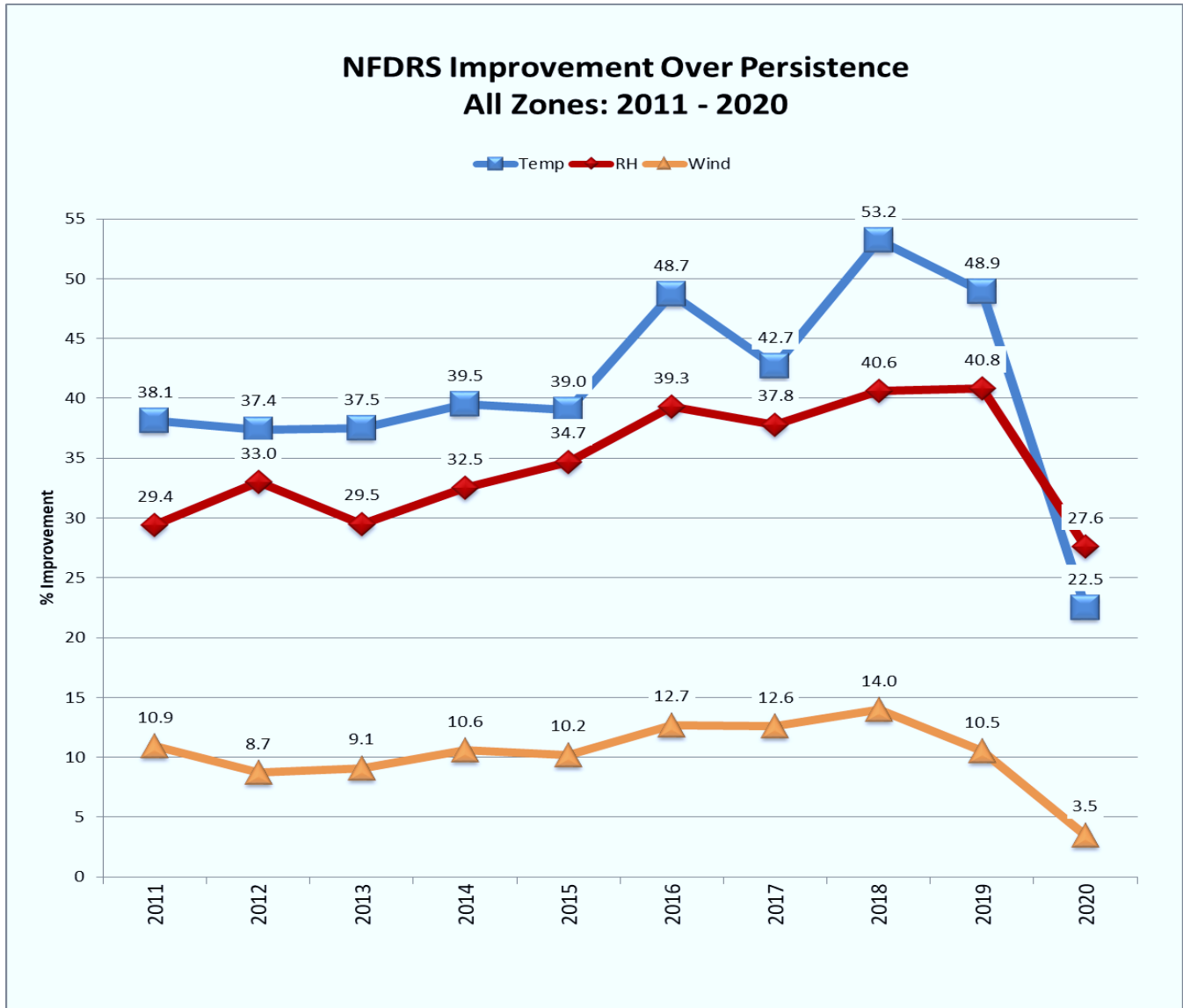
Temperature verification (above) for the entire Pendleton forecast area in 2020 was 22.5% improvement over persistence—lower than the 48.9% in 2019.



Relative humidity verification (above) for the entire Pendleton forecast area in 2020 was 27.6% improvement over persistence—lower than the 40.8% in 2019.



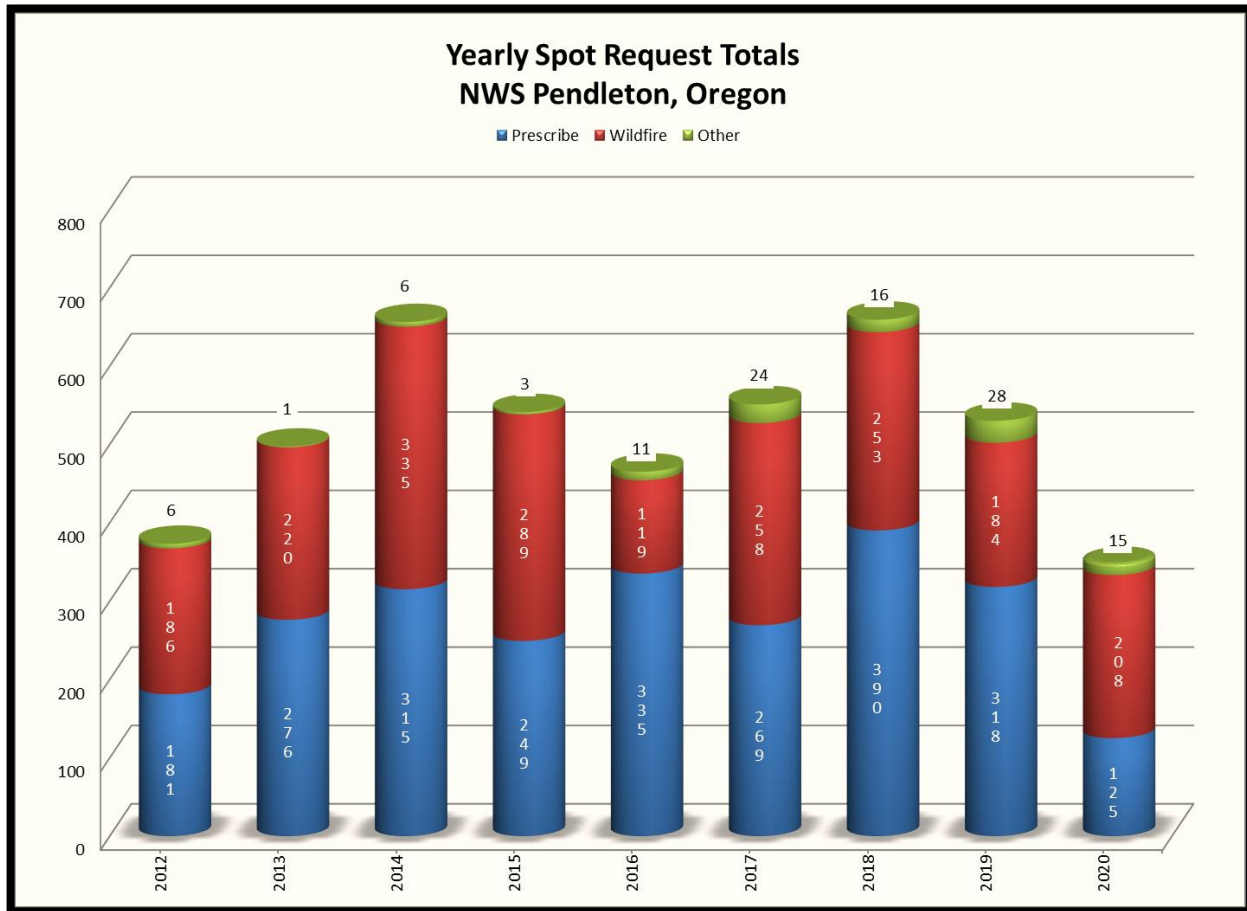
Wind speed verification (above) for the entire Pendleton forecast area in 2020 was 3.6% improvement over persistence—lower than the 10.5% in 2019.



10-year trend graph (above) showing forecast improvement over persistence for NFDRS forecasts. There was a significant decline in verification for all three elements—temperature, humidity, and wind—in 2020. The purpose for verifying is to find strengths and weaknesses in an office’s forecasting skills, and further investigation will be taken to determine the reason for this decline.



# Spot Forecasts



The chart above shows the 10-year trend of spot forecasts issued by the Pendleton office. The total number of spot forecasts (348) issued by the Pendleton weather office this year was the lowest number in ten years. However, the number of spot forecasts for wildfires was greater than 2019. Spot forecasts for prescribed burns were exceptionally low in 2020, likely due to the mitigations taken to prevent the spread of COVID-19. The “other” spot forecasts include HAZMAT, Search-and-Rescue, and event-driven spots.

# IMET Dispatches

Incident Meteorologists (IMET) provide on-site support for a variety of incidents where weather forecast and monitoring information are essential to emergency responder safety. The IMET dispatches from NWS Pendleton this year were 37 days on incident. Assignments are listed below.

## IMETS WITHIN WFO PENDLETON'S FORECAST AREA IN 2020

Dates	IMET(WFO)	Incident	Nearest Location
Aug 14-19	Wister (PDT)	Mosier Creek	Mosier, OR
Aug 19-Sept 1	Bonk (PQR)	Green Ridge	Sisters, OR
Aug 20-29	Wister (PDT)	Indian Creek	Vale, OR
Aug 22-28	Fox (OTX)	Frog Fire	Sisters, OR
Aug 22-Sep 1	Bower (SEW)	Meacham Complex	20E of Mission
Aug 26-Sep 5	Messick (PIH)	P515 and Lionshead	Warm Springs, OR
Aug 28-Sep 8	Nester (MSO)	White River	Tygh Valley, OR
Sep 4-26	Wister (PDT)	Lionshead	Warm Springs, OR
Sep 8-10	Nester (MSO)*	* Bob Nester's team relocated from White River to Lionshead	
Sep 26-Oct 7	Gilchrist (GGW)		
Oct 7-15	Redman (BOI)		

**Note:** The P515 fire and Lionshead was under one IMT beginning September 6. The Type 1 team at White River relocated to Lionshead on September 8. The team took on the responsibility of White River, P515, and Lionshead until White River was given back to the local team on September 13.

## Training and Outreach Activities

Training and outreach continues to be an important part of the fire weather program at NWS Pendleton. The following table lists training and activities for 2020. Outreach activities were limited or held via video conferencing due to mitigation efforts to reduce the spread of COVID-19

Date(s)	Forecaster(s)	Activity	Location
January 13	Wister	S-390	Bend, OR
January 29	Wister	CTUIR Smoke Management	Pendleton, OR
March 11	Wister	Virtual IMET CEE workshop	via teleconference
April 9	Wister	Northern Blue Mtns cooperators meeting	via teleconference
May 5	Wister	Refresher training for Grande Ronde Rappel crew	via teleconference
May 6	Wister	Refresher training for Malheur Rappel crew	via teleconference



APRIL 11, 2023

Greg Larkin/1010  
Greg Larkin/1

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In The News   Labor Day wildfire lawsuits   Team Jewish Roller Derby   Legislative session   Wind energy study   Portland for

WILDFIRE

# PacifiCorp liability for Labor Day fires revealed through newly found texts, plaintiffs’ attorneys allege



By [Ryan Haas](#) (OPB)  
March 1, 2023 6:28 a.m.



STREAMING NOW  
BBC Discovery

The charred remains of a home burned in the Santiam Fire near Gates, Ore., Sept. 9, 2020.

*Bradley W. Parks / OPB*

As devastating wildfires began to spread in Oregon the day after Labor Day 2020, PacifiCorp senior transmission engineer Tyler Jones texted his co-worker.

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“This weather is crazy man,” wrote Jones, using the company’s Skype messenger service.

“90 mph gusts haha,” replied Pavel Grechanuk, a PacifiCorp fire data scientist. “That will blow your socks off.”

The pair exchanged messages sporadically for the next 45 minutes, marveling at the east winds and joking about wildfires that would go on to kill at least nine people, destroy thousands of homes and burn more than 1 million acres.

“God the fires near our service territories are right underneath our lines....,” Grechanuk wrote, noting the company’s equipment was near some of the earliest starting points of the fires.

“Lol,” Jones replied. “Ugh. Man this is going to get crazy.”

After sharing a few more messages and images of the thick black smoke pouring across Oregon, Grechanuk again worried that PacifiCorp might have played a part in starting the blazes.

“God I just hope it was another baby shower and not us,” he typed, possibly referring to the El Dorado Fire in California, which [ignited Sept. 5, 2020, after a couple shot off a smoke device during a gender reveal party](#).

Attorneys in a class action lawsuit for people harmed by the Labor Day fires in Oregon say the messages and other evidence presented in a court filing Tuesday show PacifiCorp knew early on it likely played a role in starting the fires. OPB has previously reported on [911 calls that indicated people living near Gates, Oregon, witnessed sparking power lines](#) around the time the fires began.

The lawyers also allege in their motion that PacifiCorp willfully destroyed evidence that might show its involvement, and that the company has used delay tactics to prevent plaintiffs in the case from gathering key evidence ahead of a planned trial April 24.

PacifiCorp [has paid out millions of dollars in settlements](#) before [related to wildfires in Oregon](#) – including [as recently as November](#) for its alleged role in the 2020 Archie Creek Fire in Southern Oregon – but the class action lawsuit could have major financial repercussions. It alleges the corporation, a subsidiary of the investment company Berkshire Hathaway, should be liable for the destruction caused by the Santiam Canyon, Echo Mountain, South Obenchain and 242 fires.

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In each of those fires, attorneys for the class action plaintiffs say PacifiCorp has either destroyed or intentionally delayed handing over evidence pointing to their involvement.



PacifiCorp [did have a plan](#) for shutting off power for public safety during high winds, low humidity and dry vegetation in 2020, but company officials [told The Salem Journal-Statesman](#) they did not initiate that plan in Gates and surrounding communities because those areas weren't in the company's designated "Public Safety Power Shutoff" zone. Messages between Jones and Grechanuk show them talking about "PSPS thresholds" in another area hit by fires.

Tuesday's court filing says the company knew Skype messages like the ones Jones and Grechanuk exchanged would show PacifiCorp employees talking in real time during the Labor Day fires. Still, the company did not force its employees to retain these messages as part of any future legal proceedings, according to the attorneys.

The exchanges between Jones and Grechanuk were only preserved when an email program synced with Skype in an unplanned event. Attorneys in the case say they still don't know if other messages exist or if PacifiCorp completely destroyed them when it decommissioned a computer server in March 2021 that handled the messages.

The attorneys also collected testimony from North Lincoln Fire & Rescue Chief Robert Dahlman, who said that in the week after the Labor Day fires, Pacific Power workers repeatedly crossed fire lines near Otis, Oregon, to carry out power repairs after Dahlman and other firefighters told them not to.

"PacifiCorp and their contractors multiple times crossed through our closed areas and went back in to repair their equipment. And it came to a head with the overall incident commander and myself," Dahlman said during a deposition ahead of the trial.

Pacific Power workers then destroyed poles, power lines and vegetation, the attorneys allege, despite a fire investigation that was underway.

"PacifiCorp testified that the damaged equipment associated with the Santiam Canyon Fire 'was taken to one or two spots and then probably taken to a dump,' before any investigation was undertaken," the attorneys wrote.

The plaintiffs' attorneys also allege that PacifiCorp knew and intended to use its power shutoff system to prevent

about trees near the starting point of the 242 Fire during a Jan. 27 deposition, an attorney for the plaintiffs pressed claims adjuster Marlow Vass on how much preparation she had done to review the thousands of documents related to the lawsuit.

“I would say about three to four hours,” Vass replied.

Neither the attorneys bringing the class action lawsuit, nor PacifiCorp provided comment for this article, citing the pending litigation. PacifiCorp has denied any wrongdoing in its court filings.

Still, the company has changed some of its practices since the fires. Last year, PacifiCorp announced a [plan to spend more than \\$400 million on wildfire safety](#) improvements to reduce the risk of power lines sparking fires during extreme weather.

Because issues around evidence have come up before in the class action lawsuit, and because the April trial is rapidly approaching, attorneys for the plaintiffs in the case have asked Multnomah County Judge Steffan Alexander to sanction PacifiCorp while finding its actions “willful, bad faith, or of similar magnitude.”

The lawyers also want Alexander to throw out PacifiCorp’s denials of its liability in the Labor Day fires, and potentially make a final determination on the power company’s role.

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**Tags:** [Wildfire](#), [Pacifcorp](#), [Oregon](#)



IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	APPLICATION OF ANNE
	)	MORRISON, ATTORNEY, TO
v.	)	APPEAR AS <i>AMICUS CURIAE</i>
	)	IN SUPPORT OF
OREGON DEP'T OF	)	PETITIONER'S PETITION FOR
ENERGY, OREGON	)	EXPEDITED REVIEW
ENERGY FACILITY	)	
SITING COUNCIL, and	)	
IDAHO POWER	)	
COMPANY	)	EXPEDITED JUDICIAL
<i>Respondents</i>	)	REVIEW UNDER ORS 469.403
	)	

**APPLICATION**

Pursuant to ORAP 8.15, Anne Morrison respectfully applies to appear before the Oregon Supreme Court as *Amicus Curiae*, in support of the Expedited Petition for Review filed in this matter. Anne Morrison intends to present in this Brandeis brief an essential background for this case that does *not* affect a private interest of her own. ORAP 8.15(1)(a).

Anne Morrison is aligned with the STOP B2H COALITION, the Petitioner on review before this court. ORAP 8.15(1)(b).

The deadline that is relevant to the timeliness of this *Amicus* application is December 20, 2020. ORAP 8.15(1)(c). This application is

timely because it was filed within 14 days of the filing of the Petition for Review (filed on December 6, 2020). ORAP 8.15(1)(d); ORAP 8.15(5)(b).

Anne Morrison is a retired attorney and a decades-long resident of eastern Oregon who speaks as a private citizen to voice her concern regarding the process by the Energy Facility Siting Council has issued a site certificate for the Boardman to Hemingway transmission, as resulting from multiple flawed actions by an ethically compromised state agency. As an attorney, *amicus* knows that it is critical to the function of a democratic government that government agencies represent the interests of a state's own residents, and that those interests are jeopardized when an agency's allegiance is compromised because it receives substantial funding directly from the entities which that agency is expected to regulate.

If allowed to appear, Anne Morrison will work to assist this Court in considering the background of and the process by which the site certificate has been issued, as well as the fact that the Oregon Department of Energy, which is statutorily mandated to protect the health and welfare of the people of the state of Oregon and to comply with Oregon's environmental policies enacted to protect the natural resources of the state, has been compromised as a state agency,

because it has received over \$4 million from applicant Idaho Power

Company for its work to assist applicant in obtaining the Boardman to

Hemingway Site Certificate.

Pursuant to ORAP 8.15(3) Anne Morrison's proposed *Amicus* Brief in support of the Petition for Expedited Review is filed concurrently with this application, and that Brief complies with the requirements of <sup>[L]</sup><sub>[SEP]</sub>ORAP 8.15.

Anne Morrison respectfully requests that this Court grant its application to appear before the Supreme Court as *Amicus Curiae* on this matter.

Dated: December 20, 2022.

Respectfully submitted,

s/ Anne Morrison

Anne Morrison, OSB #891510

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*for proposed Amicus Anne Morrison*

## **CERTIFICATE OF FILING AND SERVICE**

I hereby certify that on December 20, 2022 I filed this Application of Anne Morrison To Appear as *Amicus Curiae* in Support of Petition for Review by electronic filing.

I hereby certify that on December 20, 2022, I filed the foregoing Application to Appear as *Amicus Curiae* with the Appellate Court Administrator by electronic filing, using the court's eFiling system.

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I additionally certify that on December 20, 2022 I served a true and correct copy of this Application to Appear as *Amicus Curiae* upon Jocelyn Claire Pease, attorney for respondent Idaho Power Company,

by mailing such in an envelope with prepaid first-class postage

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DATED: December 20, 2022.

/s/ Anne Morrison  
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For Proposed Amicus Curiae

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IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	AMICUS BRIEF OF ANNE
	)	MORRISON IN SUPPORT OF
v.	)	PETITIONER'S PETITION FOR
	)	EXPEDITED REVIEW
OREGON DEP'T OF	)	
ENERGY, OREGON	)	
ENERGY FACILITY	)	
SITING COUNCIL, and	)	EXPEDITED JUDICIAL
IDAHO POWER	)	REVIEW UNDER ORS 469.403
COMPANY	)	
<i>Respondents</i>	)	

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## I. INTRODUCTION

Anne Morrison, *amicus*, submits this Brandeis brief on the fundamental issue raised by the Stop B2H Coalition and individual petitioners: whether the Energy Siting Facility Council (EFSC, or Council) erred in issuing a site certificate for the Boardman-to-Hemingway transmission line. *Amicus* submits this Brandeis brief to provide a broader context for the appeals of the decision to issue a site certificate for the B2H transmission line, now pending before this Court.

As a decades-long resident of eastern Oregon, *amicus* speaks as a private citizen to voice her concern regarding EFSC's issuance of a site certificate for the 300-mile, five county-long B2H line, as resulting from multiple flawed actions by an ethically compromised state agency. As a retired attorney, *amicus* knows that it is critical to the function of a democratic government that government agencies represent the interests of a state's own residents, and that those interests are jeopardized when an agency's allegiance is compromised because it receives substantial funding directly from the entities which that agency is expected to regulate.

The EFSC's decision to issue a siting certificate allowing construction of the B2H transmission line raises the broader issue: When a state agency abandons its statutory obligation to protect the

interests of Oregon residents, and instead uses its vast resources against the interests of Oregonians who are not positioned to challenge corporate and agency interests, *who represents the interests of everyday Oregonians?*

Consideration of this question should guide this court in deciding this case, as discussed below.

## II. BACKGROUND

From its inception, the B2H project has been controversial and hotly contested. Opponents have raised numerous concerns,<sup>1,2</sup> including whether the line is actually needed or being built merely because extant provisions of the 1936 Rural Electrification Act guarantee utilities an automatic 10%, rate-payer-paid return on the cost of constructing energy

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<sup>1</sup> See, e.g., Todd Brown, *Regulate Eminent Domain*, The [La Grande] Observer, Sept. 14, 2010; Cherise Kaechele, *Union County Commissioners Approve, Appoint B2H Advisory Committee*, The [La Grande] Observer, Dec. 16, 2015; Jayson Jacoby, *B2H Battle: Officials Try to Limit Effects of Proposed Power Line*, The [La Grande] Observer, Dec 1, 2016; Cherise Kaechele, *County, City Hold Joint Session; Commissioners, Councilors Meet to Discuss B2H*, The [La Grande] Observer, Aug 2, 12017; Erick Peterson, *Power Play: In the Path of the New Eastern Oregon Transmission Line*, Capital Press, Feb 12, 2022.

These small newspapers do not have hyperlinks to their articles, but the articles can be accessed by typing the titles into a search engine.

<sup>2</sup> ODOE - B2HAPPD2-1 Proposed Order on ASC w Hyperlink Attachments 2019-07-02, Attachment 2: DPO Comment Index and DPO Comments.  
(<https://onedrive.live.com/?authkey=%21AEBE%2Dm62XANUTiQ&cid=026041F18E096594&id=26041F18E096594%215420&parId=26041F18E096594%215419&o=OneUp>)

facilities. Coley Girouard, *How Do Electric Utilities Make Money?*, Apr 28, 2015, <https://blog.aee.net/how-do-electric-utilities-make-money>.

Those concerns are heightened when the line is proposed at a time when America's energy system is poised to transition from the traditional grid system epitomized by high-voltage transmission into one which relies on local systems to distribute local sources of energy, decreasing the need for traditional transmission lines.<sup>3</sup>

Opponents have also voiced concerns about the proposed B2H line when the traditional energy industry has been widely accused of

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<sup>3</sup> See, e.g., Dameon Pesanti, *BPA Drops I-5 Corridor Reinforcement Project*, May 18, 2017, <https://www.columbian.com/news/2017/may/18/bpa-drops-i-5-corridor-project-transmission-line/>; Todd Woody, *An Experimental Green Suburb Rises in Riverside County. Is it the Future of Single-Family Housing?*, Nov. 26, 2022, <https://www.latimes.com/business/story/2022-11-26/is-this-experimental-green-suburb-the-future-of-single-family-housing>; Lisa Cohn, *What are Non-Wire Alternatives?* June 21, 2019, <https://www.microgridknowledge.com/about-microgrids/article/11429614/what-are-non-wires-alternatives>; Catherine Von Burg, *Microgrids to Provide Energy Resilience Beyond Transmission Lines*, 2018, <https://www.batterypoweronline.com/articles/microgrids-to-provide-energy-resilience-beyond-transmission-lines/>; Erica Gies, *Microgrids Keep These Cities Running When the Power Goes Out*, Dec 4, 2017, <https://microgridknowlwdgw.com/news/04122017/microgrid-emergency-power-backup-renewable-energy-cities-electric-grid/>; Elisa Wood, *How Many Hurricanes Must Slam the Grid Before We Get the Message?*, Sept 2, 2021, <https://www.microgridknowledge.com/editors-choise/article/11427757/how-many-hurricanes-must-slam-the-grid-before-we-get-the-message>.

actively impeding the change to green power for financial gain.<sup>4</sup> It is significant that the line would serve only as a conduit for transporting electrical power to Idaho residents, while causing significant damage to Oregon's own resources and the interests of affected Oregon property owners. The line is not an energy source and generates no power. Energy still must be purchased and transmitted, raising electrical rates across the region.

### **III. OREGON LAW CREATES A PARTICULAR POTENTIAL FOR UNDUE INDUSTRY INFLUENCE.**

#### **A. Corruption in the energy industry, including undue industry influence on legislators and regulators, has been a growing nationwide concern.**

The past decade has seen growing numbers of reports regarding corruption in the energy industry.<sup>5</sup> In 2021, the energy/natural resources

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<sup>4</sup> Mario Alejandro Ariza, Miranda Green, Annie Martin, *Leaked: US Power Companies Secretly Spending Millions to Protect Profits and Fight Clean Energy*, July 2022, <https://www.theguardian.com/environment/2022/jul/27/leaked-us-leaked-power-companies-spending-profits-stop-clean-energy?>

<sup>5</sup> The number of articles addressing this issue is staggering. For a general overview, see generally, Leah Cardamore Stokes, *et.al.*, *Short Circuiting Policy: Interest Groups and the Battle Over Clean Energy and Climate Policy in the United States*, Oxford University Press (2020); Heather Payne, *Game Over: Regulatory Capture, Negotiation, and Utility Rate Cases in an Age of Disruption*, 52 U.S.F.L. Rev. 75, (2017); Adam Nix, Stephanie Decker, Carola Wolf, *Enron and the California Energy Crisis: The Role of Networks in Enabling Organizational Corruption*, January 12, 2022, <https://www.cambridge.org/core/journals/business-history-review/article/enron-and-the-california-energy-crisis-the-role-of->

industry was among the top five spenders for federal lobbying, paying out over \$307,000,000.<sup>6</sup> In multiple states, utilities have become embroiled in one corruption scandal after another.<sup>7</sup> Utilities have been implicated in corporate payouts, sometimes involving billions of dollars, made to secure legislators' votes on legislation favorable to the energy industries.<sup>8</sup> Major utilities have also been implicated in efforts to mislead

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[networks-in-enabling-organizational-corruption/457B1E245C6E6DE8903F531DD768D3F4.](https://www.opensecrets.org/news/reports/layers-of-lobbying/state-and-federal-lobbying)

<sup>6</sup> Dan Auble, Brendan Glavin and Pete Quist, *Layers of Lobbying: An Examination of 2021 State and Federal Lobbying from K Street to Main Street*, June 22, 2022, <https://www.opensecrets.org/news/reports/layers-of-lobbying/state-and-federal-lobbying>.

<sup>7</sup> See generally, Matt Kasper, *First Energy Scandal is Latest Example of Corruption, Deceit*, July 23, 2020, <https://www.energyandpolicy.org/utility-corruption/>; U.S. Attorney's Office, District of South Carolina, *Former SCANA Executive Pleads Guilty to Fraud Charges Tied to Failed SC Nuclear Project*, July 23, 2020, <https://www.justice.gov/usao-sc/pr/former-scana-executive-pleads-guilty-conspiracy-commit-mail-and-wire-fraud>; Jaclyn Diaz, *An Energy Company Behind A Major Bribery Scandal In Ohio Will Pay A \$230 Million Fine*, July 23, 2021, <https://www.npr.org/2021/07/23/1019567905/an-energy-company-behind-a-major-bribery-scandal-in-ohio-will-pay-a-230-million->; Justin Gillis, *When Utility Money Talks*, N.Y. Times, Aug. 2, 2020, <https://www.nytimes.com/2020/08/02/opinion/utility-corruption-energy.html>

<sup>8</sup> See, Justin Gillis, *supra*; Mary Ellen Klas, Nicholas Nehamas, Ana Claudia Chacin, *This Florida Utility's Secret Cash Helped GOP Win Gainesville State Senate Seat*, Aug. 8, 2022, <https://www.tampabay.com/news/florida-politics/2022/08/08/this-florida-utilitys-secret-cash-helped-gop-win-gainesville-state-senate-seat/>; Mary Ellen Klas, Nicholas Nehamas, *DeSantis Got \$25K from Nonprofit*

legislators, regulators, and the public; and to influence rulemaking, sometimes by placing industry-supported utility regulators in powerful agency positions. As a result, multiple major energy projects have failed, communities have seen the liability on their investments soar, and ratepayers have seen utility rates skyrocket.<sup>9</sup>

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*Secretly Funded by Florida Utility*, Sep. 7, 2022, <https://www.seattletimes.com/nation-world/nation-politics/desantis-got-25k-from-nonprofit-secretly-funded-florida-utility/>; Jason Garcia, *Man Behind 'Ghost' Candidate Cash also Led Dark-Money Group Supporting Florida's Big Utility Companies*, Oct 20, 2021, <https://www.orlandosentinel.com/news/os-ne-prem-senate-ghost-candidate-dark-money-utility-industry-20211020-sbve4xsyzvazne3qxnci4epxmi-story.html>; Mark Gillispe, Julie Carr Smyth, *A Year Out, \$60M Bribery Scandal Felt in Business, Politics*, July 19, 2021, <https://www.seattletimes.com/business/a-year-out-60m-bribery-scandal-felt-in-business-politics/>; Jaclyn Diaz, *An Energy Company Behind A Major Bribery Scandal In Ohio Will Pay A \$230 Million Fine*, July 23, 2021, <https://www.npr.org/2021/07/23/1019567905/an-energy-company-behind-a-major-bribery-scandal-in-ohio-will-pay-a-230-million->; Nate Monroe, *Florida Power & Light dominated the state. Now scandal darkens its future*, July 28, 2022, <https://news.yahoo.com/florida-power-light-dominated-state-205851312.html>, Akela Lacy, *Energy Companies Have Spent Billions on Projects That Go Nowhere*, August 7 2020, <https://theintercept.com/2020/08/07/nuclear-power-energy-utility-bribery-scandal/>; Mark Pischea, *Energy Corruption Not Just an Ohio Problem, It Is a Monopoly Problem*, September 4, 2020, <https://insidesources.com/energy-corruption-not-just-an-ohio-problem-it-is-a-monopoly-problem/>; Andrew J. Tobias, *FBI Raid Brings Scrutiny on Obscure but Powerful Ohio Energy Regulator*, Dec. 06, 2020, <https://www.cleveland.com/open/2020/12/fbi-raid-brings-scrutiny-on-obscure-but-powerful-ohio-energy-regulator.html>.

<sup>9</sup> Jeff Amy, *Georgia Nuclear Plant's Cost Now Projected to Top \$30B*, May 3, 2022, <https://www.usnews.com/news/best-states/florida/articles/2022-05-08/georgia-nuclear-plants-cost-now->

Industry analysts warn that the energy sector is particularly vulnerable to corruption because individuals in government have power over multi-million dollar decisions related to the siting, construction, and operation of the energy system.<sup>10</sup> Some analysts have discussed these issues in terms of “regulatory capture,” where the regulations guiding utility behavior become so complex and onerous that the utilities themselves become the experts and are largely trusted by legislators and public service commissions to steer policy. *Id.*<sup>11</sup>

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[forecast-to-top-30-billion](#); Ray Long, *ComEd to Give Back \$38 Million in Wake of Madigan Scandal, But Critic Says it Falls Short*, Aug 17, 2022, <https://www.chicagotribune.com/politics/ct-comed-returns-38-million-over-madigan-scandal-20220817-bctxrnaec5gvpgg64xh5gsh4ru-story.html>; Hannah Grover, *PRC Accuses PNM of Misleading Regulators, Requires Utility to Issue Rate Credits Upon San Juan Unit Closures*, June 30, 2022, <https://nmpoliticalreport.com/2022/06/30/prc-accuses-pnm-of-misleading-regulators-requires-utility-to-issue-rate-credits-upon-san-juan-unit-closure/>; Tracy Samilton, *Consumers Energy Seeks "Crippling" Wind Farm Tax Clawbacks from Tuscola County Schools*, November 13, 2022, <https://www.michiganradio.org/environment-climate-change/2022-11-13/consumers-energy-seeks-crippling-wind-farm-tax-clawbacks-from-tuscola-county-schools>.

<sup>10</sup> Matthias Ruth, *Corruption and the Energy Sector*, November 2002, [https://pdf.usaid.gov/pdf\\_docs/PNACT875.pdf](https://pdf.usaid.gov/pdf_docs/PNACT875.pdf); Pischea, *supra*.

<sup>11</sup> In the context of undue industry influence on legislation in other states, Oregon law generally requires appellate challenges to power lines sitings that involve tens of thousands of pages of documents and multiple agency hearings over many years, to be briefed, heard and decided within six months. ORS 469.403. In contrast, the normal appellate process for comparatively simple issues often allows years for cases to be briefed, argued and decided.



There is no reason why Oregon would be immune from the same powerful corrupting forces at play in other states, and ODOE has its own history of involvement in corruption scandals. In 2015, Governor John Kitzhaber resigned amid accusations that ODOE officials, including the Department's director, had urged a contractor to give a \$60,000 subcontract to Kitzhaber companion Cylvia Hayes, despite her marked lack of experience or qualifications, or the fact that Hayes' firm had scored lowest in ODOE's competitive bidding process.<sup>12,13</sup>

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<sup>12</sup> Benjamin Brink, *Documents Detail Oregon's Intervention in Subcontract for Cylvia Hayes, Companion of Gov. John Kitzhaber*, Jan 26, 2011, [https://www.oregonlive.com/politics/2011/01/documents\\_detail\\_states\\_interv.html](https://www.oregonlive.com/politics/2011/01/documents_detail_states_interv.html); Nigel Jaquiss, *The Cylvia Files*, June 14, 2011, <https://www.wweek.com/portland/article-17619-the-cylvia-files.html>.

<sup>13</sup> Oregon's Department of Justice chose not to prosecute the ODOE employees involved but recommended they be fired. *Id.* Four employees were placed on leave but ultimately reinstated without criminal charges or discipline for their actions following the Department of Justice's admission of mistakes in the DOJ investigation. Nigel Jaquiss, *Updated: Four Suspended ODOE Employees To Be Reinstated*, June 1, 2011, <https://www.wweek.com/portland/blog-27212-updated-four-suspended-odoe-employees-to-be-reinstated.html>.



B. Oregon law charges ODOE with conflicting responsibilities.

The Oregon Department of Energy is charged with implementing inherently conflicting, and possibly mutually exclusive, responsibilities.

*1. ODOE is charged with assisting and advising the Energy Facility Siting Council (EFSC) regarding the legal and technical complexities of siting decisions.*

The EFSC serves as Oregon's one-stop permitting authority for siting large energy facilities, and one of ODOE's major responsibilities is to provide staff and technical support to the EFSC regarding the approval of large energy facilities. Throughout the siting process, ODOE is responsible for researching issues, making recommendations, and advising the Council regarding decisions related to siting applications.

ORS 469.040(1) provides:

“The State Department of Energy shall be under the supervision of the Director of the State Department of Energy, who shall:

“ \* \* \*

“(b) Supervise and facilitate the work and research on energy facility siting applications at the direction of the Energy Facility Siting Council.”

Additionally, ORS 469.450(6) provides that ODOE “shall provide clerical and staff support to the council and fund the activities of the council.” The EFSC's website explains the relationship further:

“Oregon Department of Energy employees serve as staff members for the council, handling the ongoing work related to the regulation of energy facilities. Staff are energy experts who research issues involved with locating, building and operating

large energy facilities. They make recommendations to the council based on their research and analysis.”<sup>14</sup>

Thus, ODOE staff have been involved in the siting B2H siting process since 2010, when Idaho Power submitted its first Notice of Intent to the Department. See, Final Order on the ASC for the Boardman to Hemingway at Transmission Line at 3. ODOE staff has worked closely with Idaho Power staff throughout the 14 years of the siting process. See *generally, id.* at 2-8 (procedural history).

*2. ODOE also has a statutory obligation to protect the Oregon public.*

ODOE’s statutory responsibilities regarding the siting of an energy facility are not unlimited. At the same time that ODOE provides staff to advise the EFSC in regard to decisions regarding the siting, construction, operation and regulation of energy facilities, ODOE is also mandated to protect the health and welfare of the people of the state of Oregon and to comply with Oregon’s environmental policies enacted to protect the natural resources of the state.<sup>15</sup>

ORS 469.310 provides:

“In the interests of the public health and the welfare of the people of this state, it is the declared public policy of this state that the siting, construction and operation of energy facilities shall be

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<sup>14</sup> <https://www.oregon.gov/energy/facilities-safety/facilities/Pages/About-the-Council.aspx>.

<sup>15</sup> Note that the law requires compliance with, not avoidance or the issuance of exceptions or variances to, the various Oregon environmental protection laws.

accomplished in a manner **consistent with** protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of this state.”

(Emphasis added). The statutory mandate is reiterated in OAR 345-001-0020(1), which provides in pertinent part:

“These rules are to ensure that the siting, construction, operation and retirement of energy facilities and disposal facilities and the transport of radioactive materials are done **consistent with** protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of Oregon.”

(Emphasis added).

The policies regarding public health, welfare and environmental concerns with which ODOE is required to comply are expansive in their scope. They include, but are not limited to, policies which require Oregon's Department of Agriculture to protect Oregon's water resources,<sup>16</sup> policies which require the Department of Environmental Quality to enforce noise regulations promulgated in accordance with

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<sup>16</sup> ORS 568.225(1) provides:

“ \* \* \* [I]t is hereby declared to be the policy of the Legislative Assembly to provide for the conservation of the renewable natural resources of the state and thereby to conserve and develop natural resources, control and prevent soil erosion, control floods, conserve and develop water resources and water quality, \* \* \* conserve natural beauty, promote recreational development, promote collaborative conservation efforts to protect and enhance healthy watershed functions, assist in the development of renewable energy and energy efficiency resources, \* \* \* protect public lands and protect and promote the health, safety and general welfare of the people of this state.”

state policy,<sup>17</sup> and policies which require Oregon's Department of

Forestry to manage Oregon forestlands to maximize benefits.<sup>18,19</sup>

The mandate to ODOE to site energy facilities consistent with and in compliance with Oregon's environmental protection laws is not restricted to a particular stage of the siting process, and it is not time

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<sup>17</sup> ORS 467.010 provides that the DEQ shall adopt and enforce compliance with standards designed to “ \* \* \* provide protection of the health, safety and welfare of Oregon citizens from the hazards and deterioration of the quality of life imposed by excessive noise emissions, it is hereby declared that the State of Oregon has an interest in the control of such pollution, and that a program of protection should be initiated.

\* \* \* ”

<sup>18</sup> ORS 526.460 (1) sets forth the policy guiding Oregon's Department of Forestry. That statute provides:

“ \* \* \* The environmental benefits include maintenance of a forest cover and soil, air and water resources. Other benefits provided are habitats for wildlife and aquatic life, recreation and forest range. Management of all forestlands in Oregon should be encouraged to provide continuous production of all forest benefits.”

<sup>19</sup> Some of the many additional environmental policies and statutes with which ODOE is mandated to comply when siting an energy facility include those which require Oregon's Water Resources Commission to manage Oregon's water resource for multiple purposes, ORS 536.220(2)(a); the Department of Agriculture and to protect Oregon's native plants, ORS 564.105, and to control noxious weeds, ORS 569.180; the Environmental Quality Commission to protect Oregon waters from pollution, ORS 468B.015, and to safeguard the quality of Oregon's air, ORS 468A.010; the State Fish and Wildlife Commission to protect Oregon's wildlife, ORS 496.012; and the Department of Forestry to prevent and suppress wildfires, ORS 477.005.

limited. It does not permit ODOE to claim that by soliciting public input at the start of the siting process, it has met its obligation to protect the public and is free to disregard the public interest regarding siting decisions, including mitigation planning, thereafter. It is a mandate to site, construct, operate, and retire energy facilities in a manner consistent with protecting public health, public safety and Oregon's environmental protections – and to do so through the entire siting process, from inception to completion. The mandate to site energy facilities in accordance with Oregon's public health and safety environmental protection laws is neither optional nor aspirational.<sup>20</sup> The statute imposes on ODOE the concrete responsibility to comply with Oregon's environmental laws and public interests when making siting decisions.

ODOE's dual obligations create the potential for a conflict of interest between ODOE's duty to protect the public health and safety

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<sup>20</sup> Nor would a failure of any other agency to become involved in the siting process be an excuse for ODOE to avoid its charge to act in the public interest. Oregon law imposes on ODOE an independent obligation to comply with Oregon's environmental laws when working to site an energy facility.

As one example, the Oregon Department of Agriculture has been unable to fund its native (rare) plant protection program consistently since 2014 and therefore unable to update its list of rare plants since 1988. This list was started using the federal list and has never been updated for an Oregon-specific list. The standard is meaningless without an updated list and ODOE has not consulted the ODA since 2013.

and to comply with state environmental policies, and ODOE's

concomitant role as an advisor regarding the siting and regulation of energy facilities within the state. ODOE is placed in an inherently conflicted position:

- ODOE is charged with advising industry applicants regarding the technical details of siting a facility.

- ODOE is paid by the applicant for ODOE's work to research, evaluate, and make recommendations regarding an energy facility siting application.

- ODOE also advises the EFSC whether the application which an applicant has paid ODOE to help develop complies with applicable laws.

- And ODOE must protect the public's interests in the siting process.

It is difficult to imagine a more perfect way to mire an agency in conflicting obligations.

C. Oregon's funding system invites undue industry influence by giving ODOE a direct financial stake in seeing energy projects move forward.

Oregon law invites undue industry influence in the siting process by creating a unique funding scheme for ODOE. Like other departments and agencies, ODOE receives funding through the legislature. But ODOE differs from other agencies because industry applicants and project operators don't pay into Oregon's general fund to reimburse

agency expenses; instead, an applicant pays ODOE directly for work related to developing an application. ORS 469.421 provides in pertinent part:

“(1) Subject to the provisions of ORS 469.441, any person submitting \* \* \* an application for a site certificate or a request to amend a site certificate shall pay all expenses incurred by the Energy Facility Siting Council and the department related to the review and decision of the council.”

Reimbursable expenses may include legal expenses, expenses incurred in processing and evaluating the application, expenses incurred in issuing a final order or site certificate, expenses incurred in commissioning an independent study, or expenses incurred by the council in making rule changes that are specifically required and related to the particular site certificate. *Id.* In addition, Oregon law requires facility operators to continue direct payments to ODOE after a facility has been completed, including annual fees for costs associated with

monitoring the operation of a facility, ORS 469.421(5),<sup>21</sup> and an annual assessment to fund the programs and activities of EFSC and ODOE.<sup>22,23</sup>

Oregon law allows—and, in fact, *requires*—an applicant to reimburse ODOE directly for expenses related to the development of a project. At its essence, the statutory scheme sets up an arrangement where an industry applicant pays the Department the salaries of the

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<sup>21</sup> ORS 469.421(5) provides that each holder of a certificate shall pay an annual fee following issuance of a site certificate. The fee includes:

“costs based on the size and complexity of the facility, anticipated costs of ensuring compliance with certificate conditions, anticipated costs of conducting inspections and compliance reviews, and anticipated costs of compensating agencies and local governments for expenses incurred at the request of the council.”

<sup>22</sup> ORS 469.421(8)(a) provides that in addition to any other required fees, each energy resource supplier shall pay ODOE annually its share of an assessment to fund the programs and activities of the council and the department.

<sup>23</sup> The B2H transmission line is hardly the only project which may be paying costs and fees to ODOE. The EFSC website lists 18 operating facilities under EFSC jurisdiction, 5 approved facilities, 5 proposed facilities, as well as 8 facilities under review or construction. [https://www.oregon.gov/energy/facilities-safety/facilities/Pages/Facilities-Under-EFSC.aspx?Paged=TRUE&p\\_Facility\\_Page=8\\_%3cd%20div%20style%3d%27text%20align%3d%27left%27%3e%3ca%20title%3d%27Click%20for%20more%20info%27%20href%3d%27%2e%2e%2fPages%2fWES%2easpx%27%3eWest%20End%20Solar%20Project%3c%2fa%3e%3c%2fd%20div%3e&p\\_Title=West%20End%20Solar%20Project&p\\_ID=143&PageFirstRow=61&&View={0820E20D-761F-4D86-88A6-28050E77AD6A}](https://www.oregon.gov/energy/facilities-safety/facilities/Pages/Facilities-Under-EFSC.aspx?Paged=TRUE&p_Facility_Page=8_%3cd%20div%20style%3d%27text%20align%3d%27left%27%3e%3ca%20title%3d%27Click%20for%20more%20info%27%20href%3d%27%2e%2e%2fPages%2fWES%2easpx%27%3eWest%20End%20Solar%20Project%3c%2fa%3e%3c%2fd%20div%3e&p_Title=West%20End%20Solar%20Project&p_ID=143&PageFirstRow=61&&View={0820E20D-761F-4D86-88A6-28050E77AD6A})



individuals who are assigned to work on the Idaho Power's project and whose duties involve advising the applicant regarding the project—not unlike having an industry applicant's own employees work on the applicant's behalf from inside ODOE. If needed, a billion-dollar corporation can always provide additional funding to support additional consultants and experts to analyze and give direction regarding its own project. Oregon's funding blueprint gives ODOE employees a direct incentive to see that the project which generates contributes to agency funding and which directly pays their own livelihoods remains viable by ignoring issues that might make a project unbuildable, and pushing for completion of the project, regardless of merit. Further, ODOE will benefit from ongoing direct payments generated by completed projects for decades into the future, giving ODOE an additional financial incentive to see that projects move forward, regardless of compliance with laws to protect public health, public welfare, or Oregon's environmental assets.

Over the past decade, the energy industry has repeatedly been involved in scandals involving the use of illicit means to obtain undue influence and control over regulatory decisions related to the industry.<sup>24</sup>

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<sup>24</sup> See, Dave Anderson, *FirstEnergy attributed Ohio Utility regulator's actions to \$4.3 million payment*, March 3, 2021, <https://energynews.us/2022/02/15/former-ohio-regulator-linked-to-4m-payoff-directed-agency-to-limit-response-to-firstenergy-corruption>; Jaxon Van Derbeken, *PG&E to Pay \$86.5 Million for Backdoor Lobbying of*

Where a state's siting process openly invites undue influence, and a billion-dollar corporation stands to reap hundreds of millions of dollars in profits from an energy project, there is no reason to assume that a corporation would not attempt to exert similar influence over energy regulators in Oregon.

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*Regulators*, March 18, 2017, <https://www.nbcbayarea.com/news/local/pge-to-pay-865-million-for-backdoor-lobbying-of-regulators/48759/>; Andy Balaskovitz, *Former Ohio Regulator Shaped Agency Response to Corruption Scandal*, February 15, 2022, <https://energynews.us/digests/former-ohio-regulator-shaped-agency-response-to-corruption-scandal/>; Dave Pomerantz, *Arizona Commissioner Justin Olson answered Questions About Arizona's Energy Policy by Copying Parts of an APS Memo Verbatim, Emails Show*, October 18, 2018, <https://www.energyandpolicy.org/justin-olson-arizona-aps-emails/>; Matt Kasper, *Electric Utility Industry Created Their Own Air Pollution Permits, Had Private Meetings with Texas Regulators*, May 27, 2015, <https://www.republicreport.org/2015/electric-utility-industry-created-their-own-air-pollution-permits/>; Jeremy Pelzer, *Texts shed additional light on how Sam Randazzo was named PUCO chair, worked to help FirstEnergy*, August 22, 2022, <https://www.msn.com/en-us/news/politics/texts-shed-additional-light-on-how-sam-randazzo-was-named-puco-chair-worked-to-help-firstenergy/ar-AA10WipX>; Daniel Tait, *Questionable Campaign Contributions Tick Back Up as Election Nears, Emails Show*, October 25, 2010, <https://www.energyandpolicy.org/questionable-campaign-contributions-tick-back-up-for-eaton-as-election-nears/>. See generally, Maryanne Demasi, *From FDA to MHRA: Are Drug Regulators for Hire?*, June 29, 2022, <https://www.bmj.com/content/377/bmj.o1538.full>; Rauf Fattakh, *Corruption in the Energy Industry: 10 Serious Consequences*, Nov 16, 2020, <https://energycentral.com/c/ec/corruption-energy-industry-10-serious-consequences>.

D. Oregon law provides the perfect means for ODOE to control the siting process because of the Department's influence over EFSC.

*1. ODOE is perfectly situated to influence the EFSC regarding siting decisions because of the makeup of the EFSC.*

The EFSC consists of seven part-time, **unpaid volunteers** who determine whether a proposed energy facility meets multiple exceeding complex legal and technical siting standards.<sup>25</sup> In addition to their side

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<sup>25</sup> The EFSC regulates numerous kinds of facilities, including electric power plants, solar generating facilities, transmission lines, underground natural gas storage facilities, liquified natural gas storage facilities, intrastate natural gas pipelines, and radioactive waste disposal sites and nuclear installations. ORS 469.300(11).

And ORS 469.501(1) lists the many disciplines in which councilors must make decisions. They include:

- an applicant's expertise regarding constructing and operating a proposed facility;
- seismic hazards;
- federal and state protected areas;
- the applicant's financial ability and qualifications;
- the facility's effects on fish and wildlife, including threatened and endangered fish, wildlife or plant species;
- the facility's impacts on historic, cultural or archaeological resources;
- the protection of public health and safety;
- the storage, transportation and disposal of nuclear waste;
- the facility's impacts on recreation, scenic and aesthetic values;
- the ability of local communities to provide sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection;
- the need for additional nongenerating facilities, consistent with Oregon's energy policies; and
- compliance with statewide planning goals adopted by the Land Conservation and Development Commission.

activity of making billion-dollar siting decisions on behalf of the state of Oregon, most councilors hold demanding professional positions, or are engaged in significant other civic and volunteer activities. See,

<https://www.oregon.gov/energy/facilities-safety/facilities/Documents/General/EFSC-members.pdf>.

Although each of the complex standards which the councilors are required to address involves a discrete discipline, most councilors have limited to no expertise regarding the areas in which they are asked to make determinations. Three of the individuals who made the million-dollar B2H siting decisions on behalf of the state of Oregon have land use backgrounds and one is a tribal cultural resource specialist. *Id.* The combined council possesses professional expertise in just two of the many hyper-technical areas in which the councilors are expected to make determinations. Consequently, the council is extraordinarily dependent upon the advice and recommendations of ODOE staff and industry-paid consultants to guide their decisions.

*2. ODOE is perfectly situated to influence EFSC decision-making because EFSC relies on ODOE for everything up to and including legal advice.*

EFSC is housed within the Department of Energy, and relies on ODOE for research, analysis, and legal advice, ORS 469.040(1)(b), as well as for staff and clerical support. ORS 469.450(6). Further, in a facility siting proceeding, ODOE again plays conflicting roles: ODOE

advises the industry applicant regarding the siting of a facility (and is paid by the applicant to do so); ODOE is an automatic, mandatory party to any contested case, (OAR 345-015-0080(2)), and ODOE then advises EFSC whether to approve or overrule ODOE's earlier actions and decisions as a party. ODOE and EFSC are in fact so closely connected that an officer or employee of ODOE may appear in a contested case on behalf of EFSC. OAR 345-001-0060(1). Similarly, the EFSC may appoint a Council member, an ODOE employee, or other person to serve as hearing officer for the contested case. OAR 345-15-0023(1).

It is a cardinal principle of legal ethics that an attorney is prohibited from representing a client if the representation involves a conflict wherein the representation of one client will be directly adverse to another client. ORPC 1.7(a)(1). It is another indication of how deeply intertwined the relationship between ODOE and the EFSC is that from the inception of the B2H project until a petitioner objected,<sup>26,27</sup> a single

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<sup>26</sup> Irene Gilbert's Exceptions to Procedures Used During B2H Contested Case and Process and Request for Exception to Summary Determinations FW-4, LU-5, NC-5, M-2, FW-9, FW-10, FW-11, at 5-6.

<sup>27</sup> ODOE has made a partial record of this case available on its website; however, in *amicus*' experience, the website has malfunctioned repeatedly and has been inaccessible as often as not. Further, *amicus* understands that ODOE filed the tens of thousands of pages comprising the record of this case with the Supreme Court only days ago, and

Greg Larkin/46

attorney, Patrick Rowe, advocated on behalf of ODOE while also advising the EFSC in the B2H siting process.<sup>28</sup> The intimate relationship between the two entities – as if the two were but a single client, or as if there is no conflict between the role of representing a party to a proceeding while also providing “objective” advice to the decision maker – is indicated by the fact that Rowe’s dual representation apparently raised no ethical concerns regarding a possible conflict of interest for ODOE/EFSC counsel Rowe, or for the Department of Justice, or for administrators within ODOE.

Still, the EFSC is presented as somehow being an independent decision-making body.

*3. The EFSC’s makeup also raises ethical concerns.*

Additionally, the Council’s makeup raises concerns regarding the ethics of individual members. Hanley Jenkins, who served for 30 years as a county planning director, chaired the majority of the B2H

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because *amicus* is not a party to this case, she has not even been able to access the late-filed record. Therefore, *amicus* is only able to reference documents by title.

<sup>28</sup> See *also*, March 1, 2021 letter from EFSC Chair Marcy Grail (discussing EFSC’s role as the sole decision maker regarding extremely complex large infrastructure projects, EFSC’s reliance on and very warm relationship with ODOE staff, and requesting legislative funding on behalf of ODOE. Morrison Decl., Ex. 3.

proceedings.<sup>29</sup> As planning director, Jenkins became embroiled in controversy when he advocated fiercely to develop a wind farm within the county, then deleted his emails with the developer in their entirety following a public records request. Bill Rautenstrauch, *County reprimands planning director*, The [La Grande] Observer, May 5, 2011; Staff report, *E-mail probe doesn't pass smell test*, The [La Grande] Observer, May 11, 2011; Editorial, *County Probes Accusation that Planning Chief Deleted e-mails re: Wind Farm*, The [La Grande] Observer, September 11, 2011.<sup>30</sup> Concerns that the B2H siting process has been overseen by someone with a history of ethically questionable ties to a developer are amplified because Jenkins sat on the EFSC for almost the entirety of the B2H siting process, from 2012 through 2022, serving his last two years in violation of ORS 469.450(2)(providing that

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<sup>29</sup> The actual EFSC Chair, Marcy Grail, recused herself on all B2H issues: "Chair Grail stated as she has previously recused herself on all Boardman to Hemingway action items and handed over the running of the meeting for Agenda Items B and to Vice-Chair Howe." 2021-08-27 EFSC-Meeting Minutes-APPROVED. pdf, p. 4 of 15. <https://www.oregon.gov/energy/facilities-safety/facilities/Council%20Meetings/2021-08-27-EFSC-Meeting-Minutes-APPROVED.pdf>.

<sup>30</sup> The Observer does not have hyperlinks to these articles, but if one types in the title in a search engine, the article appears.

no councilor shall serve more than two four-year terms).

<sup>31,32</sup>

<https://www.oregon.gov/energy/facilities->

[safety/facilities/Documents/General/EFSC-members.pdf](https://www.oregon.gov/energy/facilities-safety/facilities/Documents/General/EFSC-members.pdf). As chair of the

B2H siting process, Jenkins has played a particularly active role in

swaying the Council to make decisions that favor Idaho Power. As an

example, ORS 469.370(13) requires that when a proposed facility has

been reviewed by a federal agency under NEPA, the EFSC is required

by statute to coordinate its review with the NEPA review. Jenkins,

however, referenced his experience to advise the Council to disregard

the statutory requirement: "We can only use the route and alternatives

that are submitted to us by Idaho Power." November 19-20, 2020, EFSC

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<sup>31</sup> Jenkins remained on the EFSC after the expiration of his second term, purportedly because he was needed so that the EFSC could have a quorum. This argument never made sense, because in December 2021, EFSC changed its rules to allow for a smaller quorum of just four members, yet Jenkins did not resign.

<https://www.oregon.gov/energy/About-Us/Documents/2021-01-07-HB-2064-One-Pager.pdf>; and <https://www.oregon.gov/energy/Get-Involved/rulemakingdocs/2021-12-17-R218-EFSC-2-2021-Tracked-Changes.pdf>

<sup>32</sup> Jenkins no longer serves on the EFSC. Having served for nearly the full duration of the B2H siting process, he resigned in early December 2022, almost immediately after the EFSC approved the B2H application. [https://www.oregoncapitalinsider.com/news/oregon-insiders-whos-who-in-and-around-state-government/article\\_3a042794-7727-11ed-b2f5-b354446f7689.html](https://www.oregoncapitalinsider.com/news/oregon-insiders-whos-who-in-and-around-state-government/article_3a042794-7727-11ed-b2f5-b354446f7689.html)



Council meeting day 2, Audio 2 at 2:32:00 Greg Larkin/49

<https://soundcloud.com/odoe/sets/november-19-20-2020-efsc-meeting> .

**IV. ODOE HAS RECEIVED MORE THAN \$4 MILLION FROM IDAHO POWER FOR WORK RELATING TO B2H, CREATING AN ACTUAL CONFLICT OF INTEREST WITHIN THE DEPARTMENT OF ENERGY.**

ODOE has in fact received substantial funding directly from Idaho Power Company to fund ODOE's work on the B2H line. Idaho Power has paid ODOE more than \$4,000,000 for salaries and other expenses directly related to ODOE's work on B2H. *Declaration of Fuji Kreider, Ex. 4.* The millions of dollars ODOE has received directly from Idaho Power for expenses relating to the development of Idaho Power's own project has transformed ODOE's conflict of interest from a potential or theoretical conflict into an actual conflict. The fact that the Department receives such a substantial income from industry applicants and project operators gives administrators and employees a tangible and compelling financial reason to choose the industry applicant's interests when weighing the Department's responsibility to assist in siting a facility against the Department's responsibility to protect the public interest by ensuring that Oregon's policies regarding public health and welfare, and environmental protection are enforced.

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**V. ODOE HAS REPRESENTED THE INTERESTS OF IDAHO POWER BY USING THE SUBSTANTIAL RESOURCES AVAILABLE TO ODOE TO ELIMINATE EVERY CHALLENGE TO SITING THE B2H LINE.**

As a state agency, ODOE has substantial resources at its disposal. ODOE has highly trained, experienced employees assigned to the B2H project. ODOE Response to McAllister Disc. Requests at 3.<sup>33</sup> ODOE also has untold clerical and support staff available to work on the B2H project, *id.*, and ODOE has the resources and ability to retain additional expert assistance and/or witnesses from outside the agency. *Id.* Additionally, through Oregon's Department of Justice, ODOE has legal resources at its disposal to assist and represent the Department in the siting process.

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<sup>33</sup> ODOE's Response discloses the credentials of several of its employees assigned to siting the Idaho Power project:

"K. Tardaewether: Education - B.A. International Studies, B.S. Environmental Science, M.A. International Environmental Policy in Energy Analysis; Years of Professional Experience – 15; Years at ODOE – 4.5;

S. Esterson: Education - B.S. Public Affairs and Environmental Management; M.P.A; Years of Professional Experience – 15; Years at ODOE – 6

M. Woods: Education – B.A. Environment, Economics, and Politics; B.A. History; M.S. Environmental Science; Years of Experience – 15; Years at ODOE – 7."

ODOE noted that each of these employees "has collectively evaluated dozens of ASC and Requests for Amendments." *Id.* An additional employee, Wally Adams, assisted ODOE at the January 2022 cross-examination hearings. Proposed Contested Case Order at 15-16.

The Department's resources to advance B2H are virtually infinite, given that ODOE's expenses are reimbursed by Idaho Power. The fact that ODOE has expended more than \$4,000,000 of Idaho Power's money to site the B2H line indicates that ODOE has not hesitated to use Idaho Power's substantial resources to advance the project that Idaho Power has paid ODOE to work on, and to do so on the terms that Idaho Power desires.

A. ODOE has advised EFSC to adopt siting standards which represent the interest of developers and do not protect the public.

The EFSC is responsible for adopting the standards which govern the siting of energy facilities in Oregon.<sup>34</sup> Because the EFSC's small group of volunteers lack technical expertise in the complex issues involved in siting an energy facility, EFSC is heavily reliant on ODOE for advice regarding adoption of siting standards, and EFSC has adopted

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<sup>34</sup> ORS 469.501(1) states,

“The Energy Facility Siting Council shall adopt standards for the siting, construction, operation and retirement of facilities. \* \* \*.” Additionally, ORS 469.470(2) provides in pertinent part that EFSC shall “ \* \* \* adopt standards and rules to perform the functions vested by law in the council including the adoption of standards and rules for the siting of energy facilities pursuant to ORS 469.501.”

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standards, and delayed the adoption of other standards,<sup>35</sup> that benefit applicants at the expense of the public.

The standard regarding retirement of facilities and financial assurance, OAR 345-22-0050(2), provides one example. That standard requires merely that the Council find that an applicant has *a reasonable likelihood* of obtaining a bond or letter of credit to cover the cost of retiring an energy project, (emphasis added) – not that the applicant actually *post* a bond. The same standard requires only that a bond be in an undefined, subjective amount “*satisfactory to the Council* to restore the site to a useful, non-hazardous condition.” (Emphasis added). At a time when multiple billion-dollar energy projects have failed nationwide,<sup>36</sup> the EFSC’s standard imposes no actual requirement that would protect the Oregon public. ODOE has represented the interests

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<sup>35</sup> One example of these delayed standards includes the protracted rulemaking process over updating the outdated rules/standards on “Protected, Scenic and Recreational Areas,” OAR chapter 345, division 22. The Protected Areas and Scenic Resources Standards were last amended in 2007. The Recreation standard was last amended in 2002. The process for updating these rules began in 2018.

<https://www.oregon.gov/energy/facilities-safety/facilities/Council%20Meetings/2022-12-16-Item-G-Protected-Areas-Rulemaking-Staff-Report.pdf>

<sup>36</sup> See, Gillis, Klas, Nehamas *supra*; Chacin *supra*; Klas *supra*; Nehamas *supra*; Garcia *supra*; Gillispe, Smyth, *supra*; Diaz *supra*; Monroe *supra*; Pischea *supra*; Tobias, *supra*; Amy, *supra*; Long, *supra*.

of industry applicants generally by advising EFSC to adopt siting “standards” which provide no protection to the public whatsoever.

B. ODOE has advocated on behalf of Idaho Power and against the public interest by treating the public as an adversary throughout these siting proceedings.

*1. ODOE has represented the interests of Idaho Power by disregarding public input when siting the B2H project.*

Oregon law requires ODOE to consider public comments when siting an energy facility. Nearly 700 public comments were received by ODOE in the summer of 2019,<sup>37</sup> and 52 individuals petitioned to be parties to the contested case in August 2020, raising 71 issues.

(ODOE’s Response to Petitions for Party Status and Limited Party Status, 2020-09-11, p. 1 and Table 1.)

Acting in its capacity as a state agency, ODOE argued against full party status for every public petitioner, and against nearly every issue the petitioners raised. See, ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020, at 5, Table 1, and Attachment 1, Amended ODOE Evaluation of Petitions. ODOE has argued to eliminate issues raised by petitioners appearing on behalf of

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<sup>37</sup> ODOE - B2HAPPD0c2-1 Proposed Order on ASC w Hyperlink Attachments 2019-07-02, Attachment 2: DPO Comment Index and DPO Comments.  
(<https://onedrive.live.com/?authkey=%21AEBE%2Dm62XANUTiQ&cid=026041F18E096594&id=26041F18E096594%215420&parId=26041F18E096594%215419&o=OneUp>)

public entities such as Eastern Oregon University, Oregon-California Trails Association, the Stop B2H Coalition, QWest Corp/CenturyLink, and the Baker County Fire Defense Board. Amended Order on Party Status Authorized Representatives, and Properly Raised issue for the Contested Case at 2-4.

ODOE's most obvious example of disregarding public input occurred in Union County, where Idaho Power disregarded the Bureau of Land Management's "least impactful" NEPA route, and instead proposed two routes which cross on the periphery of the city of La Grande and just 125 feet from a beloved, undeveloped local recreation area and wetlands. ODOE disregarded the groundswell of public comments it received, as well as the obligations imposed on Idaho Power by the NEPA process, and repeatedly advised EFSC that the Council was permitted to assess only the routes that had been proposed by Idaho Power.<sup>38</sup> According to ODOE, the EFSC – and by implication,

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<sup>38</sup> See, e.g., ODOE's Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020 at 68 (denying EFSC jurisdiction in regard to Geer issue 3), and at 98 (regarding McAllister issue 1). See also, Final Order at 47-48 (discussing that the standards adopted by the EFSC:

“do not require the applicant to compare alternative corridors. Nor do they allow the Council to evaluate or consider alternative routes not proposed in the application for site certificate.\* \* \* Therefore, in the application, an applicant may propose any route, and alternative routes for Council's review, regardless of a federal

the state – has neither authority nor jurisdiction, or even the authority to make suggestions, when determining the route of a 300-mile long high-voltage line as it crosses through the state.

*2. ODOE argued that petitioners should be denied standing.*

In total, 52 individuals petitioned for party status. Order on Petitions for Party Status, Authorized Representatives and Issues for Contested Case at 2-3. As a state agency and party to the contested cases, ODOE argued that a number of citizen petitioners asserting concerns about the B2H project should be denied standing. See, ODOE's Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020. ODOE asserted that three petitioners failed to timely file petitions, *id.* at 8, 112-114. ODOE also argued for denial of standing based upon one petitioner's failure to recognize the need to timely file an appeal of the ALJ's denial of limited party status. ODOE Objection to G. Carbiner Request for Party Status for Issue HCA-5. Additionally, ODOE argued that three petitioners had failed to identify an applicable standard, ODOE's Second Amended Response to Petitions

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agency's selected route in the ROD for the NEPA review process. Further, the Council may not recommend an alternative route that is not proposed in the application."

for Party/Limited Party Status at 32, 33, 112; and that 45 petitioners failed to show a personal interest or a public interest. *Id.* at 21-121.<sup>39</sup>

3. *ODOE unilaterally rephrased petitioners' issues so as to eliminate or narrowly define the issues petitioners had raised.*

ODOE filed repeated responses to the petitions for party status.<sup>40</sup>

In those responses, ODOE unilaterally rephrased, reconstrued, and significantly restricted the issues raised by the petitioners to this case. The case of Susan Geer provides one example.

Geer is a trained botanist and ecologist and an expert in her field, employed by the Wallowa Whitman National Forest, who has lived in eastern Oregon for over 20 years and is intimately familiar with the ecology of the region. Geer submitted two written comments with concerns about native and imperiled plant communities along the proposed B2H route. Declaration of Anne Morrison, Ex. 1 and 2. She questioned the “Noxious Weed Plan” in Idaho Power’s site application;

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<sup>39</sup> ODOE asserted 26 times that a petitioner failed to show a personal interest, *id.* at 21, 24, 26, 35, 36, 44, 50, 54, 73, 74, 75, 83, 89, 90, 92, 93, 94, 96, 102, 103, 105, 107, 109, 111, 114, 115.

ODOE asserted 19 times that a petitioner failed to show a public interest. *Id.* at 29, 32, 33, 41, 48, 56, 57, 58, 76, 78, 88, 89, 111(x2), 113, 116, 119, 120, 121.

<sup>40</sup> ODOE Response to Petitions for Party/Limited Party Status, September 22, 2020; ODOE Amended Response to Petitions for Party/Limited Party Status, September 28, 2020, and ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020.



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Geer noted that Idaho Power's "weed plan" disregarded concerns expressed by county weed management professionals from Morrow, Union, and Umatilla counties; that the plan proposed only annual weed treatments, which in Geer's experience would be inadequate and ineffectual; that while Oregon law imposes on landowners and managers the responsibility to control specified weeds on their property, Idaho Power's plan would exclude Idaho Power from responsibility for controlling entire classes of weeds, including those most aggressive and devastating to native habitat; and would allow the company to request a release from weed management obligations from ODOE at any time; additionally, if Idaho Power's weed control proved unsuccessful after five years, the plan would allow Idaho Power to request a waiver from ODOE regarding further weed control obligations. Morrison Decl., Ex. 1. In her second letter, Geer detailed concerns that Idaho Power's plan ignored Oregon's environmental protection laws by failing to consider Oregon's Climate Plan or the Oregon State Conservation Strategy, or to take into account the state's designated natural areas. Morrison Decl., Ex. 2. Geer also noted that Idaho Power's proposed Morgan Lake route did not comply with statutory requirements to consider the BLM's NEPA route.

*Id.*

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ODOE recast Geer's concerns as: Greg Larkin/58

"Applicant's Noxious Weed Plan does not comply with ORS Chapter 569 because it does not identify responsibility of applicant for control of most weed species and only requires annual control."

ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020, at 61; and as:

"Applicant fails to comply with Threatened and Endangered species standard because it did not evaluate current State-listed T&E plant species (Lists 1 and 2 Climate Vulnerable plants.)"

*Id.* at 62; and as:

"The Draft Noxious Weed Plan (attachment P1-5) is not sufficient because it appears to relieve applicant of weed monitoring and weed control responsibilities after 5 years, which is not reasonable given that weed control is an issue into perpetuity, and improperly allows for compensatory mitigation if weed control is unsuccessful."

*Id.* at 63.

As with every other petitioner, ODOE's reframing of Geer's original statements precluded discussion of multiple statutes, administrative rules, and EFSC standards, as well as the multiple state agencies and state environmental protection policies, plans and programs implicated by Geer's original statement. And as with every other petitioner, ODOE's rephrasing of Geer's statements excluded multiple significant issues from being addressed in the contested case, while also successfully constraining the reach of the issues that remained.

Subsequently, ODOE and Idaho Power filed simultaneous motions for summary determination against Geer's issues as restated by ODOE. See, ODOE Motion for Summary Determination of Contested Case Issue TE-1, May 28, 2021; Idaho Power's Motion for Summary Determination of Contested Case Issue TE-1, May 28, 2021. Because Geer's issues had been redefined, Geer's own proposed amended conditions were rejected, (*id.* at 121) and ODOE instead proposed minimal changes to the application conditions. ODOE Rebuttal to Direct Testimony, Evidence, and Response to Proposed Site Certificate Conditions, November 12, 2021, at 27-28, 31-32.

*4. ODOE argued that all petitioners should be denied full party status.*

ODOE addressed the issue of party status in a manner that further restricted the ability of the public to raise issues of public concern in the siting proceedings. At a time when it appeared to be an unsettled issue, (ODOE Response to Petitions Regarding Limited Party vs. Party Status at 1, FN 1), ODOE argued that all petitioners should be granted limited party status. As with every other petitioner to the contested case, ODOE argued that Geer should be granted limited party status – in Geer's case, preventing her from using information regarding any one of her complex and closely related issues (as restated) in regard to the

other two issues (as restated). ODOE Second Amended Response to  
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 Petitions for Party/Limited Party Status, October 6, 2020, at 6-8.

*5. ODOE argued that petitioners failed to raise valid issues.*

ODOE spared no effort to eliminate issues from the contested case by arguing that petitioners had not raised valid issues. ODOE argued 74 times that petitioners' issues were not within EFSC jurisdiction. ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020.<sup>41</sup> ODOE argued 43 times that petitioners' issues had not been raised on the record of the Draft Proposed Order.<sup>42</sup> And the Department argued 73 times that petitioners failed to raise issues with sufficient specificity.<sup>43</sup>

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<sup>41</sup> ODOE asserted that petitioners' issues were not within EFSC jurisdiction, *id.* at 21, 22, 24, 25, 28, 32(x2), 33(x2), 34(x3), 35, 39, 40, 41, 46, 48, 51, 53, 54, 55, 59, 61, 62, 64, 66, 67, 68, 70, 71, 75, 76, 77(x4), 78(x2), 79(x2), 80, 81, 84, 85(x2), 86, 87(x3), 88, 89(x2), 91(x2), 93, 95, 99, 100(x3), 101, 102, 105, 108, 112, 113(x2), 116(x2), 118, and 122.

<sup>42</sup> *Id.* at 21, 22, 26, 29, 30, 31, 37(x2), 39, 45, 50, 54, 55, 58, 61, 62, 63, 76, 77 (x4), 78, 79(x2), 85(x2), 86, 87(x2), 91, 93, 95, 97(x2), 101, 102, 103, 105, 108, 109, 118.

<sup>43</sup> *Id.* at 21, 22, 24, 25, 28, 32(x2), 33(x2), 34 (x3), 35, 39, 40, 41, 46, 48, 51, 53, 54, 55, 59, 61, 62, 64, 66, 67, 68, 70, 71, 75, 76, 77(x4), 78(x2), 79(x2), 80, 81, 84, 85(x2), 86, 87(x3), 88, 89(x2), 91(x2), 93, 95, 99, 100(x3), 101, 102, 105, 108, 112, 113(x2), 116(x2), 118, 122.

6. *ODOE blocked petitioners' attempts to obtain discovery in the contested case.*

After thirty-six petitioners filed requests for discovery orders in the contested case following the informal discovery period, per OAR 137-003-0025(3), (Proposed Contested Case Order at 3), ODOE exerted its power and resources as a state agency to argue for denial of petitioners' requests for discovery. ODOE's response to Petitioner McAllister's motion for discovery from ODOE is demonstrative.

McAllister's motion included 31 questions and was supplemented with an additional request. Petitioner McAllister's Motion for Discovery Order for ODOE, Issues FW-13, R-2, SP-2, Dated February 19, 2021. McAllister requested such prosaic information as copies of ODOE's communications with landowners near Morgan Lake Park, (*id.* at 3); the documentation relied on by ODOE to determine that the Morgan Lake Alternative complied with EFSC standards, (*id.* at 20); or production of a map which clearly specified, by name, how ODOE identified the three different routes under discussion. (*Id.* at 8, 28). ODOE's 22-page response demonstrates the way in which ODOE has used its Idaho Power-funded legal firepower to muddle and obfuscate, to confuse issues, to prevaricate, and to avoid straightforward responses. In its response to McAllister's request alone, ODOE objected to the petitioner's prosaic discovery requests by denying 20 times that the

petitioner's requested information was relevant, (ODOE Response to Michael McAllister Informal Discovery Request, February 2021 at 4, 5, 6, 7, 8(x2), 9(x2), 10 (x2), 11 (x2), 13, 16, 17(x2), 18, 19(x2), and 21); or by asserting 6 times that the requested information requested had previously been provided somewhere in a list of documents in the voluminous record of the case, (*id.* at 3, 14, 16, 20, 21, 23); or by asserting 7 times that the requested information was or "may be" outside EFSC jurisdiction, (*id.* at 5, 7, 8, 10, 11, 13, 19). It is hardly surprising that ODOE's legal counsel has been able to run circles around untrained, self- represented citizens. The more significant fact is that legally unsavvy and outgunned citizens have been forced to represent public concerns on their own, against a state agency, because the agency charged with protecting those interests has utterly abdicated its obligation to do so.

*7. ODOE moved for summary determination against petitioners, and supported/did not oppose Idaho Power's own motions for summary determination.*

ODOE continued to work *in tandem* with Idaho Power when the Department filed eight motions for summary determination, to accompany Idaho Power's 34 motions for summary determination on contested case issues. Proposed Contested Case Order at 5, 19. On June 25, 2021, ODOE filed a 41-page response to Idaho Power's

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motions for summary determination; ODOE's response formally supported or made no objection in regard to each of Idaho Power's motions. See, ODOE Response to Applicant's Motions for Summary Determination of Limited Party Issues.

*8. ODOE argued against petitioners' cases on the merits.*

Together, ODOE and Idaho Power litigated petitioners' remaining claims on the merits:

a). On October 1, 2021, Idaho Power and ODOE each filed individual Objections to the Limited Parties' Direct Testimony and Exhibits.

b). On November 12, 2021, the Department filed the 125-page ODOE Response to Direct Testimony, Evidence, and Response to Proposed Site Certificate Conditions. One would fully expect Idaho Power to be able to produce expert witnesses and consulting firms as needed to counter petitioners' remaining claims, and the billion-dollar corporation did so. See, e.g., Idaho Power – Rebuttal Testimony of Chris James - Issue FW-7, with supporting exhibits A-H, November 12, 2021. But so too did ODOE produce witnesses to rebut petitioners' arguments and to advance Idaho Power's application. See, e.g., Written Rebuttal Testimony of Tim Butler, Oregon Department of Agriculture, on Behalf of the Oregon Department of Energy, November 10, 2021; Written Rebuttal

Testimony of Sarah Reif on Behalf of the Oregon Department of Energy for Issue-FW-7, November 12, 2021; ODOE Written Rebuttal Testimony of Greg Apke, on Behalf of the Oregon Department of Energy For Issue FW-7.

c). On December 3, 2021, petitioners filed multiple motions to cross-examine the expert witnesses of Idaho Power/ODOE; ODOE responded, requesting that at least one of those requests be denied. See, ODOE Objection to Marches' Request for Cross Examination, December 10, 2021.

d.) On February 28, 2022 – having spent the previous 12 years, working to preclude public participation in the siting process, denying the applicability of pertinent statutes and standards to Idaho Power's application, obfuscating information vital to assessing Idaho Power's application, and eliminating the multitude of public concerns about the B2H project, the Department filed ODOE's Closing Brief. That brief duly asserts, "the Department believes the preponderance of evidence supports a conclusion the proposed facility, subject to the recommended site certificate conditions, complies with the requirements of the EFSC's standards and other applicable laws and rules." ODOE Closing Brief at 222-223.



e). On March 30, 2022, ODOE submitted its Response to Closing Arguments Brief.<sup>44</sup> One last time, ODOE argued against petitioners' issues, raised pursuant to the very policies that the Department is mandated to implement.

*9. In addition to litigating against public petitioners in its capacity as a party to the siting proceedings, ODOE used its position as an advisor to the EFSC to advise EFSC to uphold every one of the ALJ's decisions which were favorable to ODOE/Idaho Power as parties.*

a). Thus, on October 6, 2020, ODOE advised the EFSC to uphold the ALJ's rulings denying party status, which were favorable to ODOE/Idaho Power. ODOE Second Amended Response to Petitions for Party/Limited Party Status, October 6, 2020, at 8. ODOE also advised the EFSC to uphold the ALJ's rulings regarding limited party status, and the validity of issues identified by petitioners, all of which were uniformly favorable to ODOE/Idaho Power as parties. *Id.* at 5-6, Attachment at 21-123.

b.) On June 25, 2021, ODOE responded fawningly to Idaho Power's multiple motions for summary determination of petitioners' claims, recommending hand-in-hand with Idaho Power that the EFSC uphold each of the ALJ's rulings on summary determinations. ODOE's

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<sup>44</sup> B2HAPP Contested Case ODOE Response to Closing Arguments 2022-03-30.

Response to Applicant Motions For Summary Determinations of Party Limited Party Status Issues at 1-41.

c.) On November 12, 2021, ODOE advised EFSC to uphold the ALJ's rulings against petitioners' remaining cases on the merits, (ODOE Rebuttals to Direct Testimony and Evidence and Response to Site Certificate Conditions at 16-125) – all of which were uniformly favorable to ODOE/Idaho Power as parties.

d.) On February 28, 2022, ODOE reiterated those arguments in its 222-page Closing Brief.

e.) On July 15, 2020, ODOE recommended in a 31-page filing that the Council find that there were no procedural errors that occurred in the contested case proceeding, and that “the Hearing Officer successfully conducted her duties under OAR 345-015-0023.” ODOE Responses to Procedural and Process Objections.

f). And on August 24, 2022, ODOE advised that EFSC should deny petitioners additional time to argue their exceptions before the Council, (ODOE Response to Stop B2H Request for Additional and Equal Time at 1-2); that EFSC should deny petitioners the opportunity to respond to site certificate conditions newly proposed by the ALJ to which petitioners had never had the opportunity to respond, (*id.* at 2-4); and that EFSC should deny petitioners time for oral arguments on

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exceptions relating to procedural matters to uphold the ALJ's rulings regarding petitioners' procedural exceptions. (*Id.* at 5-8).

ODOE advised EFSC to reject every petitioner's appeal of every decision in the contested case. Throughout the entire siting process, ODOE advocated solely for EFSC to uphold decisions favorable to Idaho Power.

*10. ODOE has represented the interests of Idaho Power by failing to object to improper conduct by Idaho Power.*

a. ODOE did not object to Idaho Power's *ex parte* contacts

In April, 2021, Idaho Power submitted an extensive and detailed letter directly to EFSC, discussing proposed rulemaking revisions. Notice of *Ex Parte* Communication Pursuant to OAR 137-003-0055(2). ODOE made no protest against Idaho Power's *ex parte* communication with EFSC, despite the fact that those communications stood to affect the pending

b. ODOE refused to address Idaho Power's misrepresentations to landowners.

On March 24, 2020, Idaho Power sent a letter to landowners along the Mill Creek route, one of Idaho Power's two proposed routes along the perimeter of La Grande city limits; B2H contested case; that letter informed the recipients that they no longer needed to remain involved in the siting process because Idaho Power was no longer pursuing the Mill Creek route. Kreider Dec., Ex. 5.

At the same time, Idaho Power continued to designate Mill Creek as its primary route, see, Kreider Dec., Ex. 6.; final Order at 47, line 5-9. In fact, the Mill Creek route is one of two routes ultimately approved in the site certificate. See, Final Order at 47, FN 34. Far from objecting to Idaho Power's duplicity, deceit, and misrepresentations, ODOE deferred to Idaho Power's actions, repeatedly advising that Idaho Power's actions and deceptions were a matter over which EFSC/ODOE had no jurisdiction. Kreider Dec., Ex. 6, Ex. 7.

C. ODOE's abrogation of its mandate to protect the public interest has resulted in EFSC decisions that are, on their face, stunning in their betrayal of the public interest and public trust.

Whether because of corruption, financial mismanagement, unanticipated weather catastrophes, or wildfire, multiple U.S. electric utilities have bankrupted in recent years, often leaving taxpayers liable, sometimes for billions of dollars in resulting costs.<sup>45</sup> Despite Idaho

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<sup>45</sup> See. e.g., Taylor Telford, Steven Mufson, *PG&E, The Nation's Biggest Utility Company, Files for Bankruptcy after California Wildfires*, January 29, 2019, <https://www.washingtonpost.com/business/2019/01/29/pge-nations-biggest-utility-company-files-bankruptcy-after-california-wildfires/>; Theodore J. Kury, *Many Electric Utilities are Struggling - Will More Go Bankrupt?*, May 3, 2019, <https://theconversation.com/many-electric-utilities-are-struggling-will-more-go-bankrupt-113458>; Andrew Topf, *The 10 Biggest Energy Company Bankruptcies*, Oct 10, 2014, <https://www.businesstimes.com.sg/opinion-features/columns/10-biggest-energy-company-bankruptcies>; Steven Church, *Municipal Electricity Provider in California Files Bankruptcy*, May 25, 2021,

Power's many assurances to the contrary, (See, Final Order at 327-28)

Idaho Power is not immune from the same issues or acts of nature confronting other billion-dollar utilities.

Oregon law recognizes the possibility that an energy facility or its developer or operator could fail: OAR 345-022-0050(2) requires that before issuing a site certificate, EFSC must find that an applicant has a reasonable likelihood of obtaining a bond or letter of credit, in a form and amount satisfactory to the Council, to restore the site to a useful, non-hazardous condition.

Here, EFSC accepted Idaho Power's estimate that it would cost \$140,790,000 to restore the B2H site. Final Order on the ASC for the Boardman to Hemingway Transmission Line at 333.<sup>46</sup> Against this backdrop, ODOE betrayed all pretense of protecting the public welfare when it advised EFSC to accept a \$1.00 (!) bond against the estimated \$140,790,000 cost of retiring the facility, for the period between B2H's in-service date through its 50th year in service.<sup>47</sup> ODOE's incredible

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<https://ampvideo.bnnbloomberg.ca/municipal-utility-in-california-files-bankruptcy-1.1608384>; Energy News, *Liberty Power Bankruptcy - What Now?* April 20, 2021, <https://electricityplans.com/liberty-power>.

<sup>46</sup> It appears from the Final Order that EFSC determined the cost to retire the site based solely on information provided by Idaho Power. *Id.* at 330-332.

<sup>47</sup> It is indicative of the extraordinary hold that Idaho Power has had over ODOE and this siting process that Idaho Power *even protested*

recommendation shows how far the Department will go to serve the interests of Idaho Power, even while leaving Oregon taxpayers, ratepayers, and the state itself exposed to extreme financial risk.

Hundreds of everyday Oregon citizens have been pitted against the combined might of a billion-dollar corporation and the agency which has done its bidding. Idaho Power has infinite resources with which to purchase the services of witnesses, consultants, and the largest law firms to battle common citizens who have strived to protect the land where they have chosen to work, play, and live their lives.

Throughout the B2H siting process, ODOE has advocated only on Idaho Power's behalf. ODOE has interacted frequently and freely with the employees of Idaho Power, has strived to accomplish Idaho Power's

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*the \$1.00 bond as too onerous.* The billion-dollar utility actually requested

“that ODOE consider providing an additional option for the form of assurance required. That is, Idaho Power requests that it be allowed to provide a deposit for that same amount, because there are administrative costs associated with obtaining bonds and letters of credit which would far exceed the actual value of the bond and letters of credit.”

“Idaho Power's Comment,” Final Order, Attach. 4, DPO Comment/ Applicant Response, Department Response in Proposed Order Crosswalk Tables at 26. (referencing Recommended Retirement and Financial Assurance Condition 1).

goal of siting this transmission line, and received substantial compensation from Idaho Power for its efforts. The record documents ODOE's relentless efforts to benefit Idaho Power by seeing that the project that Idaho Power desires is constructed, according to the terms Idaho Power desires; ODOE has used a process designed to block public input, while making no true attempt to address the damage the transmission line will cause ODOE has acted without regard for the people whose lives the B2H project will affect, and with an obvious contempt for the laws enacted to protect Oregon's natural resources and its residents. *If* ODOE had sited B2H with the interests of Oregonians in mind, this state agency would not have needed to manipulate every stage of the process to preclude public input and concern about the B2H project. ODOE has betrayed the public trust at every turn.

*Amicus* believes that petitioners' claim can only be accurately assessed when viewed against the context in which the B2H site certificate was approved.

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## **VI. CONCLUSION**

This Court should reverse the EFSC Final Order and remand this case to EFSC for further proceedings consistent with the court's Opinion.

Respectfully submitted,

s/ Anne Morrison

Anne Morrison, OSB #891510

for *Amicus Curiae* Anne Morrison



**Certificate of Compliance with ORAP 5.05(2)**

## Brief length

I certify that this petition complies with the 14,000 word-count limitation in ORAP 5.05(1)(b)(i)(B) and that the word count of this brief, as described in ORAP 5.05(2)(a), is 10,164 words.

## Type size

I further certify that the size of the type in this brief is not smaller than 14 point for both the text of the brief and footnotes as required by ORAP 5.05(4)(f).

DATED: December 20, 2022

s/ Anne Morrison  
Anne Morrison

### Certificate of Filing and Service

I hereby certify that on December 20, 2022, I filed the foregoing Application to Appear as *Amicus Curiae* with the Appellate Court Administrator by electronic filing, using the court's eFiling system.

I further hereby certify that on December 20, 2022, I served the foregoing Application to Appear as *Amicus Curiae* upon

Karl Anuta,  
Mike Sargetakis  
Attorneys for Petitioner Stop B2H Coalition

Jesse A. Buss  
Attorney for Petitioner Michael McAllister

Lisa F. Rackner  
Sara Kobak  
Andrew J. Lee,  
Attorneys for respondent Idaho Power Company

Denise G. Fjordbeck,  
Patty Rincon  
Jordan R. Silk,  
Attorneys for Oregon Department of Energy and Energy Facility  
Siting Council

I additionally certify that on December 20, 2022 I served a true and correct copy of this Application to Appear as *Amicus Curiae* upon Jocelyn Claire Pease, attorney for respondent Idaho Power Company, by mailing such in an envelope with prepaid first-class postage addressed to:

Jocelyn Claire Pease  
McDowell Rackner Gibson PC  
419 SW 11<sup>th</sup> Ave, Ste 400  
Portland OR 97205  
for respondent Idaho Power Company

Hailey R. McAllister, CBN 326785

*Pro hac vice*

3540 Harbor View Ave.

Oakland, CA. 94619

541-975-4138

haileyrmcallisterlaw@gmail.com

Attorney for Petitioner Michael McAllister

DATED: December 20, 2022.

s/ Anne Morrison

Anne Morrison

IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	DECLARATION OF ANNE
	)	MORRISON, <i>AMICUS CURIAE</i> ,
v.	)	IN SUPPORT OF
	)	PETITIONER'S PETITION FOR
OREGON DEP'T OF	)	EXPEDITED REVIEW
ENERGY, OREGON	)	
ENERGY FACILITY	)	
SITING COUNCIL, and	)	
IDAHO POWER	)	
COMPANY	)	
<i>Respondents</i>	)	
	)	

1. I am an attorney and the *amicus* herein. I have personal knowledge of the matters set forth in this declaration.

2. Exhibit 1 is the August 22, 2019 letter/comment on the Draft Proposal Order, written by botanist Susan Geer to ODOE Senior Siting Analyst Kellen Tardaewether and discussing Geer's concerns regarding Idaho Power Company's "Noxious Weed Plan," (DPO Attachment 1-5). Ms. Geer has provided this comment to me as submitted in the record of the case; however, because I do not have access to the record I am unable to provide the record citation.

1 – DECLARATION OF ANNE MORRISON, AMICUS CURIAE, IN SUPPORT OF PETITIONER'S PETITION FOR REVIEW

3. Exhibit 2 is the August 22, 2019 letter/comment on the Draft Proposal Order, written by botanist Susan Geer to ODOE Senior Siting Analyst Kellen Tardaewether and discussing Geer's concerns regarding Idaho Power's Amended application for Site Certificate and failure to comply with legal requirements pertaining to the protection and preservation of rare and native plants. Ms. Geer has provided this comment to me as submitted in the record of the case; however, because I do not have access to the record I am unable to provide the record citation.

4. Exhibit 3 is a March 1, 2021 letter from EFSC Chair Marcy Grail to Oregon's Joint Committee on Ways and Means and the Subcommittee on Natural Resources, discussing EFSC's role as sole decision maker regarding energy facilities, EFSC's warm relationship with and reliance on ODOE staff, and requesting legislative funding on behalf of ODOE. This document is available on the Oregon Legislature's website at

<https://olis.oregonlegislature.gov/liz/2021R1/Downloads/PublicTestimonyDocument/9946>.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 17th day of December 2022 in La Grande, Oregon.

s/ Anne Morrison  
Anne Morrison

Greg Larkin/1101

Greg Larkin/78

August 22, 2019

Energy Facilities Siting Council  
c/o Kellen Tardaewether, Senior Siting Analyst  
Oregon Department of Energy  
Via email [B2H.DPOComments@Oregon.gov](mailto:B2H.DPOComments@Oregon.gov)

**Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019**

**Dear Chair Beyeler and Members of the Council;**

I am a Botanist/Ecologist who has worked in eastern Oregon for over 20 years; although employed by Wallowa Whitman National Forest, I write to you today as a Union County citizen and landowner. I have reviewed Idaho Power Company's (IPC's) amended Application and offer the following comments for the consideration by the council in their decision on the pending Application for Site Certificate.

With regards to Exhibit P, IPC's "Noxious Weed Plan" (DPO Attachment P 1-5) is vastly inadequate and presents a threat to Oregon's native plant communities/wildlife habitat, promotes risk from wildfire, and presents a public menace. Oregon statute 569.180 (Noxious weeds as public nuisance policy) states, "In recognition of the imminent and continuous threat to natural resources...noxious weeds are declared to be a public nuisance and shall be detected, controlled and, where feasible, eradicated on all lands in this state." Chapter 569 of Oregon law covers weed control [https://www.oregonlegislature.gov/bills\\_laws/ors/ors569.html](https://www.oregonlegislature.gov/bills_laws/ors/ors569.html) including obligation of land occupant:

***569.390 Owner or occupant to eradicate weeds.*** Each person, firm or corporation owning or occupying land within the district shall destroy or prevent the seeding on such land of any noxious weed within the meaning of ORS 569.360 to 569.495 in accordance with the declaration of the county court and by the use of the best means at hand and within a time declared reasonable and set by the court, except that no weed declared noxious shall be permitted to produce seed.

Excellent comments were provided in "B2H Noxious Weed Plan Comments" by a large group of weed professionals, submitted by Brian Clapp of Union County. The document states, "The County Weed Supervisors of Morrow, Umatilla, and Union counties met with the Oregon Dept. of Ag and Tri-County CWMA on August 22, 2017 to go over the B2H Attachment P1-5 Noxious Weed Plan. In conjunction with comments from previous meetings with Malheur and Baker county weed supervisors, the following list of concerns was developed..." IPC's Noxious Weed Plan of 2018 (Attachment P1-5) does NOT include the suggestions made by the weed managers.

The foremost finding by weed managers in 2017 was that IPC illegally excludes themselves from responsibility for the FULL list of weeds. In 2018, IPC's Weed Plan still only obligates IPC to control weeds in Class A and Class T lists. It is widely recognized that these weed "Classes" are determined according to agricultural priorities, not according to which weeds are the biggest threats to natural areas. Treating only Class A and T, a shorter list of weeds which are not very common, is especially devastating for natural areas, i.e. the vast majority of the proposed B2H routes. Any invasive plant can devastate an area- regardless of which "list" it is on. In fact, Class B and C weeds are generally the worst weeds and tend to be those which are spreading most aggressively and to more areas, thus threatening and ultimately devastating the most native habitat. The Weed Managers state, "Every landowner and

land manager is responsible for the control of ALL state and county listed noxious weeds on their property/ ROW. Whether the weeds have been here for 50 years or don't show up till the 20<sup>th</sup> year of Operation, IPC will be held responsible for the control of noxious weeds in the areas they manage-the same as everyone else." IPC has offered nothing in response.

As an example of serious weeds that would be excluded according to IPC, two of the worst weeds which occur in Union County, *Leucanthemum vulgare* (ox eye daisy) and *Rosa rubiginosa* (sweet briar rose) are NOT included in Table 1 of the Weed Plan "Designated Noxious Weeds". These species are listed in Union County Class B <http://union-county.org/wp-content/uploads/2017/04/Union-County-Weed-List-2019-and-cost-share-Ad.pdf>. Other "Class B" list weeds include sulphur cinquefoil, whitetop, diffuse and spotted knapweed – all among the very worst noxious weeds, present in the proposed areas of disturbance and certain to spread to currently intact native plant communities, should B2H construction proceed. These weeds, which are even now devastating thousands of acres of native plant communities, would not be treated under IPC's Weed Plan – and neither would any of the other dozens of species on Class B and C lists, not to mention new invasives, which take some time to be added to a list. Union County Class "B" list alone includes 24 noxious weeds. Other landowners are required to follow County and State laws and control ALL noxious weeds. Why should Idaho Power be exempt?

Weed Surveys provided in Exhibit P-1 part 2a and b are misleading; many species which would NOT be controlled by IPC under their "Weed Plan" were included in the surveys. Surveys were done between 3-8 years ago, a very long time in terms of weed spread! Surveys done so long ago using an outdated list and in such an artificially limited area are not acceptable.

In addition to exempting themselves from the full list of weeds, IPC's Post Construction treatments is otherwise ridiculously limited and unacceptable. In fact I could not believe the State Weed Program would sign off on it. Perhaps they did not. No comments were provided in DPO Attachment 3, "Reviewing Agency Comments". Here is an excerpt from the IPC Plan (Monitoring 6.1):

*As stated above, noxious weed monitoring and control will occur during the first 5-year period. When it is determined that an area of the Project has successfully controlled noxious weeds at any point during the first 5 years of control and monitoring, IPC will request concurrence from ODOE. If ODOE concurs, IPC will conclude that it has no further obligation to monitor and control noxious weeds in that area of the Project. If control of noxious weeds is deemed unsuccessful after 5 years of monitoring and noxious weed control actions, IPC will coordinate with ODOE regarding appropriate steps forward. At this point, IPC may suggest additional noxious weed control techniques or strategies, or may request a waiver from further noxious weed obligations at these sites.*

Anyone who has tried to control weeds will realize that by treating weeds only once per year, many will be missed and weeds will spread. Further, noxious weeds cannot be "successfully controlled" in 5 years. My observations of disturbed areas on both public and private lands show that weed treatment and monitoring must continue in *perpetuity* to keep those areas weed free. An Alberta study by Cole et. al. in 2007 concluded, "Eradication attempts usually involve mechanical removal to prevent seed spread, followed by a systemic, residual herbicide treatment well beyond the infestation site. The key to the extirpation of these invasive plants is the on-going locating, marking, monitoring and managing by the municipalities, agricultural field men and land owners..." The treatment that IPC proposes fail in all ways; they are neither "on-going" nor do they extend "well beyond the infestation site". If there is any marking, monitoring and managing, IPC will be long gone and leaving that burden to residents and

County and State. It seems ludicrous that IPC be allowed to appeal to ODOE after 5 years to claim areas of the "Project" had "successfully controlled weeds"- and then be exempted from further responsibility-- while invasives return as soon as herbicide treatments cease.

In the same unreasonable vein, the Plan further states, "if control of noxious weeds is deemed unsuccessful...IPC will coordinate with ODOE regarding appropriate steps forward," including "request a waiver from further noxious weed obligations". Essentially IPC comes by once per year for 5 years at most, inevitably fails in weed control, and is ultimately not responsible. Landowners and County are burdened with more weed control, and our ever-shrinking valuable native plant communities are compromised or eliminated, leaving native animals without habitat.

IPC's Plan further states they are not responsible for "areas outside of the right of way (ROW)". Weed sites immediately outside areas of potential disturbance are nearly certain to but would not be recorded or treated! Noxious weeds spread quickly, often exploding exponentially in a single season. IPC is proposing a HUGE area of disturbance; their responsibility should not be limited to the ROW.

As IPC has proposed only annual treatments, one can surmise they would use primarily residual herbicides. Residual herbicides may seem like the answer to the dilemma of weeds constantly in seed production. Herbicides such as aminopyralid and imazapic have become the herbicides of choice for many species. I have been using these herbicides for years now and have found they prevent germination for up to 3 years following application in eastern Oregon. This means germination of native plants as well as weeds. Bare spots are created where weeds once were. Revegetation by anything at all is prevented. After 2-3 years when the soil born chemical is reduced, weeds pioneer the site. In addition, native plants next to the weeds can die as a result of root uptake of the herbicide even though they were not sprayed directly. When using aminopyralid, willows, aspen, conifers (especially larch) and desirable native forbs in certain families are often killed in this way. Successful revegetation very unlikely. Since IPC is proposing to treat weeds for only 5 years, it is very likely a couple of treatments using residual herbicides would suppress weeds for that time, only to explode on the - now bare-areas once occupied by valuable native plants.

In summary, IPC's Noxious Weed Plan does not comply with Chapter 569 of Oregon law. IPC denies responsibility for control of most weed species, denies responsibility for weed control after 5 years, controls weeds only annually, and even allows them a waiver when control has failed. EFSC should reject the Weed Plan and Application. As a condition of re-applying, IPC should be required to post a bond to secure weed management for the lifetime of the project, which they claim is 45 years. Much is at stake, and there is no going back when thousands of acres of native plant communities are lost to invasives.

**Sincerely,**

**Susan Geer**  
**906 Penn Ave.**  
**La Grande OR 97850**  
**[susanmgeer@gmail.com](mailto:susanmgeer@gmail.com)**  
**541-963-0477**



Greg Larkin/1101

Greg Larkin/81

August 22, 2019

Energy Facilities Siting Council  
C/o Kellen Tardaewether, Senior Siting Analyst  
Oregon Department of Energy  
[B2H.DPOComments@Oregon.gov](mailto:B2H.DPOComments@Oregon.gov)

**Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019**

**Dear Chair Beyeler and Members of the Council;**

In my previous letter I wrote to you outlining problems with Idaho Power's Noxious Weed Plan, part of their amended Application for Site Certificate. Here I offer comments on the implications for rare plants and State-listed priority unprotected plant communities, should IPC's Amended Application be accepted.

First of all, I was dismayed to learn that Oregon Department of Agriculture Rare Plant program did not provide comments (DPO Attachment 3, Reviewing Agency Comments). Upon contacting Oregon's Rare Plant Co-coordinator, I learned that no funding was provided to him for that task! It is a tremendous oversight and disservice to Oregon's rare plants, to have no State involvement in an application with such HUGE potential impacts to Oregon's rare plants and habitats.

The Threatened and Endangered Species Standard at Oregon Administrative Rule (OAR) 345-022-0070 provides:

*To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:*

*(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under [Oregon Revised Statute (ORS)] 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:*

*(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or*

*(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species*

Furthermore, Site Certificate applicant requirements OAR 345-021-0010(1)(q) requires Exhibit Q include the following:

*(A) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2), ORS 564.105(2) that may be affected by the proposed facility.*

*(B) For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it.*

*(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.*

*(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).*

*(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

*(F) concerns only animals*

*(G) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.*

1

To say that IPC meets these requirements is a stretch of the imagination!

First of all, an incomplete and outdated plant list was used in surveys. Exhibit P, Attachment P1-2 Revised Final Biological Survey Workplan, 3.2.1 "Agency Survey Requirements" states that ODA "requires that state-listed threatened and endangered species, which appear on ORNHIC List 1 and have the potential to occur in the project area, be considered for survey...Regardless of land ownership, suitable habitat for sensitive plants will be identified during the pre-survey vegetation mapping phase and refined during the species-specific surveys. Appendix C-2 provides information on sensitive species with the potential to occur within the project area."

In fact, the State entity which maintains the state list is ORBIC, not ORNHIC. Appendix C-2 is undated and contains only 8 of the 64 State T & E plants listed by ODA in 2019 (<https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks>). The likely conclusion is that most current State T & E plant species were not included in surveys. Also, strangely, neither OR/WA BLM, nor USFS Region 6, which jointly participate in ISSSP (Interagency special status/sensitive species program <https://www.fs.fed.us/r6/sfpnw/issssp/agency-policy/>) are mentioned at all! Instead, Idaho State BLM program plant are listed in Attachment P1-2, Appendix C-2. ISSSP list was updated in 2015 and again in 2018; apparently none of those revisions were acknowledged by IPC in their surveys.

Exhibit Q part 3.4.2.3 "Summary of Potential Adverse Effects to Plants" finally mentions using 2016 **agency data** "BLM (2016), ORBIC (2016a), IDFG (2016), and USFS (2016) databases, along with field survey data results (see Exhibit P1, Attachment P1-7A, Biological Surveys Summary Report), were combined in GIS to generate species occurrence information". These references to 2016 lists appear to have only been added **post-survey** and hardly make up for the fact that IPC sponsored surveys themselves did not use proper or updated plant lists.

While I realize this a review of State mandates, not federal ones, all agencies purport to co-operate with each other in the effort to manage rare species to avoid further listing. Failing to use updated plant lists reflects negatively on IPC, and failure to survey for ISSSP species reflects negatively on both IPC and the State of Oregon. It is incredible to me that the BLM and USFS have signed off on this (2018 Record of Decision). I believe this is a gross oversight. **It is imperative EFSC halt this faulty process immediately and require ODA Rare Plant Program involvement and comments and surveys for ISSSP list plants!**

Secondly, in contrast to the wording in (OAR) 345-022-0070, **no** State listed plants have a conservation program in place. Undoubtedly, this is because the State has not yet developed the programs. IPC does not propose any either. In addition, no critical habitat is named for any of the species. The State has apparently not found time or funding for ODA to address this; IPC does the bare minimum and does not provide any conservation program or critical habitat either. To add insult to injury, IPC does not propose **any** monitoring programs (as suggested) for impacts to T&E species!

Even with inadequate plant lists and little access to private lands, 5 State listed T&E plant species (DPO Exhibit Q) were found in surveys of the B2H "analysis area". IPC claims "only" two of these rare species (Mulford's milkvetch and Snake River goldenweed) will suffer "direct impacts", by blading with heavy equipment. IPC claims that, "Avoidance and minimization measures ...described in Section 3.5.4" will "mitigate" impacts. Upon reading 3.5.4 we find that this consists of "minimum buffer of 33 feet

Greg Larkion/83

between the disturbance and the edge of the T&E occurrence". Habitat for these plants will be completely fragmented and a buffer of 33 – or even a few hundred--feet will not stop invasion by noxious weeds. OAR 345-022-0070 says *the design, construction and **operation** of the proposed facility*, - following their "Noxious Weed Plan" IPC stops treating weeds after 5 years, leaving T&E plants to be overwhelmed! T&E species will suffer irreparable damage under B2H. The Oregon Conservation Strategy rightly recognizes, "Invasive species are the second-largest contributing factor causing native species to become at-risk of extinction in the United States."

To delve further into rare plants slated for damage by B2H, *Trifolium douglasii* is a USFWS "Species of Concern" <https://www.fws.gov/oregonfwo/Documents/OregonSpeciesStateList.pdf> yet not even considered in IPC's 3.5 "Avoidance to Minimize Impacts". Although List 1 under ORBIC's latest ranking <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> it is not shown as State listed Threatened or Endangered, so is ignored by IPC. Species of Concern are "Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed." Douglas clover has a global rank of G2 "*Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences*". DPO Exhibit P Part 2b Appendix 3A and 3B Figure 9 of 23 shows Douglas clover directly on the Morgan Lake alternative! This is not even taking into account private lands where access was not granted for survey, contains additional occurrences of Douglas clover. The Morgan Lake/ Glass Hill area is THE main place where this rare plant grows in Oregon, and B2H is set to permanently alter and compromise its main habitat with weeds!

State List 1 and 2 species NOT specifically included on the Threatened and Endangered list were not required by OARs and thus were not addressed at all by IPC. It seems wrong to completely exclude species which are only a step away from listing at the highest level. In fact, in these times, any rare species which shows a Moderate or higher "Climate Vulnerability" as determined by ORBIC <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> should absolutely be considered in any Application. The fact that it was not runs counter to the Oregon Climate Plan. Speaking of Oregon and State Goals, IPC's Application made no mention at all of the Oregon Conservation Strategy! Both of these omissions are critical and unacceptable!

Even more disturbing was the exclusion of the State Natural Areas Plan  
<https://inr.oregonstate.edu/orbic/natural-areas-program>.

A look at the list of unprotected plant associations according to the Natural Areas Plan reveals that many are located in the B2H "analysis area". Since I am most familiar with the Glass Hill area, I can point to Ponderosa pine/bluebunch wheatgrass, Ponderosa pine/Idaho fescue, Douglas fir/oceanspray, Mountain alder-snowberry riparian, and Western larch – mixed conifer forest as being plant communities slated for destruction under B2H in the Blue Mountains Ecoregion which are currently listed as "unprotected" by the Natural Areas program, and thus listed as top-priority in the Natural Areas Plan.

In conclusion, the ODA Rare Plant program was excluded from comments, and is apparently so underfunded they have not been able to provide essential conservation plans, critical habitat, or monitoring plans. Idaho Power surveys are outdated and used an incomplete list. ISSSSP lists were not included. Mitigation measures provided by IPC for State T&E species are pathetic. A Federal Species of Concern was not even considered in the Application. State List 1 and 2 species and Climate Vulnerable species were not considered. The Oregon Climate Plan and Oregon Conservation Strategy were ignored

Greg Larkin/1101

Greg Larkin/84

and completely excluded. The State Natural Areas Plan and unprotected plant community types was not even discussed.

**Considering all of these crucial exclusions and problems meeting Oregon laws, plans, and goals, EFSC must deny IPC's Application.**

Sincerely,

Susan Geer  
906 Penn Ave.  
La Grande OR 97850  
[susanmgeer@gmail.com](mailto:susanmgeer@gmail.com)



# ENERGY FACILITY SITING COUNCIL

■ Marcy Grail, Chair ■ Kent Howe Vice-Chair ■ Hanley Jenkins II ■ Mary Winters ■ Cindy Condon ■ Jordan Truitt

March 1, 2021

Co-Chair Kathleen Taylor

Co-Chair Jeff Reardon

Members of the Joint Committee on Ways and Means Subcommittee on Natural Resources

900 Court St. NE

Salem, OR 97301

## **RE: Department of Energy Budget**

Dear Co-Chair Reardon, Co-Chair Taylor and Members of the Committee:

My name is Marcy Grail, and I am an Assistant Business Manager for the Internal Brotherhood of Electrical Workers (IBEW) Local 125. IBEW Local 125 has approximately 3,300 members who work in the Pacific Northwest's electric utility industry. We represent members working in the utility, outside construction, and line clearance tree trimming sectors of the electric utility industry. I have also served as one of seven members of the governor appointed and senate confirmed Energy Facility Siting Council (EFSC) since 2016 and am currently the chair.

EFSC is charged with the review and decision making on large-scale energy projects that are key to the generation and transmission of energy to Oregonians, such as solar PV, wind, and high voltage transmission lines. Because these are large infrastructure projects, they can be extremely complex which often generates significant support and opposition. While EFSC is the sole decisionmaker on these projects, we are volunteers and therefore necessarily rely on the staff at the Oregon Department of Energy (ODOE). Staff completes the needed work with applicants, state agencies, local governments, tribal governments and members of the public to provide us the information and support necessary to be an independent decision-making body.

During the time that I have been on EFSC, I have witnessed an ODOE staff dedicated to a timely, fair, inclusive, and transparent review process. They proactively engage all interested stakeholders to ensure all relevant information is included in the record so they can be confident in their recommendations to us whether each proposed project meets all applicable standards and any impacts are minimized or mitigated. Despite the controversial nature of some of these projects and the charged positions of the different stakeholders that can result, ODOE staff ensures that all comments and positions are equally evaluated and presented to EFSC.

The work of EFSC is critical to Oregonians. It would be beyond challenging for EFSC members to fulfill their duties without the same level of continued and thorough support which has been provided by ODOE staff. In my role as chair, I have an even better view of staff's contribution to the successful execution of our duties. In summary, I respectfully request that you join me in support the ODOE budget and encourage your approval of it. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Marcy Grail". The signature is fluid and cursive, with the first name "Marcy" and the last name "Grail" clearly distinguishable.

Marcy Grail

Chair

Oregon Energy Facilities Siting Council

IN THE SUPREME COURT OF THE STATE OF OREGON

In the matter of the	)	Energy Facility Siting Council
Application for Site	)	
Certificate for the	)	OAH Case No. 2019-ABC-
Boardman to Hemingway	)	02833
Transmission Line	)	
	)	Supreme Court No. S069919
STOP B2H COALITION,	)	
<i>Petitioner</i>	)	DECLARATION OF FUJI
	)	KREIDER IN SUPPORT OF
v.	)	AMICUS CURIAE BRIEF IN
	)	SUPPORT OF PETITIONER'S
OREGON DEP'T OF	)	PETITION FOR EXPEDITED
ENERGY, OREGON	)	REVIEW
ENERGY FACILITY	)	
SITING COUNCIL, and	)	
IDAHO POWER	)	
COMPANY	)	
<i>Respondents</i>	)	

1. My name is Carol Fuji Kreider (Fuji Kreider). I have knowledge of the matters set forth in this declaration.

2. I am the Secretary/Treasurer of Petitioner Stop B2H Coalition. I manage the records and finances of the board of directors for the organization, incorporated in the State of Oregon in Aug 28, 2017 and designated by the IRS as a 501(c)(3) as a public benefit nonprofit on September 19, 2017. We are a 100% volunteer organization, with contracted attorneys to help us with this case. In my role I serve not only an administrative function but also as leadership: providing guidance and

1 – DECLARATION OF FUJI KREIDER IN SUPPORT OF AMICUS CURIAE BRIEF IN SUPPORT OF PETITIONER'S PETITION FOR REVIEW

assistance to all of our members as they navigated and participated in the Oregon Department of Energy/Energy Facilities Siting Council decision making processes in the matter of the Boardman to Hemingway transmission project. Hence, this required me to engage in email exchanges with ODOE staff and other actors involved in the process to gather information as the board or other volunteers needed.

3. Attached as Exhibit 4 is an email exchange dated August 4, 2022 between ODOE Senior Siting Analyst Kellen Tardaewether and me, discussing the \$4.14 million in reimbursement funds paid by Idaho Power Company to ODOE for work related to siting the B2H transmission line between 2013 and August 2022.

4. Attached as Exhibit 5 is a March 24, 2020 letter from Idaho Power Company to landowners, including me, along IPC's proposed Mill Creek Route, (name redacted) stating that because Idaho Power would be pursuing the Morgan Lake Route in place of the Mill Creek Route, property owners near the Mill Creek Route "don't need to take any further action."

5. Attached as Exhibit 6 is an August 4, 2020 email exchange between ODOE Senior Siting Analyst Kellen Tardaewether and Jim and Fuji Kreider in which Tardaewether acknowledges IPC's March 24 letter



Greg Larkin/89

and states, "IPC may publicly announce what it likes about which route it intends to construct and operate," while clarifying that IPC had never removed the Mill Creek Route from its application.

6. Attached as Exhibit 7 is a November 3, 2020 email exchange between Tardeawether and Fuji and Jim Kreider in which Tardeawether affirms that "Idaho Power has not removed any routes" from the application, "so all of them continue to be under review," and that "Idaho Power may represent their preferences for routes to the public and as a company and that does not impact the EFSC review."

7. Attached as Exhibit 8 is a February 24, 2022 email exchange between ODOE Assistant Director for Siting Todd Cornett and Jim Kreider, cc:ed to me, in which Kreider complains that IPC is obtaining court orders to enter private property despite the fact that the IPC application has not been approved, and Cornett responds that IPC is not acting under EFSC authority to enter onto private land, therefore, IPC's actions are "outside EFSC's authority."

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 17th day of Dec. 2022 in La Grande, Oregon.

s/Fuji Kreider  
Fuji Kreider

**Fuji Kreider**

---

**From:** TARDAEWETHER Kellen \* ODOE [Kellen.TARDAEWETHER@energy.oregon.gov]  
**Sent:** Thursday, August 4, 2022 2:37 PM  
**To:** Fuji Kreider  
**Subject:** RE: Some questions-- again!

Hi Fuji!

- It sounds like Jesse is going to send an email to the parties and limited parties next week with some logistical info for the upcoming EFSC meeting to review the proposed order, PCCO, and exceptions. Any formal direction should come from Jesse, I'm just trying to help convey items that I believe will happen to help you but if there is any deviation from what this says and what Jesse says, his directions will be maintained. The meeting will have in-person, call-in and webinar connection abilities, same with all EFSC meetings and this information will be included in the Agenda for the meeting. There will be an opportunity for limited parties to submit recordings if they cannot attend and his email should have more info about how to do that. It also looks like parties and limited parties will have an opportunity to provide oral testimony for each issue where an exception was properly filed and Jesse's email may have more info on that as well.
- The Department executes a Cost Reimbursement Agreement (CRA) with every applicant who submits an application for site certificate and that CRA is what we bill towards for staff and DOJ work reviewing an application, drafting orders, attending meetings, etc. If we have a consultant assist us with reviewing the application, their time is billed toward the CRA, same with reviewing agencies who spend time reviewing and submit invoices may also be reimbursed under the CRA. The CRA executed with IPC has been amended (added to) several times over the years (since 2013) because the duration and complexity of the ASC review and when it was "on pause" during the NEPA review. The total CRA value since 2013 is \$4.14 million. If you want a more detailed distribution of costs, I'll need to know more specifically what you're looking for. Since the EFSC process is *process* driven, there are always upswings in work and therefore billing as well as periods where there is less billing because there is less work.
- I've passed your comments about signage and parking along to those doing logistics for the meeting. It sounds like there will be parking info provided via email and links to the map below, I believe.

Hope this all helps and let me know what other questions you have!

Kellen



**Kellen Tardaewether**  
 Senior Siting Analyst  
 550 Capitol St. NE Salem, OR 97301  
 C: 503-586-6551  
 P (In Oregon): 800-221-8035



Stay connected!

**From:** Fuji Kreider <fkreider@campblackdog.org>  
**Sent:** Monday, August 1, 2022 6:05 PM  
**To:** 'Fuji Kreider' <fkreider@campblackdog.org>; TARDAEWETHER Kellen \* ODOE  
 <Kellen.TARDAEWETHER@energy.oregon.gov>  
**Subject:** RE: Some questions-- again!

Ooops, one more: And, if a petitioner can't zoom-in (e.g.: Matt Cooper has a family gig for ashes to be spread ... the whole week on the coast in an RV park).... What to do? He is thinking about video-taping his testimony (depending on what Jesse says is the procedure, time, etc.) and sending it to be played (as if he was present on the webex/zoom).

Sorry I spaced-out that question below.... -Fuji

---

**From:** Fuji Kreider [<mailto:fkreider@campblackdog.org>]  
**Sent:** Monday, August 1, 2022 6:01 PM  
**To:** 'TARDAEWETHER Kellen \* ODOE'  
**Cc:** Fuji Kreider-CBD  
**Subject:** Some questions-- again!

Hi Kellen,

Hope you are keeping cool—albeit, it seems that the heat wave is over—this one anyway. I have two or three questions for you:

1. I remember you or maybe it was Max or Todd, telling us that IPC pays ODOE around \$40K per month for the work on processing the ASC, etc... Is this correct; and/or can you tell me how much (doesn't have to be exact)? Please let me know if I need a public records request for this info. If so, I'll do one—please tell me how quickly this can be processed and format/forms or link? Thanks. In the past the number/amount was shared, but I can't find that. We're a bit curious as to how much of their \$200 million permitting costs have been for ODOE vs, OPUC/IRP, NEPA case, etc. You get the idea. I don't expect you to know all of that—just the ODOE costs are enough. Thanks!
2. The EFSC special hearing for exceptions in the contested case is on EOU campus. Parking is \$2 per day unless folks park at the stadium (a bit of a walk for some). Anyway, I just wanted to give you guys a heads up – and also request/hope that there will be signage or something, for folks to follow how to get to the meeting/hearing. The Gilbert Center is fairly new (formerly Ackerman School Auditorium) and many in the community do not know where it is. Probably you could ask EOU (as part of your rental fees) to allow parking at the Gilbert parking lot for free? And/or ask them to put up the signage for you guys (& community).

We're looking forward to getting more information from Jesse Ratcliff—ASAP--on the procedures and what to prepare and expect. There isn't much time – and for some they are already telling us that they won't be in town, so, we'll need zoom (or webex) protocols, etc. for those that will need to zoom in.... If there is anyone else that we should be asking about things like this, please advise. Thanks Kellen!

Take care,  
Fuji

Greg Larkin/1101

Greg Larkin/93



March 24, 2020

Route Update: Boardman to Hemingway Transmission Line



I'm writing to update you on the Boardman to Hemingway transmission line. Until now, we have considered two routes for the line in Union County: the Mill Creek Route and the Morgan Lake Alternative. We're now focused on building the Morgan Lake Alternative. Please see the back side of this letter for a map of both routes.

As you may recall, in 2016, a committee of Union County residents asked the U.S. Bureau of Land Management to consider a route that parallels the existing transmission line along the hillside west of La Grande. That led to the Mill Creek Route, which would be visible from town.

With help from local landowners, Idaho Power developed the Morgan Lake Alternative. This route would run behind the ridge southwest of Morgan Lake Park, out of the city's view. To further reduce visibility near the park, strategic sections would use shorter, H-frame structures instead of lattice towers.

We've also committed to helping improve recreation at Morgan Lake Park. The community can choose the improvements. Idaho Power and our fellow project participants will help pay for them.

Over the past two years, the community has shown a preference for the Morgan Lake Alternative. That's why we are pursuing it instead of the Mill Creek Route.

Since your property is near the Mill Creek Route, you don't need to take any further action. If you have any questions, please contact me at 208-388-2483 or [mstokes@idahopower.com](mailto:mstokes@idahopower.com).

Sincerely,

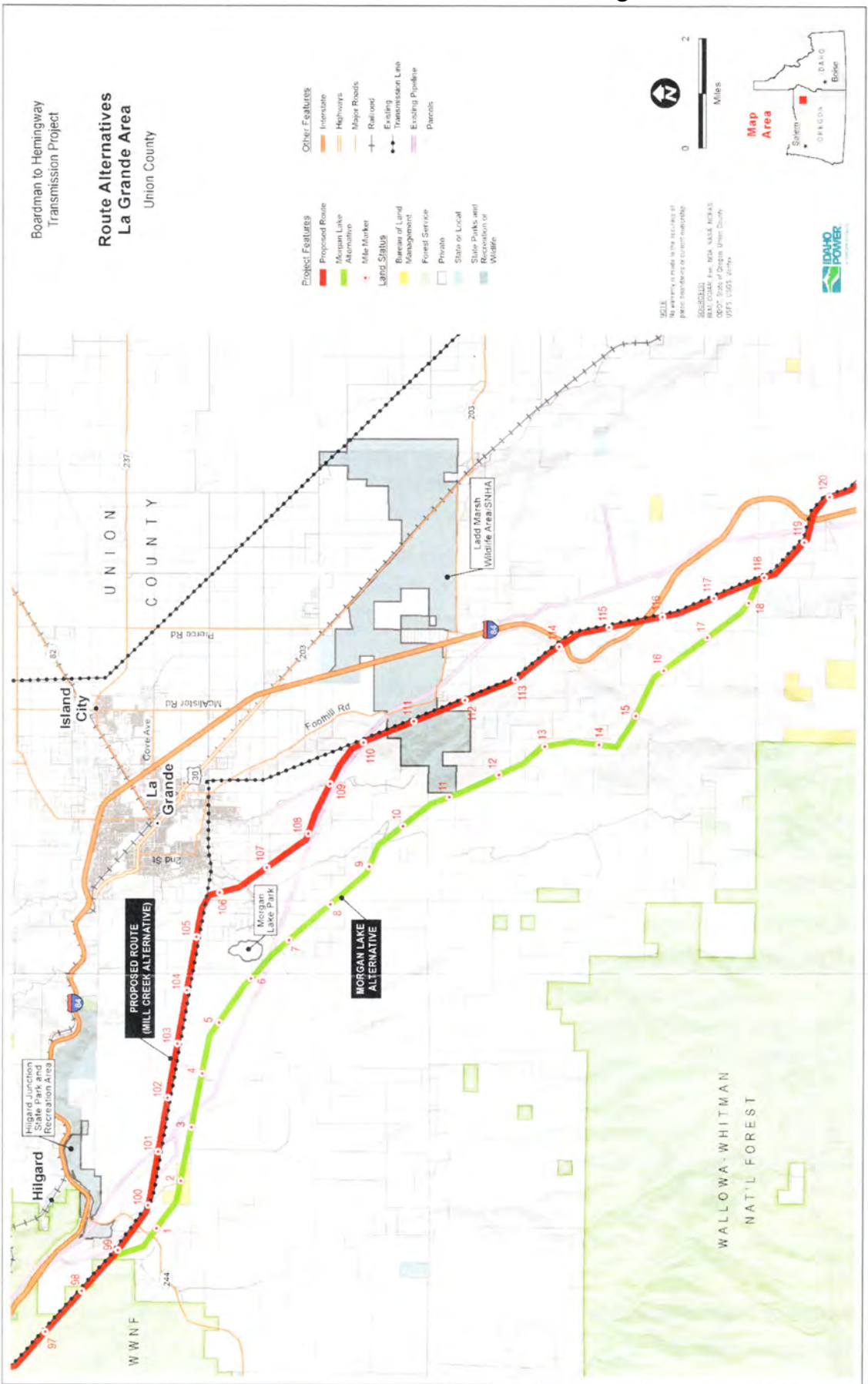
M. Mark Stokes, P.E.

Idaho Power Engineering Project Leader  
[mstokes@idahopower.com](mailto:mstokes@idahopower.com)

208-388-2323, or  
1-800-488-6151  
(outside the Treasure Valley)

1221 W. Idaho St. (83702)  
P.O. Box 70  
Boise, ID 83707





**From:** TARDAEWETHER Kellen \* ODOE  
[Kellen.Tardaewether@oregon.gov]  
**Sent:** Tuesday, August 4, 2020 8:10 AM  
**To:** jim kreider  
**Cc:** Fuji Kreider  
**Subject:** RE: Question about primary and secondary routes in Union county in the PO

Good morning Jim and Fuji!

Greg Larkin/'1101

Greg Larkin/95

Sorry I missed the call. I'm not getting my voicemails forwarded for some reason and have tried having folks in the office help, obviously it isn't working so thank you for pointing it out and I'll try something different.

I know that most folks are familiar with the routes named from the NEPA review done by the BLM. Indeed, even IPC in its letter you attached is using a name of the route from the NEPA review and one from the EFSC review...which is confusing. The routes in the application under review by EFSC in the vicinity of La Grande in Union County are the proposed route and the Morgan Lake alternative. Regardless of the naming of the routes (proposed vs alternative- in your email you refer to it as preferred and secondary), EFSC reviews both routes the same against the applicable Council standards, etc. If Council approves both routes then the applicant would select which routes it prefers and comply with any conditions of approval for the selected route. I believe the proposed route (EFSC review) is the same as the Mill Creek Route (NEPA review).

I understand that IPC has sent out these letters. IPC may publicly announce what it likes about which route it intends to construct and operate. However, IPC has left both routes in the application under review, therefore the proposed order continues to review, and recommends approval (with conditions) of both routes. If the B2H proposed facility is approved by EFSC and IPC wishes to modify any routes, they would need to go through the EFSC amendment process or submit an amendment determination request (ADR). However, that does not appear to be what's happening. It appears that IPC is publicly announcing which route it would select if approved by EFSC, the Morgan Lake alternative and not the proposed route. Regardless, and as

Greg Larkin/1101

Greg Larkin/95

mentioned, both routes will be reviewed by EFSC and if approved, IPC may select either route. Hope this helps!

Kellen

**Kellen Tardaewether**  
Senior Siting Analyst  
550 Capitol St. NE Salem,  
OR 97301  
P: 503-373-0214

C: 503-586-6551  
P (In Oregon): 800-221-  
8035

**From:** jim kreider <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>  
**Sent:** Monday, August 3, 2020 3:31 PM  
**To:** TARDAEWETHER Kellen \* ODOE <[Kellen.Tardaewether@oregon.gov](mailto:Kellen.Tardaewether@oregon.gov)>  
**Cc:** Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Subject:** Question about primary and secondary routes in Union county in the PO

Kellen -- FYI - just tried to call you at the office and mobile numbers your mailbox is full ;-(

In reality I was tired of typing stuff and just wanted to talk about what's in this email and to ramble a bit - lucky you were out and the mailbox was full ;-)

Since you are primary keeper of all things related to this project I have a question that I would like clarification on. In my and others looking through the PO it appears that the Mill Creek route is the preferred route and Morgan Lake is the secondary. Is that a fact?

The reason I ask is we've had several people so far tell us that they didn't need to participate in the contested case process because they got a letter from Idaho Power saying they are pursuing the Morgan Lake Route instead of the Mill Creek Route. The first paragraph says ...



Greg Larkin/1101

Greg Larkin/97

I'm writing to update you on the Boardman to Hemingway transmission line. Until now, we have considered two routes for the line in Union County: the Mill Creek Route and the Morgan Lake Alternative. We're now focused on building the Morgan Lake Alternative. Please see the back side of this letter for a map of both routes.

and the 2nd to last paragraph ...

Over the past two years, the community has shown a preference for the Morgan Lake Alternative. That's why we are pursuing it instead of the Mill Creek Route.

If there is no mention, suggestion, or hint of the route change in the PO as described in the attached letter what would one call the action of sending such a letter by Idaho Power to a landowner on the Mill Creek Route? Before I write to IPC I felt I needed to check with you to do diligence by checking the facts I think are true to be sure they are true. True confessions -- I'll never read every page of every document and attachment but think I know someone who might have.

Thanks -- jim

**From:** TARDAEWETHER Kellen \* ODOE  
[Kellen.Tardaewether@oregon.gov]  
**Sent:** Tuesday, November 3, 2020 11:00 AM  
**To:** Fuji Kreider  
**Cc:** 'Jim Kreider'  
**Subject:** RE: quick question...

I think it's best when discussing the state EFSC review, to use the terms for the routes proposed in the application for site certificate (ASC). So, in Union County, there is the proposed route and Morgan Lake alternative. That said, as you are aware, EFSC will review all routes and if all routes meet the applicable EFSC standards, the route(s) will be approved and Idaho Power will have the option to select which routes they want to construct and operate subject to the applicable site certificate conditions. The routes not selected will simply not be constructed therefore there will not be applicable site certificate conditions. The applicant does not need to amend it's site certificate to "remove" routes not constructed...again, if approved. Hope this helps,

Kellen



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8035



Stay connected!

**From:** Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Sent:** Tuesday, November 3, 2020 9:57 AM  
**To:** TARDAEWETHER Kellen \* ODOE <[Kellen.Tardaewether@oregon.gov](mailto:Kellen.Tardaewether@oregon.gov)>  
**Cc:** 'Jim Kreider' <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>; 'Fuji Kreider' <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Subject:** RE: quick question...

Hi again—"quick fingers"! ;-)

So basically, in Union County, the ASC route IS what we call the Mill Creek route; and the Morgan Lake is considered an "alternative." And, at this point, they are both in play. If they chose to remove or withdraw the Mill Creek route and go with the alternative, what would that do to the application and the process? It wouldn't be an amendment, right? An "amendment" would only come *after* a cite certificate was already issued, right?

Happy to know that Kaplan is already walking! Wow, time flies... I don't know about you, but during these days of covid, some things seem to be flying bye... and other things seem to be taking forever!

Fuji

**From:** TARDAEWETHER Kellen \* ODOE [<mailto:Kellen.Tardaewether@oregon.gov>]  
**Sent:** Tuesday, November 3, 2020 9:50 AM  
**To:** Fuji Kreider  
**Cc:** 'Jim Kreider'  
**Subject:** RE: quick question...

Hi Fuji and Jim!

Kaplan is doing amazing and started walking and will start talking soon too. It's all very exciting!

As we have discussed and I've provided a written explanation before, the routes as proposed in the application for site certificate (ASC) are what EFSC is reviewing. The proposed route and alternative routes, including the Morgan Lake alternative are proposed in the application for site certificate so all are being reviewed by EFSC. Please note that there is not a Mill Creek Route proposed in the ASC and that is a term derived from the NEPA review. Idaho Power has not removed any routes from the ASC, so all of them continue to be under review. Idaho Power may represent their preferences for routes to the public and as a company and that does not impact the EFSC review. As I understand the letter they previously sent, it was to inform interested persons of their intended route, so people that have concerns about either or both routes have advance notice of their intended route selection, if approved by EFSC. Hope this helps,

Kellen



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Stay connected!

**From:** Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>  
**Sent:** Tuesday, November 3, 2020 9:29 AM  
**To:** TARDAEWETHER Kellen \* ODOE <[Kellen.Tardaewether@oregon.gov](mailto:Kellen.Tardaewether@oregon.gov)>  
**Cc:** 'Fuji Kreider' <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>; 'Jim Kreider' <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>  
**Subject:** quick question...

Hi Kellen,

Greg Larkin/1101

Greg Larkin/101

Hope you and Kaplan are well and hangin' in there during these crazy times... ;-)

I think we've asked you this before, but my memory?...

Idaho Power is still saying that they are not pursuing the Mill Creek route in Union County. Is this true? I think we told you about the letter that Mark Stokes sent to folks along the Mill Creek route that we "don't need to take any further action." Can you clarify what the status of the Mill Creek route is, because to our understanding it is still being considered in the EFSC process—and it's even the preferred route in Union County. Thanks a lot, Kellen.

Hope the day – and week – brings all of us some much needed joy/relief?!

All the best,

Fuji

**Subject:**Re: Precondemnation circuit court proceedings that I'd like to bring to the council's attention

**Date:**Thu, 24 Feb 2022 12:42:28 -0800

**From:**jim kreider <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>

**To:**CORNETT Todd \* ODOE <[Todd.CORNETT@energy.oregon.gov](mailto:Todd.CORNETT@energy.oregon.gov)>

**CC:**Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>

Thanks Todd - I'm not sure you can understand my frustration. It has been amplified by ODOE/EFSC hiding behind rules to avoid a dialog on IPC's actions rather than dealing with the issue in front of them.

When I worked for the state as a director it was my job to make the rules work to get a job done and the human element was front and center. Rules could often be adapted to the situation to allow for timely resolution.

EFSC has sure bent, aka interpreted, rules to get the answers they wanted as demonstrated by the recent supreme court rulings against ODOE. Now they don't want to know about the reality, pain, and suffering they have created. This is the kind of government we all love to hate.

Could you please show me the ORS's and OAR's you are using to say ODOE/EFSC does not have any authority over IPC's actions for what they are doing. Having condemnation authority is not an issue in this situation since that is not occurring.

Page 47 lines 31-35 of the Proposed Order state the council can impose conditions on the applicant. Those lines read, "The Council can impose conditions requiring the applicant to conduct the necessary surveys prior to construction (pre-construction surveys) and submit survey results to applicable reviewing agencies and the Department for review and approval." Request that the council tell IPC that the "over the fence" methodology as provided is how they are to proceed and all court cases need to be dropped if they wish to proceed.

Thank you -- jim

On 2/22/2022 7:55 AM, CORNETT Todd \* ODOE wrote:

Hi Jim,

I can appreciate the frustration of this situation because of how this issue is generally connected to Idaho Power's site certificate application with EFSC. As you point out, the Project Order articulates a way that Idaho Power can conduct literature surveys, desk top surveys and over the fence surveys in some circumstances in order for their application to be complete and reviewed by ODOE and EFSC. For those circumstances ODOE and EFSC are not requiring physical access to properties. It is important to note that the reason ODOE and EFSC are not requiring physical access to properties is because EFSC does not have any authority to force a landowner to allow Idaho Power or any other applicant on their property. Therefore, whatever statutes, rules or authority Idaho Power is using in their precondemnation efforts does not come from EFSC. And as such, EFSC simply does not have any authority to step in on this matter.

In your last sentence you indicate that you are willing to explain this in greater detail at the next Council meeting. The agenda is already set for this Friday's meeting so there will not be an opportunity to add it to that agenda. If you wish to request this issue be added to a future Council meeting per the rule below, please provide me with the following:

- Description of the agenda item
- Who will be presenting
- Anticipated amount of time of your presentation

**345-011-0035: Requests to Place Items on the Agenda**

*(1) Any person may request formal Council action on a particular subject (an "action item") by submitting a written request to the Department of Energy. With the concurrence of the chair, the Council Secretary shall place the requested matter on the agenda for discussion at the next meeting occurring at least 14 days after the request is received by the Department. The Council shall treat the matter as an information item at that meeting and may take final action on the matter if a majority of the members present agree that the request is so substantial and of such immediate concern that the Council should not defer action until a future meeting. Normally, however, the Council will defer action on the matter until a future meeting.*

*(2) Any person may request Council discussion of an information item by submitting a written request to the Department. With the concurrence of the chair, the Council Secretary shall place the requested matter on the agenda for discussion at the next meeting occurring at least 14 days after the request is received by the Department.*

*(3) The provisions of section (1) do not apply to petitions requesting the Council to initiate a rulemaking proceeding, as described in OAR 137-001-0070, or petitions requesting the Council to issue a declaratory ruling, as described in OAR 137-002-0010.*

Regards,

Todd



**Todd Cornett**

Assistant Director for Siting  
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Stay connected!

---

**From:** jim kreider <[jkreider@campblackdog.org](mailto:jkreider@campblackdog.org)>

**Sent:** Thursday, February 17, 2022 5:04 PM

**To:** CORNETT Todd \* ODOE <[Todd.CORNETT@energy.oregon.gov](mailto:Todd.CORNETT@energy.oregon.gov)>

Cc: Fuji Kreider <[fkreider@campblackdog.org](mailto:fkreider@campblackdog.org)>

Greg Larkin/104

Subject: Precondemnation circuit court proceedings that I'd like to bring to the council's attention

Greetings Todd,

As I mentioned at the last EFSC meeting I wanted to bring Idaho Powers Precondemnation proceeding to the council's attention. I would appreciate your forwarding this information to them.

Idaho Power has begun serving precondemnation circuit court papers on landowners that refuse IPC entry to their property to conduct surveys. In an email to Senator Findley from Christy Splitt, ODOE Government Relations Coordinator, it says, "While pre-construction surveys associated *with an approved site certificate* are under EFSC's jurisdiction, for the Boardman to Hemingway project pre-construction surveys are not required to occur now since the project is currently under review and a final decision has not yet been made." If pre-construction surveys are not required to occur now how is Idaho Power able to bully landowners by doing this. They do not have permission to build it – period.

This is especially aggravating because in the proposed order ODOE lays out an "over the fence" process to survey land when refused permission from the landowner. Additionally the email from Christy Splitt says, "... the Energy Facility Siting Council do not have authority to step in." It is further stated, "The pre-condemnation proceedings that are described in the email and attached letter are not within EFSC's jurisdiction since EFSC does not have any eminent domain authority. Therefore, ODOE/EFSC has no authority to order Idaho Power to cease these activities as requested in the attached letter."

EFSC does not need eminent domain authority. This was anticipated! EFSC has the proposed order with a thoughtful "over the fence" process laid out. Please explain to us why EFSC does not have authority over its own process?

I hope after reading the attached materials you will understand why the public does not understand why EFSC is throwing landowners under the Idaho Power bus and creating additional financial and psychological challenges. Idaho Power can wait and do the surveys when to time period to do them opens.

I am more than happy to visit with you at your next meeting to explain this in greater details if needed.

Thank you for your consideration,

Jim Kreider



# FERC Orders PacifiCorp to Respond to Allegations of Reliability Violations

*April 15, 2021*

**Docket No.** IN21-6-000

**Item** [E-10](#)

The Federal Energy Regulatory Commission (FERC) today ordered PacifiCorp to explain why the company should not be assessed a proposed civil penalty of \$42 million for violating FERC reliability standards on its bulk electric system.

In the Staff Report attached to today's order, FERC Office of Enforcement (OE) staff allege that PacifiCorp violated the Federal Power Act and regulations by failing to comply with a Commission-approved reliability standard developed by the North American Electric Reliability Corporation (NERC), the Commission-certified Electric Reliability Organization, involving transmission line facility ratings methodology.

Specifically, PacifiCorp adopted a facility ratings methodology that required the consideration of clearance measurements consistent with the National Electric Safety Code (NESC). FERC Enforcement Staff found that clearance measurements on a majority of PacifiCorp's bulk electric system transmission lines were incorrect under the NESC. As these clearance measurements were used to calculate PacifiCorp's facility ratings, PacifiCorp's facility ratings were thus inconsistent with its facility ratings methodology.

Moreover, Enforcement staff alleges that PacifiCorp was generally aware of incorrect clearances on its bulk electric system since at least 2007, when FERC's reliability standards became mandatory, but failed to specifically identify all of the clearance problems and remedy them in a timely manner.

Enforcement Staff alleges that PacifiCorp's violations began on August 31, 2009, when the company implemented its facility ratings methodology policy, and that at least some of the violations continued until August 2017, when PacifiCorp completed remediation of all of its incorrect clearances to make them consistent with its facility ratings methodology.

Enforcement Staff's investigation into PacifiCorp's incorrect clearances began in 2012 after learning of the Wood Hollow wildfire that lasted from June 23 to July 1, 2012 in Sanpete County, Utah. Enforcement Staff alleges that the inadequate clearance involved in the fire was just one example of clearance violations prevalent on PacifiCorp's bulk electric system.

Today's order makes clear that issuance of the order does not indicate Commission adoption or endorsement of the Staff Report. PacifiCorp has 30 days to respond to the Commission's order.

R21-32

(30)

Contact Information

**Benjamin Williams**

Acting Director, Office of External Affairs

Email: [benjamin.williams@ferc.gov](mailto:benjamin.williams@ferc.gov)

Greg Larkin/1112

Greg Larkin/2

*This page was last updated on April 15, 2021*

**ITEM NO. 1**

**PUBLIC UTILITY COMMISSION OF OREGON  
STAFF REPORT  
SPECIAL PUBLIC MEETING DATE: April 6, 2021**

**REGULAR**   X   **CONSENT**        **EFFECTIVE DATE**                     Upon Commission's Approval                    

**DATE:** March 5, 2021

**TO:** Public Utility Commission

**FROM:** Nadine Hanhan

**THROUGH:** Bryan Conway, JP Batmale, and Kim Herb **SIGNED**

**SUBJECT:** IDAHO POWER COMPANY:  
(Docket No. LC 74)  
Acknowledgement of the 2019 Integrated Resource Plan.

**STAFF RECOMMENDATION:**

Acknowledge Idaho Power's 2019 Integrated Resource Plan (IRP) in part and decline to acknowledge in part Idaho Power's 2019 Integrated Resource Action Plan. Staff recommends certain action and additional requirements on pages 52-56 of this Staff Report.

**SUMMARY OF STAFF RECOMMENDED ACTIONS:**

Commission Staff ("Staff") presents a summary of recommendations on each Action Item, in the order presented in the Action Plan. Due to the extended cycle of this IRP, many of these Action Items have already been completed, and as a result, Staff recommends not acknowledging them. In Order No. 14-252, the Commission noted that energy utilities that desire acknowledgment of an investment decision should request acknowledgment before the required project is substantially completed. As a result, Staff recommends not acknowledging Action Items based on procedural grounds when they are complete or will be substantially complete by the time the Commission issues its acknowledgment order. Such recommendations do not necessarily indicate lack of support for the Action Items. Because Staff is recommending a waiver for the 2019 IRP Update, all recommendations are for the 2021 IRP unless stated otherwise. Dates in parentheses are taken from the Action Plan target year.

1. Plan and coordinate with PacifiCorp and regulators for early exits from Jim Bridger units. Target dates for early exits are one unit during 2022 and a second unit during 2026. Timing of exit from second unit coincides with the need for a resource addition. (2020-2022)

**Recommendation:** Acknowledge

**Additional Recommendation:** Provide a reliability impact analysis for Jim Bridger retirement.

2. Incorporate solar hosting capacity into the customer-owned generation forecasts for the 2021 IRP. (2020-2022)

**Recommendation:** Acknowledge

3. Conduct ongoing Boardman to Hemingway (B2H) permitting activities. Negotiate and execute B2H partner construction agreement(s). (2020-2026)

**Recommendation:** Acknowledge

4. Conduct preliminary construction activities, acquire long-lead materials, and construct the B2H project. (2020-2026)

**Recommendation:** Acknowledge

**Additional Recommendations:**

- Continue to include the 20 percent cost contingency for B2H in the 2021 IRP.
  - Update B2H costs prior to creating new portfolios in the 2021 IRP.
  - Model cost risk as it relates to a change in ownership arrangement in the 2021 cycle. This could be in the form of a series of sensitivities, where the Company continues to own 21 percent of the line and retail customers are held harmless, and introduce additional costs to customers based on a range of capital risks.
  - Dedicate time in a 2021 IRPAC meeting addressing the issue of B2H cost risk as a result of new ownership structures. In the meeting, the Company should address the questions raised in this Staff Report.
5. Monitor Variable Energy Resource (VER) variability and system reliability needs, and study projected effects of additions of 120 MW of PV solar (Jackpot Solar) and early exit of Bridger units. (2020)

**Recommendation:** Not Acknowledge due to timing

**Additional Recommendation:** File the results of each of the VER studies with the Commission once they are complete and notify the LC 74 service list.

Docket No. LC 74  
March 5, 2021  
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6. Exit Boardman December 31, 2020. (2020)

**Recommendation:** Not Acknowledge due to timing

7. Bridger Unit 1 and Unit 2 Regional Haze Reassessment finalized. (2020)

**Recommendation:** Not Acknowledge due to timing

**Additional Recommendation:** Update the Commission as soon as it knows the outcome of PacifiCorp's negotiation with the Wyoming DEQ regarding continued use of Jim Bridger Units 1 and 2 without SCR investments.

8. Conduct a VER Integration Study. (2020)

**Recommendation:** Not Acknowledge due to timing

9. Conduct focused economic and system reliability analysis on timing of exit from Valmy Unit 2. (2020-2021)

**Recommendation:** Acknowledge

10. Continue to evaluate and coordinate with PacifiCorp for timing of exit/closure of remaining Jim Bridger units. (2021-2022)

**Recommendation:** Acknowledge

11. Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2022. (2022)

**Recommendation:** Acknowledge

12. Jackpot Solar 120 MW on-line December 2022. (2022)

**Recommendation:** Not Acknowledge

13. Exit Valmy Unit 2 by December 31, 2022.

**Recommendation:** Not Acknowledge

**Additional Recommendation:** Change the Action Item to include a Valmy Retirement in 2025 until the Company has completed the appropriate analysis to show 2022 is an optimal retirement date.

14. Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2026. Timing of the exit from the second Jim Bridger unit is tied to the need for a resource addition (B2H). (2026)

**Recommendation:** Acknowledge

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Following is a list of additional Staff Recommendations based on analysis in this Staff Report.

### **Additional Staff Recommendations**

- Report qualitative benefits and risks by portfolio in the 2021 IRP and in all IRPs going forward in which a qualitative analysis plays a significant role.
- Devote resources to improve optimization techniques and address this issue in a 2021 IRP workshop. In particular, the Company should implement techniques in its next IRP to optimize resource buildouts based on the Company's system only.
- Implement a more robust measure of risk for evaluating portfolios. The Company should incorporate risks or situations that are not used to create the initial portfolios and should strive to incorporate qualitative risks into the portfolio development process.
- Review all energy efficiency measures piloted by Energy Trust in 2018-2020 and report on whether the Company has considered them, what research was conducted to look into these measures, whether there has been a decision on the inclusion of these measures, and what the determination is to date. The Company should share the status of its review at an Energy Efficiency Advisory Group meeting in 2021 and as a report in the 2021 IRP.
- Use a metric like the Akaike Information Criterion to confirm that indicator variables are not causing model overfitting.
- Present a plan for cross-validation or similar to check whether ARIMA models are likely to reduce load forecast error in the next IRP and check robustness of Idaho Power's load forecasting model.
- Address whether the upper and lower bounds on its customer load stochastic risk analysis are wide enough.
- Present to Commissioners the impact of COVID-19 on load.
- The 2021 IRP should model expanded DR with a LCOC based on real programmatic approximations for acquiring the said amount of incremental additional DR; LCOC estimates representative of incremental increases (e.g., 10 percent increase, 20 percent increase, 30 percent increase, 50 percent increase); or some other mutually agreed upon approach to more rationally model this key variable.
- Provide an update on the Oregon Residential Time-of-Day Pilot Plan including number of participants, total cost of the pilot since its 2019 launch, and peak

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capacity reduction by season, as well as propose an alternative venue for reporting pilot results, given that the Smart Grid Report will be suspended with the Commission approval of DSP guidelines.

- Work with Staff and stakeholders to develop a new modeling approach suitable for behavior-based DR programs that reflects such programs' typical lower costs and less certain results.
- Perform sensitivity analysis in its 2021 IRP pertaining to wind replacement assumptions to evaluate the impact on resource planning.
- Allow an exemption to Order No. 16-362.
- Perform the Company's approved capacity factor approximation method using all the new data that has become available.
- Eliminate or raise the 80 MW cap on battery storage. This includes standalone battery storage as well as storage paired with solar.
- Model the PTC for wind to the extent it is technically achievable by the Company.
- Revise its Wyoming cost inputs to include more reasonable cost assumptions.
- The Company should produce the Climate Change Risk Report referenced in the 2017 IRP acknowledgment order and include it in the next IRP.
- Waive the IRP Update unless the Company is unable to file its IRP before the annual update deadline.

## **DISCUSSION:**

### **Issue**

Whether the Commission should acknowledge Idaho Power Company's ("Idaho Power" or "the Company") 2019 Integrated Resource Plan (IRP), acknowledge specific portions of the IRP with or without certain conditions, or decline to acknowledge the IRP.

### **Applicable Rule**

The Commission adopted least-cost planning as the preferred approach to utility resource planning in 1989.<sup>1</sup> In 2007, the Commission updated its existing least-cost planning principles and established a comprehensive set of "IRP Guidelines" to govern the IRP process. The IRP Guidelines found in Order Nos. 07-002 (corrected by 07-047), 08-339, and 12-013 clarify the procedural steps and substantive analysis required

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<sup>1</sup> Order No. 89-507.

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of Oregon's regulated utilities in order for the Commission to consider acknowledgement of a utility's resource plan.<sup>2</sup> Also applicable to review of Idaho Power's 2019 IRP is whether it complies with all of the Commission requirements in its previously acknowledged IRP. In addition to IRP Guideline compliance, Staff reviewed whether Idaho Power complied with the Commission's order in LC 68.

The IRP Guidelines and Commission rules require a utility to file an IRP with a planning horizon of at least 20 years within two years of its previous IRP acknowledgment order, or as otherwise directed by the Commission.<sup>3</sup> Further, the IRP must also include an "Action Plan" with resource activities that the utility intends to take over the next two to four years.<sup>4</sup> The ultimate goal of the IRP is to select the "portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers."<sup>5</sup> This is often referred to as the "least cost/least risk portfolio."

The Commission reviews the utility's plan for adherence to the procedural and substantive IRP Guidelines and generally acknowledges the overall plan if it is reasonable based on the information available at the time.<sup>6</sup> However, the Commission also explains: "We may also decline to acknowledge specific action items if we question whether the utility's proposed resource decision presents the least cost and risk option for its customers."<sup>7</sup> The Commission may also decline to acknowledge specific Action Items if they are complete or substantially complete by the time the Commission issues its acknowledgment order.<sup>8</sup>

## **Analysis**

### *Procedural History*

Prior to the initial IRP filing on June 28, 2019, Idaho Power held eight IRP Advisory Council (IRPAC) meetings leading up to the submission of the initial 2019 IRP and two more IRPAC meetings for the *Second Amended* IRP. IRPAC members represent various public agencies, public and private enterprises, and advocacy groups. The IRPAC covers aspects of the IRP development, particularly on the resource stack,

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<sup>2</sup> Order Nos. 07-002 and 07-047. Additional refinements to the process have been adopted: See Order No. 08-339 (IRP Guideline 8 was later refined to specify how utilities should treat carbon dioxide (CO<sub>2</sub>) risk in their IRP analysis); Order No. 12-013 (guideline added directing utilities to evaluate their need and supply of flexible capacity in IRP filings).

<sup>3</sup> Order No. 07-002 (Guidelines 1(c) and 3(a)) and OAR 860-027-0400.

<sup>4</sup> Order No. 14-415 at 3.

<sup>5</sup> Order No. 07-002 at 1-2.

<sup>6</sup> Order No. 07-002 at 1.

<sup>7</sup> Order No. 07-002 at 1.

<sup>8</sup> Order No. 14-252 at 7.



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resource portfolio considerations, and risk analyses. The IRPAC played an integral role, and Staff appreciated the involved stakeholder process and Idaho Power's time and energy in fulfilling the public input component of the Company's IRP process.

Idaho Power filed its initial 2019 IRP on June 28, 2019. The Company's filing included the IRP and four appendices.<sup>9</sup> Several weeks later, the Company filed a letter asking the Administrative Law Judge to refrain from establishing a procedural schedule to allow the Company to file supplemental analysis related to the Company's Long Term Capacity Expansion (LTCE) modeling approach to confirm the accuracy of the IRP's conclusions and findings. The LTCE is new to this IRP cycle, and this is the first time the Company has incorporated this methodology in the IRP.

On January 31, 2020, the Company filed an *Amended* IRP that included multiple changes to its analysis and some changes to the Company's preferred portfolio. On June 1, 2020, Idaho Power amended its IRP again by submitting replacement pages meant to address truncated Bridger coal cost errors it discovered after filing the *Amended* IRP. On July 1, 2020, the Company filed a motion to suspend the schedule because it discovered additional errors and felt the need to do a comprehensive review to ensure accuracy in the IRP. On October 2, 2020, the Company filed its fourth iteration of the IRP, the *Second Amended* 2019 IRP, to correct input errors. The Company underwent an extensive verification process in this final version.

The Commission held a virtual public comment hearing on April 23, 2020, and hosted two additional workshops on October 22, 2020 and March 2, 2021.

On April 1, 2020, Staff filed Opening Comments on the Company's *Amended* IRP. On April 2, 2020, Mr. Gail Carbiener, the Citizens' Utility Board ("CUB"), the Renewable Energy Coalition ("REC"), Renewable Northwest, ("RNW"), Sierra Club, and the STOP B2H Coalition ("STOP B2H") filed Opening Comments. On April 7, 2020, STOP B2H filed revised and amended Opening Comments.

On May 15, 2020, the Company filed Reply Comments. As mentioned above, the docket schedule was suspended, and the Company subsequently filed its final iteration of the IRP on October 2, 2020.

On January 8, 2021, REC, Staff, CUB, RNW, and STOP B2H filed Final Comments.

On February 5, 2021, Idaho Power filed Final Comments.

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<sup>9</sup> The appendices are the "Sales and Load Forecast," the "Demand-Side Management 2018 Annual Report," the "Technical Appendix," and the "Boardman to Hemingway Update."

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Staff also received a number of informal comments throughout the proceeding. Almost all of the informal comments Staff reviewed opposed the construction of the B2H line, but one commenter expressed support for retirement of Valmy Unit 2, and another supported moving away from coal and gas and moving towards renewable sources of energy.

This Staff Report discusses the near-term Action Plan, formal comments by stakeholders and the Company, and other issues raised throughout this docket. Due to the multiple iterations of the IRP, the Staff Report will focus on the *Second Amended* IRP unless stated otherwise. Staff organizes this report by first discussing the Action Items in the Action Plan, followed by additional issues raised by parties.

### **Action Item Discussion**

Below is a summary of Idaho Power's Action Plan Items in the 2019 Second Amended IRP.

Summary of Idaho Power 2019 Action Plan Items by Category	
Category	Final 2019 Action Plan Item
Jim Bridger Early Exits	- 1: Plan and coordinate with PacifiCorp and regulators for early exits from Jim Bridger units.
	- 10: Continue to evaluate and coordinate with PacifiCorp for timing of exit/closure of remaining Jim Bridger units.
	- 11: Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2022.
	- 14: Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2026. Timing of the exit is tied to the need for a resource addition (B2H).
Customer Solar	- 2: Incorporate solar hosting capacity into the customer-owned generation forecasts for the 2021 IRP.
B2H	- 3: Conduct ongoing B2H permitting activities. Negotiate and execute B2H partner construction agreement(s). - 4: Conduct preliminary construction activities, acquire long-lead materials, and construct the B2H project.
VER Monitoring	- 5: Monitor Variable Energy Resource (VER) variability and system reliability needs, and study projected effects of additions of 120 MW of PV solar (Jackpot Solar) and early exit of Bridger units. - 8: Conduct a VER Integration Study.
Boardman Exit	- 6: Exit Boardman December 31, 2020.
Regional Haze	- 7: Bridger Unit 1 and Unit 2 Regional Haze Reassessment finalized.

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Valmy Unit 2 Exit	- 9: Economic and system reliability analysis on timing of exit from Valmy Unit 2. - 13: Exit Valmy Unit 2 by December 31, 2022.
Jackpot Solar	- 12: Jackpot Solar 120 MW on-line December 2022.

### **Jim Bridger Early Exits**

Action Items 1, 10, 11, and 14 regard early exits from Jim Bridger units. Target dates for early exits involve retiring one unit during 2022 and a second unit during 2026. The Company seeks to coordinate with PacifiCorp and regulators on the timing of these early exits.

### **Idaho Power's Analysis**

The Jim Bridger coal plant contributes substantially to Idaho Power's generating capacity, and the retirement dates of the Jim Bridger units are important drivers of resource selections in the IRP. Through Idaho Power's new Long Term Capacity Expansion (LTCE) methodology, the Company's preferred portfolio identified 2022 and 2026 for retiring Units 1 and 2 of the Jim Bridger coal plant, though the exit order of these units has not been identified. Idaho Power is also planning on retiring units 3 and 4 in 2028 and 2030, with the order also unspecified.<sup>10</sup>

### **Stakeholder Positions**

#### ***Sierra Club***

Sierra Club indicated that the analysis behind Idaho Power's 2019 IRP was a "dramatic improvement" from the 2017 IRP.<sup>11</sup> It was generally supportive of Idaho Power's new LTCE approach and early retirement dates, though it was concerned that Idaho Power's partner, PacifiCorp would delay early retirement. Sierra Club discussed at length economic merits of early unit retirement and disputed the assertion that the Jim Bridger power plant plays a valuable role in balancing variable renewable resources or providing flexible capacity.

#### ***CUB***

CUB noted that the Jim Bridger exit dates for Unit 1 and Unit 2 in PacifiCorp's Action Plan (2023 and 2028) were different from the exit dates in Idaho Power's Action Plan (2022 and 2026). While CUB believes that removing coal-fired generation from the resource portfolio is vital to a transition towards Idaho Power's goal of 100 percent

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<sup>10</sup> Idaho Power *Second Amended IRP*, page 18.

<sup>11</sup> LC 74, Sierra Club Opening Comments, page 1.

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Clean Energy by 2045, CUB stated that the Company needed to provide clearer plans regarding coal exits.<sup>12</sup>

#### *RNW*

RNW expressed its appreciation that Idaho Power is seeking to economically retire five of seven coal-fired generating units by the end of 2026 and exit from the remaining two at Jim Bridger by the end of the 2020s.<sup>13</sup>

#### Staff's Position

Staff noted that the Company did not specify which dates each unit would be retiring.

Staff looked into Idaho Power's fuel cost and fixed cost forecasts for Jim Bridger, Idaho Power's coal fuel price forecast, and compared it to the one used in PacifiCorp's 2019 IRP. In PacifiCorp's IRP, Staff and Sierra Club expressed concern with the coal fuel cost forecast for Jim Bridger, which appeared to be unreasonably low. Staff found that Idaho Power's coal fuel price forecast did not provide the same cause for concern.

Staff also reviewed the fixed O&M costs of the Bridger units and found that the fixed costs for PacifiCorp's share of the plant differed from Idaho Power's share of the plant. It is Staff's understanding that Idaho Power developed the fixed costs for Idaho Power's share of the plant, whereas a vendor developed the fixed costs for PacifiCorp's share. Staff requested that Idaho Power review its cost assumptions for both companies' shares of the plant and explain the cause and significance of the difference in fixed O&M between these two shares of the plant. Staff requested that the Company address whether the difference in fixed O&M costs had any significant effect on the selection of the Preferred Portfolio.

#### Idaho Power's Position

Idaho Power indicated that though it has not decided which units would retire in what year, Units 1 and 2 would be likely to retire in 2022 and 2026 due to their relative condition, efficiency, and outage schedules.<sup>14</sup> At the time of the Company's Reply Comments, it explained that it had only had high-level discussions with PacifiCorp about retiring Jim Bridger units in tandem.<sup>15</sup> It stated that because these discussions were still beginning, it is difficult to plan towards resolution of the different retirement dates. However, it was amenable to update the Commission on negotiations with PacifiCorp at the end of 2020.<sup>16</sup>

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<sup>12</sup> LC 74, CUB Opening Comments, page 8.

<sup>13</sup> LC 74, RNW Opening Comments, page 7.

<sup>14</sup> These units are also unspecified.

<sup>15</sup> LC 74, Idaho Power Reply Comments, page 38.

<sup>16</sup> This statement was made on page 38 of its Reply Comments, before the Company had suspended its Amended IRP.

In Final Comments, Idaho Power explained that it generally does not alter model vendor inputs for other companies' units because other companies might have differing O&M costs, capital upgrade methodologies, or regulatory environments. The Company also provided a brief update regarding negotiations among parties, stating that PacifiCorp and Idaho Power have not yet come to terms on exit dates. Idaho Power committed to updating the Commission with substantive developments.

**Staff's Analysis and Recommendation:**

In the 2017 IRP, the Commission did not acknowledge the retirement dates proposed for the Jim Bridger units: 2028 for Unit 2 and 2032 for Unit 1. Staff had recommended not acknowledging the retirement dates because it believed that the Company had not established that its plan to retire the Bridger units in those years in lieu of installing SCRs in 2021 and 2022 was feasible. In the 2019 IRP, Staff has reviewed costs and believes that an early economic retirement would be reasonable, but Staff also shares Sierra Club's concern about consistency between the Company and PacifiCorp. Idaho Power has yet to demonstrate comparable cost assumptions for both operating partners as well as a secure plan for early retirement coordination.

Idaho Power should strive with PacifiCorp to share data to ensure that the appropriate information is captured properly in the IRP. Further, 2022 is swiftly approaching. The Company has not yet provided material updates on which unit will retire or whether it will be able to secure negotiations with PacifiCorp to retire in 2022. Staff would also be interested in a reliability impact analysis similar to the one proposed for Valmy in the form of a filing or update from the Company.

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**Staff Recommendations:**

- **Acknowledge Action Item 1: Plan and coordinate with PacifiCorp and regulators for early exits from Jim Bridger units.**
- **Acknowledge Action Item 10: Continue to evaluate and coordinate with PacifiCorp for timing of exit/closure of remaining Jim Bridger units.**
- **Acknowledge Action Item 11: Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2022.**
- **Acknowledge Action Item 14: Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2026. Timing of the exit is tied to the need for a resource addition (B2H).**

**Recommendation for 2021 IRP:**

- **Provide a reliability impact analysis for Jim Bridger retirement.**
- 

**Customer Solar**

Action Item 2 is to incorporate solar hosting capacity into the customer-owned generation forecasts for the 2021 IRP.

**Idaho Power's Analysis**

As of March 31, 2019, the Company's total solar customer-generation capacity was 36.302 MW in Idaho and 1.267 MW in Oregon.<sup>17</sup> The Company states that it will incorporate solar hosting capacity into its customer-owned generation forecasts in the 2021 IRP.

**Staff's Position**

No parties submitted comments on this Action Item. Staff supports this Action Item as it is consistent with current objectives and policies at the Commission regarding Distribution System Planning. For example, Staff's proposed guidelines in UM 2005 include Hosting Capacity Analysis guidance that each utility should conduct system evaluations to identify generation in constrained areas.<sup>18</sup>

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**Staff Recommendation:**

- **Acknowledge Action Item 2: Incorporate solar hosting capacity into the customer-owned generation forecasts for the 2021 IRP.**
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**Boardman to Hemingway (B2H)**

Action Items 3 and 4 regard ongoing B2H permitting activities, negotiations with B2H partners, preliminary construction activities, acquiring long-lead materials, and constructing B2H.

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<sup>17</sup> Idaho Power 2019 *Second Amended* IRP, page 41. This includes pending and active capacity.

<sup>18</sup> UM 2005 Staff Report, Attachment 1 page 7.

### Idaho Power's Analysis

The B2H project is a planned 500-kilovolt (kV) transmission project that would run between the Hemingway 500-kV substation near Marsing, Idaho, and a proposed substation near Boardman, Oregon.<sup>19</sup> The project has consistently been selected as part of the Company's preferred portfolio for over a decade, and the 2019 cycle is no different. The Company maintains that B2H provides the least-cost option for its resource future, in addition to incremental ancillary benefits and additional operational flexibility.<sup>20</sup>

The 2019 *Second Amended* IRP portfolio selection process included a new methodology that created portfolios with and without B2H so that Idaho Power could compare the costs of a resource future with and without the transmission line. Ultimately, with this new process, the Company again determined that B2H should be part of a least-cost/least-risk portfolio.

A significant change in the *Second Amended* IRP included an informational update that Idaho Power is considering acquiring Bonneville Power Administration's (BPA) 24 percent ownership share of B2H.<sup>21</sup> To Staff's knowledge, the Company did not incorporate this change into the IRP's cost assumptions.

### Stakeholder Positions

#### *STOP B2H*

STOP B2H's comments strongly opposed construction of B2H. Because the *Second Amended* IRP contained updates to portfolio costs, new assumptions and methodologies, and created new portfolios, parts of STOP B2H's analysis in Opening Comments do not apply to the *Second Amended* IRP.<sup>22</sup> The inapplicability of the comments mostly revolve around outdated cost assumptions.

However, STOP B2H also presented a series of concerns on the *Amended* IRP that Staff believes could still be considered applicable in the *Second Amended* IRP. These critiques include, but were not limited to:

- Real power losses due to the transport of power across long distances,
- Excess Capacity Benefit Margin (CBM) assumptions in the IRP,

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<sup>19</sup> Idaho Power 2019 *Second Amended* IRP Appendix D, page 1.

<sup>20</sup> Idaho Power 2019 *Second Amended* IRP Appendix D, page 1.

<sup>21</sup> Idaho Power 2019 *Second Amended* IRP, page 19.

<sup>22</sup> This also applies to other parties' analysis on the portfolios in previous iterations of the IRP.

- Its dispute that Idaho Power has met the standards under the Energy Facilities Siting Council (EFSC) System Reliability Rule,
- The belief that B2H falls under the Commission's competitive bidding rules, and
- Risks around project participants.

In Final Comments on Idaho Power's *Second Amended* IRP, STOP B2H continued to focus on project participant risk.<sup>23</sup> The group indicated that project participants have been inconsistent in their commitment to B2H. STOP B2H also expressed concern about potential cost overruns of the project and requested that the Company reflect any cost changes in the 2021 IRP.

*Mr. Gail Carbiener*

Mr. Gail Carbiener filed Opening Comments opposing construction of B2H. Mr. Carbiener also focused on co-participant risk and indicated that he was surprised at the lack of coordination between PacifiCorp and Idaho Power on construction of the line.<sup>24</sup>

*CUB*

CUB had concerns with co-participant risk in its Opening Comments, including the risk that if PacifiCorp or BPA were to pull out of the project, there would either be cost allocation impacts on Idaho Power's customers, or the project could be deferred. Despite these concerns, CUB makes no recommendations on B2H.

*Renewable Northwest*

In general, Renewable Northwest supported construction of B2H because it agreed with Idaho Power on several points, namely that that B2H will "provid[e] Idaho Power access to clean and low-cost energy in the Pacific Northwest wholesale electric market," improve system reliability and resiliency, reduce limitations on the regional transmission system, and that the Company "persuasively tied its transmission proposal" to its 100 percent clean goal.<sup>25</sup>

Staff's Position

Staff agreed with the issue of cost risk related to ownership changes and recommended that for the 2021 IRP, the Company must measure cost risk as it relates to changes in ownership of B2H. At the time Staff filed Opening Comments, the Company was still representing that the three original parties would continue to own a share of the line. Staff expressed concern about the possibility of one party stepping away from the project and highlighted the cost risk it could pose for ratepayers.

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<sup>23</sup> STOP B2H Final Comments, page 7.

<sup>24</sup> Gail Carbiener's Opening Comments, pages 1-2.

<sup>25</sup> RNW Opening Comments, pages 4-5.



By the time Staff filed Final Comments, parties learned that B2H ownership would potentially be restructured. Idaho Power proposed that it could acquire BPA's ownership share. BPA would continue to use capacity on the line to serve its Southeast Idaho load, but instead of owning capacity, BPA would purchase transmission service across B2H through Idaho Power's OATT. In Final Comments, Staff continued to address concerns over this potential ownership change because of unknown additional costs and ratepayer risks. Staff also addressed some of STOP B2H's analysis of the line, highlighting that although Staff agreed with cost risks related to co-participant changes, Staff agreed with the practice of reserving CBM capacity for emergencies. Staff also noted that issues revolving around EFSC siting were outside the scope of the IRP, and Staff indicated it did not agree that the addition of B2H would serve as a detriment to the system because of line loss increases.

In addition to cost concerns, Staff discussed the selection of B2H in the preferred portfolio. Staff will elaborate on this topic further on in this Staff Report when it discusses portfolio modeling.

#### Idaho Power's Position

Idaho Power continued to defend B2H as a "top performing resource alternative" in its Reply Comments.<sup>26</sup> It indicated that B2H is essential to facilitating its clean energy goals and assured that PacifiCorp and BPA "demonstrated ongoing financial commitment" to the project.<sup>27</sup> Idaho Power countered a number of STOP B2H's criticisms of the project, stating that the project costs were not understated and that the Company was not required to request a waiver of the competitive bidding rules. The Company also said that emergency transmission capacity in the form of CBM does not offset the need for B2H and that B2H will reduce line losses in the Western system. Finally, the Company argued that EFSC's rules governing issuance of a Site Certificate are inapplicable to the 2019 IRP.

In its Final Comments, Idaho Power responded to stakeholders' concerns about project participants by assuring that "Idaho Power's B2H Partners Remain Committed to the Project"<sup>28</sup> and that ownership or service arrangements would not affect B2H's 2026 in-service date. The Company said that it would not agree to arrangements shifting cost risk to retail customers without a "corresponding increase in benefits,"<sup>29</sup> and that the continued 21 percent ownership assumption in the IRP was appropriate.

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<sup>26</sup> LC 74, Idaho Power's Reply Comments, page 3.

<sup>27</sup> LC 74, Idaho Power's Reply Comments, page 5.

<sup>28</sup> LC 74, Idaho Power's Reply Comments, page 5.

<sup>29</sup> LC 74, Idaho Power's Reply Comments, page 6.

Regarding the EFSC capacity and siting issue, Idaho Power stated that “it would be impossible for Idaho Power to utilize a 21 percent share of B2H unless 100 percent of the line is built,”<sup>30</sup> and that the Oregon Commission should reject STOP B2H’s interpretation that the Commission’s 2017 acknowledgment order only accounted for 21 percent of the line.

### **Staff’s Analysis and Recommendations**

Below is a table summarizing core stakeholder positions on B2H.

		Stop B2H	Carbiener	CUB	RNW	IPC Response	Staff Response
	Position	N	N	-	Y		
Against	Power Loss	X				Disagree	Disagree
	Excess Capacity Benefit Margin	X				Disagree	Disagree
	EFSC	X				Disagree	Disagree
	Competitive Bidding	X				Disagree	Disagree
	Co-Participant Risks	X	X	X		Parties are financially committed	Cost risk is a factor
	20 percent Contingency	X				Remove	Leave in
For	Access to clean energy/other markets				X	Agree	Agree
	Improved Reliability				X	Agree	Agree
	Regional transmission benefits				X	Agree	Agree
	100% Clean Goal				X	Agree	Preferred Portfolio is inconsistent

The Company responded to Staff’s recommendations by agreeing to incorporate cost sensitivities for B2H in the 2021 IRP and indicating that it would have ownership details finalized by the time the IRP is filed in 2021; it also appears amenable to modeling B2H cost risk sensitivities in the 2021 IRP.<sup>31</sup> Staff appreciates these inclusions for the next

<sup>30</sup> LC 74, Idaho Power’s Reply Comments, page 15.

<sup>31</sup> LC 74, Idaho Power’s Final Comments, page 8.

IRP cycle. However, the Company also indicates that it is considering removing or reducing the 20 percent cost contingency and that preliminary estimates show that the 2021 cost estimates for B2H are lower than in 2018.

Staff does not agree with removing the 20 percent cost contingency. While it is true that some large projects can stay under budget, cost overruns are not uncommon for projects like high-voltage transmission lines. Incorporating a cost contingency is standard practice for determining costs and is appropriate to include in the IRP. It is a conservative modeling choice that incorporates the genuine risk of cost overruns.

Staff also agrees with STOP B2H that the Company should update any costs to B2H before creating new portfolios for the 2021 IRP. Idaho Power indicates that it is already working with an engineering consultant to revise the B2H estimate for the 2021 IRP. Staff supports the Company's plans to include a breakdown of the cost estimate in the 2021 IRP.

As mentioned in Final Comments, there were a series of criticisms about B2H with which Staff did not agree. The concerns surrounding the following issues were not convincing in light of the evidence and arguments made by the Company:

- Line losses,
- The practice of reserving CBM capacity for emergencies, and
- The issues involving EFSC and the question of how much capacity the Oregon Commission acknowledged.

Regarding EFSC siting, the decisions of another agency are outside the scope of the IRP. However, in general, the higher the voltage of a line, the more capacity it allows. The highest capacity need for Idaho Power on B2H would be in the summer, when it is expected to reserve 500 MW of capacity. A transmission line facilitating only 500 MW is likely to be a different project at a different voltage, and would not be the same project the Commission acknowledged. When the Commission acknowledged B2H in the 2017 IRP, it is reasonable to assume that it understood it was acknowledging a 500 kV line.

Staff also believes that B2H is not subject to the competitive bidding guidelines. Order No. 18-324 states that the Commission revised the rules "to clarify that the competitive bidding requirements do not generally apply where a utility is seeking to exclusively acquire transmission assets or rights."<sup>32</sup>

Staff continues to be concerned about increased cost risk as a result of shifts in ownership. Even though the Company insists that it will not "reach any deal with BPA

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<sup>32</sup> Order No. 18-324, page 6.

that would harm retail customers or the Company's shareholders," Staff still believes it is appropriate to consider the potential risk of additional costs for the project in the 2021 IRP. The Company may produce a range of sensitivities where, for example, customers are held harmless despite an ownership change, and others where customers assume additional cost risk as a result of the ownership changes. In the event that Idaho Power is unable to secure a new ownership agreement prior to filing the 2021 IRP, awareness of cost risk would help inform the Commission and stakeholders. Staff also believes the Company should dedicate time in an IRPAC meeting during the 2021 IRP to address how the Company plans on incorporating risk and that it include addressing the following questions:

- What are the specifics of the ownership arrangements the Company is considering?
- What is the risk that costs would increase under new arrangements?
- What sort of capital risk would Idaho Power be taking on by assuming additional ownership?
- How would these risks impact the Preferred Portfolio in an IRP?
- How is the Company going to model this risk in the 2021 IRP cycle?
- What would be the specific accounting authorizations needed for such an arrangement?
- What actions will Idaho Power take to minimize supply chain risk?
- What would be the specific types of contracts needed for such an arrangement?
- Would a change in partnership or service arrangement affect the in-service date of B2H?
- Is there still a possibility that another third party could assume ownership?

Selection of B2H in the preferred portfolio hinges on the Company's portfolio analysis. Staff addresses the issue of B2H acknowledgment further in this Staff Report under the section on Portfolio Design. Staff continues to recommend acknowledgement for the construction of B2H, but Staff believes the Company must demonstrate that it is able to optimize for Idaho Power's customers in the 2021 IRP.

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#### **Staff Recommendations:**

- **Acknowledge Action Item 3, Conduct ongoing B2H permitting activities. Negotiate and execute B2H partner construction agreement(s).**
- **Acknowledge Action Item 4, Conduct preliminary construction activities, acquire long-lead materials, and construct the B2H project.**

#### **Recommendations for the 2021 IRP:**

- **Continue to include the 20 percent cost contingency for B2H in the 2021 IRP.**
  - **Update B2H costs prior to creating new portfolios in the 2021 IRP.**
  - **Model cost risk as it relates to a change in ownership arrangement in the 2021 cycle. This could be in the form of a series of sensitivities, where the Company continues to own 21 percent of the line and retail customers are held harmless, and introduce additional costs to customers based on a range of capital risks.**
  - **Dedicate time in a 2021 IRPAC meeting addressing the issue of B2H cost risk as a result of new ownership structures. In the meeting, the Company should address the following questions:**
    - What are the specifics of the ownership arrangements the Company is considering?
    - What is the risk that costs would increase under new arrangements?
    - What sort of capital risk would Idaho Power be taking on by assuming additional ownership?
    - How would these risks impact the Preferred Portfolio in an IRP?
    - How is the Company going to model this risk in the 2021 IRP cycle?
    - What would be the specific accounting authorizations needed for such an arrangement?
    - What actions will Idaho Power take to minimize supply chain risk?
    - What would be the specific types of contracts needed for such an arrangement?
    - Would a change in partnership or service arrangement affect the in-service date of B2H?
    - Is there still a possibility that another third party could assume ownership?
- 

### **VER Monitoring**

VER Monitoring is addressed in Action Items 5 and 8: Action Item 5 is to monitor VER variability and system reliability needs, and study projected effects of additions of 120 MW of PV solar (Jackpot Solar) and early exit of Bridger units. Action Item 8 is to conduct a VER Integration Study.

### **Idaho Power's Analysis**

The Company indicated in its latest VER study that Idaho Power's system may be nearing a point where current reserve-providing resources like dispatchable thermal and hydro will no longer be able to integrate additional VERs unless Idaho Power takes

additional action to address potential reserve requirement shortfalls.<sup>33</sup> The Company does not specify what these actions are in the IRP, but additional details can be found in the 2018 VER report. Both of these Action Items are marked for 2020.

### Stakeholder Positions

#### *CUB*

While CUB did not directly comment on these Action Items, it recommended that Idaho Power develop draft plans for potential Demand Response (DR) programs and include these in its future Demand Side Management (DSM) report or as a part of its VER Integration Study.<sup>34</sup>

#### *RNW*

Regarding the VER Integration Study, RNW suggested that Idaho Power ensure that stakeholder participation and collaboration are robust, because it believes that “stronger participation by knowledgeable parties will help to ensure accurate study results and facilitate greater integration of new, cost-effective renewable resources.”<sup>35</sup>

#### *STOP B2H*

STOP B2H did not directly comment on these Action Items but remarked in Opening Comments on the *Amended* IRP that the time lag in the addition of VERs was too long “given the emerging threat of climate change and the declining price of VERs.”<sup>36</sup> It did not replicate these comments for the *Second Amended* IRP.

### Staff’s Analysis and Recommendations

In Opening Comments, Staff reflected that AURORA was still selecting some solar while retiring thermal resources in this IRP, but it is necessary and appropriate for the Company to continue working with Staff in developing VER integration studies. Staff looked forward to working with the Company on this issue.

Staff believes it is prudent of the Company to continue to study VER integration and the impacts of resources like Jackpot Solar on the Company’s system, in addition to the Company’s reliability needs. However, because both Action Items 5 and 8 are marked for 2020, Staff does not believe it is appropriate to recommend acknowledgment for these Action Items. Staff is very interested in reading the results of these Action Items

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<sup>33</sup> UM 1793, Idaho Power Company Application for Approval of Solar Integration Charge, page 1.

<sup>34</sup> LC 74, CUB Final Comments, page 5.

<sup>35</sup> LC 74, RNW’s Opening Comments, page 6.

<sup>36</sup> LC 74, STOP B2H Opening Comments, page 47.

once they are published and recommends that the Company file each of these with the Commission once they are complete.

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**Staff Recommendations:**

- ***Not Acknowledge Action Item 5: Monitor VER variability and system reliability needs, and study projected effects of additions of 120 MW of PV solar (Jackpot Solar) and early exit of Bridger units.***
- ***Not Acknowledge Action Item 8: Conduct a VER Integration Study.***

**Additional Recommendation:**

- **File the results of each of the VER studies with the Commission once they are complete and notify the LC 74 service list.**
- 

**Exit Boardman**

Action Item 6 is to Exit Boardman December 31, 2020.

**Idaho Power's Analysis**

The Boardman closure has been a component of the Company's IRP for years. The Company retired the Boardman plant in 2020, and this resource decision continued to be selected as part of the least cost/least risk portfolio in the 2019 *Second Amended* IRP. This Action Item is marked for 2020.

**Stakeholder Positions**

***CUB***

CUB indicated in its Final Comments that though it supported the Company's decision to exit Boardman, since this is a completed action, it did not believe that it should be acknowledged by the Commission as a part of this IRP.<sup>37</sup>

***Idaho Power***

In Idaho Power's Final Comments, the Company agreed with CUB that exit from Boardman cannot be acknowledged because the Action Item has already occurred.<sup>38</sup>

**Staff's Analysis and Recommendation:**

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<sup>37</sup> LC 74, CUB Final Comments, page 4.

<sup>38</sup> LC 74, Idaho Power Final Comments, page 46.

Staff agrees with CUB and Idaho Power that this Action Item should not be acknowledged because it has already been completed.

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**Staff Recommendation:**

- ***Not Acknowledge Action Item 6: Exit Boardman December 31, 2020.***
- 

**Regional Haze**

Action Item 7 is to have the 2020 Bridger Unit 1 and Unit 2 Regional Haze Reassessment finalized.

**Idaho Power's Analysis**

The four Jim Bridger units are assumed to reach the end of their depreciable lives in 2034. Units 1 and 2 currently require selective catalytic reduction (SCR) investments in 2021 and 2022 for continued unrestricted operations through 2034. The SCR investments on Units 1 and 2 are not currently planned or included in the IRP analysis. PacifiCorp has submitted an application to the State of Wyoming for a Regional Haze Reassessment, which could provide an alternative to SCR installation on Units 1 and 2.<sup>39</sup> The negotiation with the Wyoming Department of Environmental Quality (DEQ) to extend the utilization of Jim Bridger Units 1 and 2 without SCR investments to comply with the Federal Clean Air Act Regional Haze rules has not yet been completed.<sup>40</sup>

**Stakeholder Positions**

***Sierra Club***

Sierra Club was concerned that PacifiCorp's delayed retirement of Jim Bridger was not designed to protect ratepayers, but rather to protect the utility in Wyoming, a state opposed to the closure of noneconomic coal plants. While these events would not impact the ratepayers of Oregon, Sierra Club was concerned that PacifiCorp might seek to block Idaho Power's early exit, calling the failure to negotiate for an early exit a prospect that would "adversely impact customers economically."<sup>41</sup> Sierra Club pointed to the fact that Idaho Power identified this as one of the "highest partner risk" among this IRP's Action Items.<sup>42</sup> Sierra Club held that PacifiCorp's election to maintain the Bridger coal plant should not be allowed to impose a risk or a cost on Idaho Power's

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<sup>39</sup> Second Amended 2019 IRP, p. 98.

<sup>40</sup> Second Amended 2019 IRP, p. 98.

<sup>41</sup> Sierra Club Opening Comments, p. 4.

<sup>42</sup> Sierra Club Opening Comments, p. 4.



customers.<sup>43</sup> Given the near-term timeline of Idaho Power's proposed exit, and the risk posed by PacifiCorp's election to maintain the first unit longer than Idaho Power finds economic, Sierra Club wanted the Commission to direct Idaho Power to report back to this Commission by the end of calendar year 2020 on its exit negotiations with PacifiCorp.<sup>44</sup>

### **Staff's Analysis and Recommendation**

The Action Item regarding the Unit 1 and Unit 2 Regional Haze Reassessment was for 2020. Because it is now 2021, Staff recommends that the Commission not acknowledge it. However, Staff recommends that the Commission require Idaho Power to file an update with the Commission when it knows the outcome of PacifiCorp's negotiation with the Wyoming DEQ regarding continued use of Units 1 and 2 without SCR investments. In addition, Idaho Power's 2021 IRP should include updated information regarding Idaho Power's exit from Jim Bridger Units 1 and 2.

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### **Staff Recommendation:**

- ***Not acknowledge Action Item 7: Bridger Unit 1 and Unit 2 Regional Haze Reassessment finalized.***

### **Additional Recommendation:**

- **Update the Commission as soon as it knows the outcome of PacifiCorp's negotiation with the Wyoming DEQ regarding continued use of Jim Bridger Units 1 and 2 without SCR investments.**

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### **Valmy Unit 2 Exit**

Action Items 9 and 13 are related to the Valmy Unit 2 exit. Action Item 9 is to conduct focused economic and system reliability analysis on timing of exit from Valmy Unit 2. Action Item 13 is to exit Valmy Unit 2 by December 31, 2022.

### **Idaho Power's Analysis**

In the process of revising its *Amended* IRP, the Company undertook additional analysis and ran sensitivities that included a 2022 retirement date for Valmy Unit 2. In the *Second Amended* IRP, Idaho Power subsequently discovered that it is possible to

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<sup>43</sup> Sierra Club Opening Comments, p. 4.

<sup>44</sup> Sierra Club Opening Comments, p. 4.

economically retire Valmy Unit 2 in 2022 instead of 2025 as originally planned. Table 9.7 of the IRP contains new portfolios with a 2022 retirement date. As the Company indicated in its IRP, it will perform a near-term analysis related to market depth, reliability, and other factors associated with Valmy transmission capacity prior to filing its 2021 IRP.

### Stakeholder Positions

#### *RNW*

RNW generally supported the finding that a 2022 exit for Valmy Unit 2 would provide net economic benefits to Idaho Power and its customers. It also highlighted that Idaho Power should conduct a transparent stakeholder engagement on this early retirement process and implications of the reliability analysis. RNW recommended that this should include information about the type of model, inputs, assumptions, scenarios, and outputs that the Company will use in its reliability analysis.

#### *CUB*

CUB indicated that it appreciates the analytical adjustments leading to the early exit date for this coal plant and that it is confident that further cost and reliability analyses would leave this resource selection unchanged. CUB recommended that the Commission acknowledge this Action Item.

### Staff's Position

In Final Comments, Staff indicated that though it did not oppose an early retirement of Valmy, it was not comfortable recommending acknowledgment without the required analysis the Company indicated should occur. The Preferred Portfolio selected 2025 as an optimal retirement year, and this was the same year acknowledged in the 2017 IRP. Staff supported amending the Action Item to reflect a 2025 retirement date until the Company performed the appropriate studies on reliability impacts for a Valmy shut down by the 2021 IRP filing.

### Idaho Power's Position

Idaho Power appreciated Staff's perspective that more analysis should be performed to support a final decision on the appropriate exit date. The Company indicated that it selected 2022 due to cost modeling results and that the 2022 exit for Valmy showed cost savings as compared to the 2025 exit. Pending Commission approval, Idaho Power stated it was amenable to change the Action Plan to reflect a 2025 exit date for Valmy. However, it also stated that the Company is required to provide 15 months' notice to the ownership partner, NV Energy, prior to exiting Valmy and that this means Idaho Power has until September 2021 to provide NV Energy with enough notice of a year-end 2022 exit date.

### **Staff's Analysis and Recommendations**

Staff continues to believe that investigating reliability impacts of early Valmy retirement and other factors is worthwhile. Where Staff would support potential cost savings of an early retirement, Staff believes it is reasonable to wait until the Company has conducted the appropriate studies. Pending Commission approval, Staff recommends that the Company retain the original exit date until Idaho Power has completed its analysis. Staff also supports a Commission filing similar to the Valmy Unit 1 closure where a more detailed cost analysis could be investigated by the Commission.

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### **Staff Recommendations:**

- **Acknowledge Action Item 9: Conduct focused economic and system reliability analysis on timing of exit from Valmy Unit 2.**
- ***Not Acknowledge Action Item 13: Exit Valmy Unit 2 by December 31, 2022.***

### **Additional Recommendation:**

- **Change the Action Item to include a Valmy Retirement in 2025 until the Company has completed the appropriate analysis to show 2022 is an optimal retirement date.**

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### **Jackpot Solar**

Action Item 12 is to have Jackpot Solar 120 MW on-line December 2022.

### **Idaho Power's Analysis**

For the 2019 IRP, the Company is requesting acknowledgment for a 120 MW solar power purchase agreement (PPA) called Jackpot Solar. On April 4, 2019, Idaho Power notified the Oregon Commission about its intent to acquire this resource because it was a "time limited opportunity."<sup>45</sup> Oregon utilities must comply with the competitive bidding requirements for acquisition of certain generation resources or contracts unless they file a waiver for good cause.<sup>46</sup> Jackpot Solar meets the criteria under these requirements,

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<sup>45</sup> LC 68, Idaho Power Company's Notice of Exception under OAR 860-089-0100. Accessible at <https://edocs.puc.state.or.us/efdocs/HNA/lc68hna163119.pdf>.

<sup>46</sup> OAR 860-089-100(1).

so the Company filed a Notice of Exception under the competitive bidding guidelines. Idaho Power indicated that it was approached by Jackpot Solar in September 2018 and that “Jackpot Solar offered to sell to Idaho Power 120 MW of renewable solar generation with very low pricing, significantly below both market prices and Public Utility Regulatory Policies Act of 1978 (“PURPA”) avoided cost rates.”<sup>47</sup> The Power Purchase Agreement (PPA) is for the purchase of 120 MW of solar with an option to purchase an additional 100 MW at the Contract Price. Idaho Power includes this resource as part of its Preferred Portfolio and Action Plan.

### Stakeholder Positions

#### *CUB*

CUB did not dispute that the Jackpot Solar PPA is a proper use of the OAR 860-089-100(3)(b) exception to the Commission’s competitive bidding guidelines. However, CUB also did not wish to make a determination regarding the prudence of the Company’s action in executing the PPA. CUB’s concern with the PPA’s inclusion in the IRP is based on procedural grounds; because the PPA is already signed, CUB believes that including it in the IRP for Commission acknowledgement runs contrary to established Commission precedent.<sup>48</sup> CUB also stated that a project being substantially complete was inappropriate for Commission acknowledgement.<sup>49</sup>

#### *STOP B2H*

STOP B2H extensively quoted analysis from an Idaho PUC docket whereby Idaho PUC Staff determined that the Jackpot Solar PPA was cheaper than Mid-C market purchases at the Mid-C, and that it provided Idaho Power’s customers with less expensive, clean renewable energy over a 20-year period.<sup>50</sup>

### Staff’s Position

Similar to CUB, Staff indicated that Jackpot Solar appears to be a cost-effective PPA, but it also expressed concern with the Commission acknowledging a project for which a utility requested a waiver of competitive bidding rules. Staff recommended that the Company either clarify or remove this Action Item from the Action Plan.

### Idaho Power’s Position

In Opening Comments to the *Amended* IRP, Idaho Power clarified that AURORA was able to select the Jackpot Solar PPA as a cost-effective resource rather than a resource

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<sup>47</sup> LC 68, Idaho Power Company’s Notice of Exception under OAR 860-089-0100. Accessible at <https://edocs.puc.state.or.us/efdocs/HNA/lc68hna163119.pdf>.

<sup>48</sup> LC 74, CUB Opening Comments, pages 2 and 3.

<sup>49</sup> LC 74, CUB Opening Comments, page 3.

<sup>50</sup> LC 74, STOP B2H Final Comments, page 30.

based on capacity or energy need. In the Amended IRP, AURORA selected the Jackpot Solar PPA in the majority of the 24 WECC-optimized portfolios. However, because the decision to acquire Jackpot Solar was time bound, it agreed that the Jackpot Solar Action Item should be removed. Staff notes that it did not remove this Action Item in the *Second Amended IRP*.

### **Staff's Analysis and Recommendations**

Staff maintains its position from Opening Comments that it is concerned with the Commission acknowledging a project for which a utility requested a waiver of competitive bidding rules and recommends not acknowledging this project. While it appears to be a cost-effective opportunity, Staff agrees with CUB that a Commission acknowledgment would be inappropriate based on Commission direction. The Company may still pursue cost recovery on this project in a rate case.

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### **Staff Recommendation:**

- ***Not Acknowledge Action Item 12: Jackpot Solar 120 MW on-line December 2022.***

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### **Issues Outside of the Action Plan Raised by Stakeholders**

#### **Portfolio Analysis**

Because the *Second Amended IRP* developed new portfolios, Staff considers the portfolio analysis and corresponding stakeholder comments in the *Amended IRP* to be largely obsolete. Thus, Staff will only discuss parties' Final Comments in this section of the Staff Report.

#### **Stakeholder Positions**

##### ***RNW***

In general, RNW supported the changes to Idaho Power's portfolio analysis, including the accelerated Valmy retirement, procurement of new solar resources, "and the development of new transmission as a least-cost and carbon-free supply-side resource." However, RNW also strongly encouraged Idaho Power to study wind and solar resources paired with batteries, or battery energy storage systems (BESS) for the 2021 IRP. RNW indicated that these resources could supply energy during peak demand in addition to providing grid services.

### *STOP B2H*

STOP B2H indirectly critiques the preferred portfolio by pointing to disagreements behind some of the assumptions in the *Second Amended* IRP portfolio analysis. Most apparent is STOP B2H's contention with B2H costs and co-participant risk: "The numbers used to create the portfolios cannot be validated because we do not know the value/amount of the partner's contributions by Idaho Powers admissions."<sup>51</sup> Thus, because STOP B2H does not believe the B2H cost assumptions are accurate, it contended that the IRP should not be acknowledged. STOP B2H indicated that Idaho Power should develop a new suite of portfolios with verifiable B2H costs or to conduct a tipping point analysis to determine how many more costs could be absorbed by the preferred portfolio.

STOP B2H also disagrees with the way the Company has modeled carbon risk: "In fact, Idaho Power is projecting that in 2025, carbon emissions from their system will be 10.46% higher under their [P]referred Portfolio than they are today and will not even start to decline below today's level until 2029." STOP B2H believes Idaho Power should have done a stochastic analysis on the cost of carbon in the IRP.

STOP B2H also expressed concerns with the way Idaho Power modeled peaker O&M startup costs in the *Second Amended* IRP because, according to STOP B2H, the Company "made changes in peaker cost inputs to AURORA for the purpose of making the peakers look much more expensive to own and operate than they really are,"<sup>52</sup> and that "Idaho Power deliberately adjusted the AURORA model to artificially increase the portfolio NPV" so they could save money from repowering certain gas units.<sup>53</sup> STOP B2H also disagreed with the general changes to cost assumptions in AURORA in the *Second Amended* IRP.

### Staff's Position

Staff analyzed the cost effectiveness of the preferred portfolio and concluded that the Preferred Portfolio performed well in some futures but was outranked in other futures. Staff attached an Appendix detailing the ranking differences and explained that it was unclear why the Company selected PGPC B2H (1) as the Preferred Portfolio. There was no single portfolio that outranked others in all futures, and in general, the portfolios performed differently depending on the type of future. Staff also spoke to the repetitive nomenclature of the futures and portfolios, as well as the lack of detail in delineating the steps in the portfolio creation process.

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<sup>51</sup> LC 74, STOP B2H Final Comments, page 11.

<sup>52</sup> LC 74, STOP B2H Final Comments, page 26.

<sup>53</sup> LC 74, STOP B2H Final Comments, page 29. Danskin is a gas-fired power plant consists of simple cycle combustion turbines.

Regarding the Company's portfolio analysis, Staff believed that qualitative measures of risk should be consistently applied across portfolios. For example, in addition to cost, portfolios could be evaluated or ranked according to qualitative risk. Staff recommended reporting qualitative benefits and risks by portfolio in the 2021 IRP and in all IRPs going forward.

Staff also reiterated concerns from Opening Comments that Idaho Power should ensure that its modeling methodology optimize for Idaho Power's customers. Staff recommended that the Company devote resources to improve its optimization analysis, that it address this issue in a 2021 IRP workshop, and that it should implement techniques in its next IRP to optimize resource buildouts based on the Company's system only.

Finally, Staff was concerned that the Company relied primarily on carbon and gas costs as a base for mitigating risk in the base WECC portfolio analysis. Staff did not object to comparing an expected case portfolio cost to the range of costs across differing scenarios, but Staff believed that factors other than gas and carbon costs should be used in order to gain a better indication of risk.

#### Idaho Power's Position

In Idaho Power's Final Comments, the Company committed to incorporating some of Staff's recommendations in the 2021 IRP by improving portfolio naming conventions, incorporating qualitative risk measures in the 2021 IRP, optimizing portfolios for the Company's system, and following Staff's recommendation to expand modeling scenarios in the 2021 IRP. The Company also responded to Staff's request for additional clarification on manual adjustments to portfolio development and various stages of the portfolio development process. However, the Company indicated that Staff's analysis of the Preferred Portfolio does not apply because Staff had referred to the incorrect table in the IRP. Idaho Power proceeded to provide additional detail on portfolio development.<sup>54</sup>

The Company disputed STOP B2H's claims about carbon risk, stating that it looked extensively at carbon price futures throughout the portfolio development process. It developed two of the three portfolio groupings under a high-carbon price scenario to incorporate a range of possible policy futures. In this way, the Company believes it properly accounted for carbon price risk. Idaho Power disputed STOP B2H's comments about carbon emissions, and instead of focusing on Langley Gulch, the Company indicated that, because generation from its thermal resources has declined, its carbon

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<sup>54</sup> LC 74, Idaho Power Final Comments, page 38. Staff referenced Table 9.5, but the Company indicated that Table 9.6 was the correct table in which to analyze portfolio costs.

emissions have also decreased between 2013 and 2019.

Regarding B2H costs, the Company expects that a more detailed analysis of B2H cost and risk will be part of the 2021 IRP because it will have finalized the details of the ownership and cost responsibility arrangements for B2H prior to its next IRP filing.<sup>55</sup> Regarding gas O&M costs, Idaho Power explains that in its review process, it discovered that in the *Amended* IRP, startup costs were not included, “which resulted in more frequent dispatch of the peaker plants and for shorter durations than expected.”<sup>56</sup> For the *Second Amended* IRP, the Company’s new cost assumptions accounted for more costly start-up processes in peaking dispatch, and as a result, disfavored gas peakers.

In addition to the Company’s Final Comments, Idaho Power hosted another call with Staff to answer additional questions about the portfolio development process and the Company’s Final Comments. Staff appreciates the Company’s efforts.

### **Staff’s Analysis and Recommendations**

Staff is pleased that the Company will be incorporating various Staff recommendations in the 2021 IRP, particularly regarding modeling cost risk as a result of potential ownership changes of B2H.

In general, Staff supports changes to the IRP that reflect actual Company operations, or how it expects to operate. To the extent that Idaho Power is modeling its gas peaker O&M and gas costs more appropriately, Staff is not opposed to those changes. Regarding carbon emissions and modeling carbon risk, the current IRP guidelines do not require stochastic analysis for measuring carbon cost risk.<sup>57</sup> The Company’s HGHC portfolios provide alternative scenarios in which the Company entirely eliminates thermal resources, and despite the relatively high cost of these portfolios, in Staff’s view, this analysis is consistent with IRP Guideline 8.<sup>58</sup>

Idaho Power indicated in its Final Comments that Staff used the wrong table for analysis, but analysis of the correct table brought similar conclusions. After the Company filed its Final Comments, Staff ran the same analysis on Table 9.6 and found very similar results—namely that the Preferred Portfolio weakly outranks the rest. While the Preferred Portfolio PGPC B2H (1) is the top ranking portfolio in the Planning Gas,

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<sup>55</sup> LC 74, Idaho Power Final Comments, page 11.

<sup>56</sup> LC 74, Idaho Power Final Comments, page 54.

<sup>57</sup> Order No. 08-339.

<sup>58</sup> See updated Guideline 8 under Order No. 08-339.



Planning Carbon future, it does not perform as well in other futures. The ranks of the portfolios depend entirely on the type of future the Company is modeling.

Part of the Company's justification for the selection of the Planning Gas, Planning Carbon future is that it is the "most likely future scenario,"<sup>59</sup> and that "[n]ot all futures have equal probability of occurrence and the Company considers the results of the planning forecasts to be more significant."<sup>60</sup> This implies that the Company may have applied weights in calculating the rankings, but Idaho Power does not explicitly state this, and if it did apply weights to calculate rankings, it does not explain how it calculated those weights, or how it knows which future is more probable than the next. Idaho Power also explains that "no other portfolio outranked the selected Preferred Portfolio when averaging the rank across all four futures."<sup>61</sup> While this is technically correct, Staff found that PGHC (1) had an average ranking equivalent to the preferred portfolio, assuming the Company applied equal weights across all futures.

While Idaho Power may have applied "common sense" industry judgment as to why Planning Gas, Planning Carbon is the more likely future and therefore most reasonable context for selecting the preferred portfolio PCPG B2H (1), it unfortunately does not outline its reasoning or analysis behind this logic in its IRP. As a result, the analysis shows that the Preferred Portfolio continues to be weakly defended.

Staff does caution that in other more cost-effective futures where B2H is not selected, replacement resources include hundreds of MW of natural gas, and given the carbon policy environment of states within the Western footprint, and the Company's own 100 percent clean by 2045 goal, it is unclear how the addition of gas turbines would fare in a policy environment hostile to fossil fuels. The High Gas, High Carbon (HGHC) portfolios in which the Company manages to avoid gas resources generally rank very low in terms of cost-effectiveness. The addition of the wind PTC in the 2021 IRP, updated costs for B2H, improved assumptions for capacity to contribution, and an updated VER integration study should provide a more informed picture of the lowest-cost portfolios moving forward.

Further, Staff compared the 2019 Action Plan to the 2017 Action Plan, and very little has changed in terms of resource acquisition within the Action Plan window. The major changes are that the Company is adding 120 MW of solar through the acquisition of Jackpot Solar, and the Company may retire Valmy three years earlier than in the 2017 IRP Action Plan. The other main resource acquisition is B2H, of which the Company has not yet begun construction. In Final Comments, Staff indicated that the issue of

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<sup>59</sup> LC 74, Idaho Power Final Comments, page 42.

<sup>60</sup> LC 74, Idaho Power Final Comments, page 42.

<sup>61</sup> LC 74, Idaho Power Final Comments, page 42.

ownership details and project cost risk is a material issue, and the Company must finalize these details prior to the filing of the 2021 IRP. Staff has recommended acknowledgment of B2H in the past, but the Company still has a responsibility to provide material updates and address capital cost or increased cost risk as a result of new participant arrangements.

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#### **Recommendations for the 2021 IRP:**

- **Report qualitative benefits and risks by portfolio in the 2021 IRP and in all IRPs going forward in which a qualitative analysis plays a significant role.**
  - **Devote resources to improve optimization techniques and address this issue in a 2021 IRP workshop. In particular, the Company should implement techniques in its next IRP to optimize resource buildouts based on the Company's system only.**
  - **Implement a more robust measure of risk for evaluating portfolios. The Company should incorporate risks or situations that are not used to create the initial portfolios and should strive to incorporate qualitative risks into the portfolio development process.**
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#### **Energy Efficiency**

##### **Idaho Power's Analysis**

While Idaho Power tested alternative energy efficiency potential forecasting methods in the 2019 IRP, the underlying initial potential study was the same as the 2017 IRP methodology and served as a base case for comparison purposes. For the 2019 IRP, Idaho Power's third-party contractor provided a 20-year forecast of Idaho Power's energy efficiency potential from a total resource cost (TRC) perspective. The contractor also provided additional forecasts based on different economic scenarios.<sup>62</sup> The 20-year energy efficiency potential included in the 2019 IRP declined from 273 aMW in the 2017 IRP to 234 aMW in the 2019 IRP. System on-peak potential from energy efficiency also declined from 483 MW to 367 MW from the 2017 IRP to the 2019 IRP.<sup>63</sup> Idaho Power attributes most of this decline to the reduction of available residential lighting measures

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<sup>62</sup> Second Amended 2019 IRP, page 58.

<sup>63</sup> Second Amended 2019 IRP, page 61.

after the 2020 effective date of the 2007 Energy Independence and Security Act manufacturing standard.<sup>64</sup>

### Stakeholder Positions

#### *STOP B2H*

STOP B2H recommended that the Company reevaluate and improve its energy efficiency programs and increase energy efficiency in its preferred portfolio. STOP B2H observed that Idaho Power has implemented a limited number of pilots and new programs and suggested this indicates insufficient commitment on the Company's part in providing the appropriate level of energy efficiency services. STOP B2H also asserted that the Company's low energy efficiency targets are set too low and therefore impact resource forecasting needs.

#### Staff's Position

In Idaho Power's 2017 IRP, stakeholders and Staff were concerned that Idaho Power was not pursuing all cost-effective energy efficiency. The Commission approved Staff's recommendation that Idaho Power "report on future expanded energy efficiency opportunities and improvements to its avoided cost methodology" in its 2019 IRP.<sup>65</sup> Idaho Power did not include such a report in its original, Amended or Second Amended IRP.

Further, Idaho Power has consistently acquired more energy efficiency savings than targeted in the past several years. Staff believed that improving the IRP forecast of target energy efficiency savings could better reflect the cost-effective achievable energy efficiency that may be available.

Finally, the Idaho Public Utilities Commission (IPUC) has ordered Idaho Power to screen measures using the Utility Cost Test (UCT) as the primary test. Previously, the IPUC had required Idaho Power to use both the UCT and the Total Resources Cost (TRC) test, as is done in Oregon. It was unclear to Staff how Idaho Power's reliance on the UCT to screen for energy efficiency in its Idaho service territory will impact energy efficiency offered in Oregon.<sup>66</sup> Accordingly, Staff recommended that Idaho Power address the impact of the change in the screening test in Idaho on Oregon energy efficiency in the 2021 IRP.

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<sup>64</sup> Second Amended 2019 IRP, page 61.

<sup>65</sup> LC 74, Staff Opening Comments, page 10.

<sup>66</sup> LC 74, Staff Opening Comments, page 12.

### Idaho Power's Position

In response to Staff's recommendation to review energy efficiency measures undertaken by other utilities, Idaho Power committed to a review of ETO's piloted measures from 2018-2020, and to share the results of the review with its Energy Efficiency Advisory Group ("EEAG") during a 2021 EEAG meeting in preparation for Idaho Power's 2021 IRP.<sup>67</sup> Idaho Power stated that it has expanded the IRP process to include an energy efficiency subcommittee as part of the 2021 IRP that includes a variety of stakeholders, including STOP B2H and OPUC Staff.<sup>68</sup>

In response to B2H's assertion that Idaho Power's energy efficiency savings have remained relatively static since 2015, Idaho Power states it has had an increase of 25 percent savings from 2015 to 2019, and in 2019 achieved its highest energy efficiency savings since Idaho Power's Energy Efficiency Rider was established in 2002.<sup>69</sup> Idaho Power acknowledged that energy efficiency acquisition decreased after 2019, but asserted that is due primarily to the Energy Independent Security Act, which was expected to tighten lighting standards starting January 1, 2020.

In response to STOP B2H's claim that the Company's energy efficiency targets are set too low and therefore impact resource forecasting needs, the Company asserted that it contracts with a third party to evaluate and identify energy efficiency measures that could be used in Idaho Power's territory and that its energy efficiency targets are consistent with energy standards.<sup>70</sup>

Idaho Power stated that it does not know how the change to using the UCT as the primary screening criteria will impact energy efficiency potential. It committed to comparing the two approaches through a third-party energy efficiency potential study to see differences at the economically achievable level and to holding a workshop on prior to finalizing the energy efficiency potential study.

### Staff's Analysis and Recommendation

As noted in Staff's Opening and Final Comments, it is not possible to tell from Idaho Power's 2019 IRP all the energy efficiency measures Idaho Power explored in addition to those included in the Company's IRP Action Plan. This lack of clarity contributes to the Staff and stakeholder concerns that Idaho Power is not pursuing all cost-effective energy efficiency in its Oregon territory. Accordingly, Staff recommends that Idaho Power conduct a comprehensive review of the programs offered through the Energy Trust of Oregon (ETO) in the last three years, and for each measure, report on whether

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<sup>67</sup> LC 74, Idaho Power Company's Final Comments, page 57.

<sup>68</sup> LC 74, Idaho Power Company's Final Comments, page 56.

<sup>69</sup> LC 74, Idaho Power Company's Final Comments, page 57.

<sup>70</sup> LC 74, Idaho Power Company's Final Comments, pages 57-58.

the Company considered it, what research the Company did, and what the Company decided with respect to the measure.

In its Reply Comments Idaho Power committed to a review of the ETO measures from 2018-20 and to share the results with its EEAG. Staff appreciates Idaho Power's commitment and notes that it is important that the report provided to its EEAG provide sufficient information to answer the questions identified in Staff's recommendation. Staff also appreciates Idaho Power's commitment to investigate how its switch to using only the UCT to screen for cost effective energy efficiency may impact the acquisition of energy efficiency, and to holding a workshop on this topic.

Regarding Staff's and Stop B2H's concerns that Idaho Power may be under forecasting the potential for cost effective energy efficiency in its service territory, Idaho Power stated that its approach to savings potential in the IRP is consistent with industry standards and that the achievable economic potential is "based on rigorous assessment of the available EE potential in Idaho Power's service area."<sup>71</sup> Staff anticipates that the information Idaho Power has committed to provide as it prepares its next IRP will help Staff and stakeholders investigate and address any concerns about whether Idaho Power is assessing energy efficiency potential adequately.

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#### **Recommendation for the 2021 IRP:**

- **Review all energy efficiency measures piloted by Energy Trust in 2018-2020 and report on whether the Company has considered them, what research was conducted to look into these measures, whether there has been a decision on the inclusion of these measures, and what the determination is to date. The Company should share the status of its review at an Energy Efficiency Advisory Group meeting in 2021 and as a report in the 2021 IRP.**

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#### **Load Forecast**

##### Idaho Power's Analysis

Idaho Power produced separate forecasts for each major customer class. The residential load forecast is the product of a use-per-customer and customer count forecast. The use-per-customer forecast is based on ITRON's Statistically Adjusted End Use Model (SAE). This model utilizes an adoption rate forecast for energy efficient

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<sup>71</sup> LC 74, Idaho Power's Final Comments, page 58.

items like high efficiency washing machines and low energy light bulbs to inform the model on expected usage patterns of customers in Idaho Power's service territory. These forecasts of customer end-use demand are then used to inform a standard regression model to produce a use-per-customer amount. Industrial and Commercial sectors are broken down into services and manufacturing, then further broken down into 12 subsets (e.g. dairy, food packaging, etc.). Historic usage, weather, and economic and demographic data are used to inform all of the models. The Company also uses separate forecasts for on-site generation and electric vehicles to adjust the use-per-customer forecast. It is Staff's understanding that the Company retained the same load forecast for the *Second Amended IRP*.

### Stakeholder Positions

#### *STOP B2H*

In its Opening Comments, STOP B2H described a concern in which the Company's forecast did not necessarily match the pattern of historical values, in that load has remained flat in recent years. STOP B2H argued that a simpler load forecasting model would be better at predicting load. In its Final Comments, STOP B2H argued that Idaho Power over forecasts sales and that the increase in Idaho's residential population has been proportional to a decrease in average residential use. It argued that this trend is also demonstrable in both the industrial and commercial sectors. It proposes alternative mathematical methods to forecasting load.

#### *Sierra Club*

In Opening Comments, Sierra Club stated that Idaho Power's peak load growth assumptions were aggressive, resulting in a shift towards capacity resources, and that the post-2007/2008 recession growth was impacting the load forecasts. Further, Sierra Club indicated that future IRP analysis should be more comprehensive and take advantage of opportunities for controlling future peak load growth using clean resources consistent with Idaho Power's 2045 objective.

### Staff's Position

In Opening Comments, Staff noted its concern with the Company's reliance on ITRON for load forecasting because ITRON's proprietary methods result in black box forecasts with limited access to the inputs that create the forecasts. As a second concern, Staff described the potential of non-stationarity/unit root in some of the Company's non-time-series based models.

In Final Comments, Staff indicated that the Company still needs to do more work to address potential non-stationarity. Staff maintained that a time series model should be used for time series data in order to prevent problems that can arise from incorrectly

assuming that data is not correlated across time. Staff recommended that in its Final Comments, the Company identify the statistical method it will use to judge whether ARIMA<sup>72</sup> models can reduce forecast error, and that prior to its next IRP filing, the Company hold a workshop to present a statistical method addressing this issue. Finally, Staff requested that the Company present the impacts of the pandemic-related recession on long-term load growth as part of the 2021 IRP. Staff also made a series of load forecasting recommendations, most of which Staff repeats below.

#### Idaho Power's Position

The Company resolved Staff's first concern of not being able to access ITRON data by supplying Staff with a confidential work paper of the ITRON model inputs. Staff was able to use this work paper to review the Company's work. The Company also responded to Staff's concern of using non-time-series based models and potential non-stationarity by committing to using ARIMA error testing. The Company argued that more testing is needed to confirm that a time series model would not introduce inaccuracy. Idaho Power also replied to STOP B2H by arguing that its model appropriately considers the numerous and complex factors impacting load. In response to Sierra Club, the Company argued that its model results are reliable.

In Final Comments, the Company indicated it was committed to using ARIMA error testing and exploring other statistical models. It indicated that improvements pertaining to indicator variables within the Company's residential models and out-of-sample testing are expected to be included in future IRPs. Further, Idaho Power maintained that econometric models are the best available means for long-term load growth forecasting, and that weather-adjusted sales are increasing, contrary to STOP B2H's analysis.

#### Staff's Analysis and Recommendations

First, Staff notes that the Company already held Staff's requested load forecasting workshop on February 23, 2021, as part of the 2021 IRP Cycle. Staff appreciates that the Company accommodated Staff's recommendation.

In general, Staff stands by its Final Comments and looks forward to continued improvement in the 2021 cycle. Regarding the Company's Final Comments, Staff has one concern. On page 69 of Final Comments, the Company writes, "Staff asks Idaho Power to identify in Final Comments what statistical method the Company will use to evaluate whether ARIMA models can reduce forecast error." However, the Company did not identify its planned statistical method. Staff believes the Company should consider cross-validation, which is a technique that has been employed by Cascade Natural Gas Company in its 2020 IRP.

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<sup>72</sup> Auto Regressive Integrated Moving Average.

### Recommendations for the 2021 IRP:

- Use a metric like the Akaike Information Criterion to confirm that indicator variables are not causing model overfitting.
  - Present a plan for cross-validation or similar to check whether ARIMA models are likely to reduce load forecast error in the next IRP and check robustness of Idaho Power's load forecasting model.
  - Address whether the upper and lower bounds on its customer load stochastic risk analysis are wide enough.
  - Present to Commissioners the impact of COVID-19 on load.
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### **Demand Response**

#### Idaho Power Analysis

Idaho Power's original 2019 IRP Action Plan included acquisition of 5 MW demand response (DR) in 2026. After discovering its IRP modeling only dispatched DR in resource deficit situations, Idaho Power revised its modeling to treat DR as a resource to offset load, which resulted in additional DR in the preferred portfolio. The Company will not begin acquiring additional DR until 2031 and increases in DR in the Preferred Portfolio DR will occur in increments of 5 MW per year from 2031 to 2038.<sup>73</sup> The IRP is not clear if these additions represent new programs or expansions of existing programs.

#### Stakeholder positions

##### *CUB*

CUB expressed concern that Idaho Power had not sufficiently explored the host of available DR resources that utilities are deploying across the county,<sup>74</sup> but it also appreciated Idaho Power's expanded use of DR from a "lender of last resort" to a summer peak load resource, resulting in increase in DR acquisitions in the IRP.<sup>75</sup> CUB suggested that based on the successful use of DR to shave summer peak load, Idaho Power should be motivated to model DR as a resource to meet winter peak loads and explore winter DR programs, including direct load control of electric HVAC systems and water heating.

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<sup>73</sup> 2019 Second Amended IRP, pages 62-64.

<sup>74</sup> LC 74, CUB Opening Comments, page 5.

<sup>75</sup> LC 74, CUB Opening Comments, page 5.



CUB was also concerned about the delay before the acquisition of DR, which is not until after 2030, and was concerned about Idaho Power's preparedness to acquire DR if it is needed more in the near-term. CUB explained that among other things, designing a DR program is a multistep process involving designing effective pilots, evaluating and learning, and then expanding it to a full-size program. CUB recommended that Idaho Power develop draft plans for potential DR programs and include these in its future DSM report or as a part of its VER Integration Study.<sup>76</sup>

#### *STOP B2H*

In its Final Comments, STOP B2H continued to be critical of Idaho Power's analysis and use of demand side resources in its IRP. Stop B2H noted the juxtaposition between the Northwest Power and Conservation Council's (NWPPCC) Seventh Power Plan finding that DR is the cheapest way to meet capacity needs and Idaho Power's practice of using DR only after other resources are deployed.<sup>77</sup> STOP B2H acknowledged that Idaho Power has committed to use DR to shave peak loads but was concerned Idaho Power was not adequately capturing DR during the planning period.<sup>78</sup>

#### Staff's Position

Staff was concerned Idaho Power's modeled levelized cost of capacity (LCOC) of DR was too high. The average LCOC of existing resources is \$29 per kW-year and the modeled LCOC of expanded DR resources is \$60 per kW-year, a difference of more than 100 percent. In April 2020, Staff asked the Company to rerun the model varying the LCOC of expanded DR with values less than \$60 per kW-year, e.g., a 10 percent increase over the existing resource of \$29 per kW-year (\$32 per kW-year), a 25 percent increase (\$37 per kW-year), and a 50 percent increase (\$44 per kW-year).

The Company did not re-run the model with lowered LCOC for DR. In Final Comments, Staff continued to be concerned that a LCOC for DR that is 107 percent greater than the average LCOC of existing resources was unrealistic. For Idaho Power's 2021 IRP, Staff recommended that Idaho Power model expanded DR with a LCOC based on real programmatic approximations for acquiring the said amount of incremental additional DR; LCOC estimates representative of incremental increases (e.g., 10 percent increase, 20 percent increase, 30 percent increase, 50 percent increase); or some other mutually agreed upon approach to more rationally model this key variable.

#### Idaho Power's Position

In response to Staff's request to conduct more modeling using different assumptions for the LCOC of DR, Idaho Power indicated it is difficult to simulate future costs of DR

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<sup>76</sup> LC 74, CUB Final Comments, page 6.

<sup>77</sup> LC 74, Stop B2H Final Comments, page 44.

<sup>78</sup> LC 74, STOP B2H Final Comments, pages 44, 48.

because it is a customer-based program. Idaho Power said it provided detailed assumptions regarding its assumptions for the LCOC of DR in response to Staff's Data Request 41 and in its Reply Comments. Idaho Power committed to providing a detailed explanation of cost estimates used in the LCOC for DR in the 2021 IRP.<sup>79</sup>

Idaho Power took issue with criticisms regarding the decrease in DR capacity since 2012, noting that Idaho Power and stakeholders executed a settlement agreement in 2013 agreeing the Company would not add new DR programs in years when the Company does not anticipate peak-hour capacity deficits.<sup>80</sup> Idaho Power notes that its Second Amended IRP does not identify a capacity deficit until 2026 and this deficit is met through a resource with broader availability than DR.

Idaho Power appreciated CUB's recommendation to explore use of DR for winter peak loads as well as summer peak loads, but stated that meeting summer capacity deficits generally means that winter capacity deficits do not exist. However, Idaho Power stated that if a capacity deficit developed with respect to the Company's winter peaks, the Company is open to future modifications of its DR analysis and balancing assumptions. Further, Idaho Power committed to analyzing the capability of DR to meet possible capacity needs in the 2021 IRP and to reporting on that analysis in the 2021 IRP.<sup>81</sup>

### **Staff's Analysis and Recommendation**

Staff appreciates Idaho Power changing its modeling to dispatch DR to shave peak load and supports continued modeling of DR to offset load rather than as a resource of last resort. However, Staff continues to be concerned regarding the LCOC of DR modeled by the Company. The Company states that it is difficult to comply with Staff's request to simulate the LCOC of DR programs, noting the programs are not scheduled to deploy for another ten years. Staff is concerned the Company is creating an analytical loop in which DR is excluded as a high-cost resource. As CUB and Staff both point out, the Company should be modeling costs of DR acquisitions in the near future as well as ten years from now to ensure the most cost-effective portfolio is acquired. Idaho Power assumes DR will not be cost effective until after 2030 and bases this assumption on the cost of DR acquired more than ten years in the future. It is not clear, therefore, whether DR would be cost effective prior to 2030 if realistic assumptions about the LCOC of near-term acquisitions of DR are used. Idaho Power should rigorously test its assumptions about the cost effectiveness of DR in the next ten years.

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<sup>79</sup> LC 74, Idaho Power Company's Final Comments, page 60.

<sup>80</sup> Idaho Power Company's Final Comments, p. 60.

<sup>81</sup> Idaho Power Company's Final Comments, p. 64.

Staff appreciates Idaho Power's commitment to provide detailed analysis regarding its cost assumptions in the 2021 IRP. However, Staff will continue to probe Idaho Power's use of an unreasonably high LCOC for DR and will look to ensure reasonable assumptions are used.

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#### **Recommendation for the 2021 IRP:**

- **The 2021 IRP should model expanded DR with a LCOC based on real programmatic approximations for acquiring the said amount of incremental additional DR; LCOC estimates representative of incremental increases (e.g., 10 percent increase, 20 percent increase, 30 percent increase, 50 percent increase); or some other mutually agreed upon approach to more rationally model this key variable.**
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#### **DR and Battery Storage**

##### Idaho Power Analysis

Idaho Power did not include a comparison of DR and battery storage in its 2019 Second Amended IRP.

##### Staff Position

In its Opening Comments, Staff asked the Company to address the extent to which DR can provide services similar to those of battery storage. Staff also asked the Company to explain the different LCOCs of DR programs and standalone battery-storage resources and notes the 2019 Amended IRP selects a battery resource earlier than DR. Staff also suggested pairing DR with solar.

##### Idaho Power Response

Idaho Power did not directly respond to Staff's inquiry regarding a comparison of battery storage and DR. However, Idaho Power stated that "Demand Response at Idaho Power is intended to be used for short-term deficits in order to minimize or delay the need to build new supply side resources."<sup>82</sup> In response to Staff's inquiry about pairing DR with solar resources, Idaho Power stated that a combined solar and DR program would likely result in a higher LCOC than any of the solar/battery combinations analyzed in the IRP.<sup>83</sup>

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<sup>82</sup> LC 74, Idaho Power Company's Reply Comments, page 55.

<sup>83</sup> LC 74, Idaho Power Company's Reply Comments, page 60.

### **Staff's Analysis**

Staff appreciates Idaho Power's responses to its inquiries regarding pairing of DR and solar. Staff notes that the selection of DR as a resource in the 2019 Second Amended IRP occurred at the same time as a battery resource, whereas in earlier versions of the IRP DR was selected after battery storage. Staff has no specific recommendations on this issue for the next IRP but will continue to engage with Idaho Power on this topic as Idaho Power prepares its 2021 IRP.

### **Time of Use Rate Offerings**

#### **Idaho Power's Analysis**

Idaho Power does not include Time of Use rate offerings in its Preferred Portfolio.

#### **Stakeholder Positions**

##### ***CUB***

CUB noted that Advanced Metering Infrastructure (AMI) deployment in Oregon is nearing completion and is scheduled to be complete by the end of 2020. With this resource in place, CUB recommended that Idaho Power initiate pilots such as critical peak pricing, peak time rebates, or time-of-use rates.

#### **Staff's Position**

Staff acknowledged that the Company currently offers an Oregon Residential Time-of-Day Pilot Plan and that Idaho Power will report on the pilot in its 2021 Smart Grid Report. However, Staff was unsure whether TOU rates will be explored as a cost-effective resource in the 2021 IRP. Idaho Power's modeling is based on \$60 per KW-year LCOC for expanded DR, which is unrealistic for behavior-based programs that do not include hardware costs.

#### **Idaho Power's Position**

To date, there are three customers participating in the Time-of-Day (TOD) Pilot Plan, and there have not been any material costs associated with implementation or management of the offering. Due to the relatively low level of participation, the Company has not studied the impact of peak capacity reduction by season or time period, as the reported results would not be statistically valid. While the Commission suspended the Company's requirement to file a 2021 Smart Grid Report, Idaho Power believed it was reasonable to leverage the work that will be done in the Distribution System Planning docket (UM 2005) as an avenue to report on its TOD pilot. The Company also believed it was reasonable to evaluate the structure of TOD rates in a

future general rate case, or other proceeding where customer rates will be evaluated, to determine if other structures may be feasible.<sup>84</sup>

### **Staff's Analysis and Recommendation**

Staff's concerns regarding Idaho Power's modeling of Time-of-Use rate offerings are the same as for other DR in Idaho Power's 2019 Second Amended IRP – Idaho Power generally has used unrealistic LCOC assumptions for all DR. However, Staff appreciates Idaho Power's commitment to continue its review of use of TOD rates in the DSP Planning docket and in future rate cases.

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### **Recommendations for the 2021 IRP:**

- **Provide an update on the Oregon Residential Time-of-Day Pilot Plan, including number of participants, total cost of the pilot since its 2019 launch, and peak capacity reduction by season, as well as propose an alternative venue for reporting pilot results, given that the Smart Grid Report will be suspended with the Commission approval of DSP guidelines.**
- **Work with Staff and stakeholders to develop a new modeling approach suitable for behavior-based DR programs that reflects such programs' typical lower costs and less certain results.**

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### **Qualifying Facilities (QFs)**

#### **Idaho Power's Analysis**

Idaho Power indicated it cannot predict the level of future PURPA development; therefore, only signed contracts are accounted for in Idaho Power's resource planning process. Generation from PURPA contracts is forecasted early in the IRP planning process to update the accounting of supply-side resources available to meet load. The PURPA forecast used in the 2019 IRP was completed in October 2018. Detail on signed PURPA contracts, including capacity and contractual delivery dates, is included in Appendix C—Technical Appendix.<sup>85</sup>

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<sup>84</sup> LC 74, Idaho Power Company's Final Comments, page 65.

<sup>85</sup> Idaho Power Second Amended IRP, page 43.

### Stakeholder Comments

#### *REC*

REC expressed concerns about the assumptions Idaho Power makes for QFs whose contracts are scheduled to terminate during the planning period. REC asked the Commission to direct Idaho Power to make appropriate planning assumptions about QF renewals and compensate QFs for this value.<sup>86</sup> REC argued that the IRP should assume that all QFs with expiring contracts will renew their contracts and that all renewing QFs should receive a capacity payment throughout the term of their Energy Service Agreements (ESAs).<sup>87</sup>

#### Staff's Position

In response to REC's concerns, Staff recommended that the Company describe what specific wind repowering developments would cause the Company to change its wind QF renewable assumptions. Staff noted there is risk inherent in assuming that none of the wind contracts will renew. For the 2021 IRP, Staff requested that the Company incorporate sensitivities related to QF wind renewals.<sup>88</sup>

#### Idaho Power's Position

Idaho Power disputed REC's contention that Idaho Power has improperly forecasted power purchase from QFs under PURPA; it stated that it has used the same methodology as in past IRPs and that it assumed all existing QF contracts, except for wind projects, will continue to deliver energy throughout the planning period.<sup>89</sup> The Company explained that it does not expect the wind projects to renew because the cost of repowering wind QFs can be very significant.<sup>90</sup> Given the wind Idaho Power currently has on its system, Idaho Power believes it would be unwise to simply assume, without a sound basis, that all of the wind capacity will be available in perpetuity.<sup>91</sup> Idaho Power stated it will continue with this assumption until information to the contrary comes available. Nonetheless, in response to Staff's suggestion, Idaho Power stated it will perform sensitivity analysis in its next IRP pertaining to wind replacement assumptions to evaluate the impacts on resource planning.<sup>92</sup>

With respect to REC's arguments regarding capacity payments to renewing QFs, Idaho Power points out that the Commission has not yet taken up the issue that REC

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<sup>86</sup> LC 74, Renewable Energy Coalition's Opening Comments, page 10.

<sup>87</sup> See LC 74, Idaho Power Company's Reply Comments, page 66.

<sup>88</sup> LC 74, Staff Final Comments, pages 6-8.

<sup>89</sup> LC 74, Idaho Power Reply Comments, page 66.

<sup>90</sup> LC 74, Idaho Power Reply Comments, page 67.

<sup>91</sup> LC 74, Idaho Power Reply Comments, page 67.

<sup>92</sup> LC 74, Idaho Power Final Comments, page 67.

discusses in its comments and that the issue is properly addressed in an investigation regarding the avoided cost methodology, not review of an IRP.

### **Staff's Analysis and Recommendation**

In absence of any particular methodology prescribed by the Commission, Staff does not find Idaho Power's forecast of QF purchases based on data known to Idaho Power and its assumptions regarding renewal of contracts to be unreasonable. Idaho Power's assumption that no wind QFs would renew their contracts based on the costs involved in repowering a wind resource is pragmatic given the amount of wind currently on Idaho Power's system. However, Idaho Power's assumption regarding wind QFs is not necessarily consistent with Idaho Power's own assumption that it will repower its wind resources.

In response to REC's and Staff's concerns, Idaho Power has committed to updating its assumptions regarding renewal of QF wind resources if and when new information becomes available. Staff believes that continually updating assumptions based on new data is an implicit requirement of the IRP process. Idaho Power has also committed to performing sensitivity analysis in its next IRP pertaining to wind replacement assumptions to evaluate the impacts on resource planning. Staff is satisfied with this commitment.

REC's request that the Commission order Idaho Power to compensate renewing QFs for capacity immediately upon renewal is out of place in this docket. This issue will be addressed in the Commission's general investigation into the avoided cost methodology in Docket No. UM 2000.

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### **Recommendation for the 2021 IRP:**

- **Perform sensitivity analysis in its 2021 IRP pertaining to wind replacement assumptions to evaluate the impact on resource planning.**
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### **Resource Inputs**

#### **Idaho Power's Analysis**

For the 2019 IRP, Idaho Power updated the capacity value of solar using the 8,760-based method developed by National Renewable Energy Laboratory (NREL), which

limited the approximation of solar capacity value to the highest 100 hours in the Company's load duration curve.

For gas prices, Idaho Power used a third-party vendor to estimate gas price forecasts. Based on an examination of the forecasting methodology and comparative review of various sources (i.e., Moody's and NYMEX), Idaho Power concluded that its third-party vendor's natural gas forecast was appropriate for the planning case forecast in the 2019 IRP.

Regarding resource input costs, on page 24 of Appendix C in the *Amended IRP*, the Company presented an LCOE for Wyoming wind of \$94 MWh.

### Stakeholder Positions

#### *RNW*

RNW recommended that Idaho Power explore options that might displace the gas peaker selected by the model in 2030. It also strongly encouraged Idaho Power to study wind and solar resources paired with batteries, or battery energy storage systems (BESS) for the 2021 IRP.

#### Staff's Position

In Opening and Final Comments, Staff expected that the Company would use the capacity value methodology stipulated in Docket No. UM 1719. In Order No. 16-362, the Commission established two standards for estimating the capacity contribution of variable energy resources in IRP planning: Effective Load Carrying Capability (ELCC) or a Capacity Factor (CF) approximation. Staff asked the Company to explain how the methodology used to derive wind capacity values complies with the stipulation approved by Commission Order No. 16-326 because it was concerned that Idaho Power was not in compliance with the order.

In Opening and Final Comments, Staff had concerns with the LCOE for Wyoming wind of \$94 MWh. Staff believed that this was a significantly higher than most resource economics literature. Staff also questioned why the Company did not include wind Production Tax Credits (PTCs) as an input in AURORA.

Staff also looked into the AURORA modeling assumptions for battery storage and was concerned that the Company placed limits on the amount of storage allowed in its portfolios.<sup>93</sup> Based on the data provided to Staff, the amount of standalone storage available for selection in this IRP appeared to be limited to 80 MW per year, and the

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<sup>93</sup> Aurora database provided to Staff for review.



amount of storage that can be paired with solar was limited to 80 MW over the entire planning timeframe.

Staff, along with other parties, also questioned the inclusion of a 300 MW gas generator in 2030 given Idaho Power's goal to be "Clean by 2045." This presented a possibility of a gas resource having a useful life of only 15 years, while the assumed useful life in the IRP's generic natural gas levelized cost of energy (LCOE) was 30 years. Staff sought clarification in an information request, to which Idaho Power replied, "The Company is looking for ways to meet or offset its future resource needs in accordance with its 2045 goals but acknowledges advances in technology may be required."<sup>94</sup>

#### Idaho Power's Position

Initially, in Idaho Power's Opening Comments, the Company indicated that it chose not to use the ELCC method because 1) it needed at least 3-5 years of additional data for certain components of the methodology, and 2) The ELCC method did not adjust for solar energy's changing capacity value as the total amount of solar on the Company's system increases. Idaho Power ultimately determined that NREL's approach to modeling solar energy's capacity value best fit the Company's system. However, in Final Comments, the Company recognized Staff's concern that "regardless of the superiority of the NREL's modified ELCC approach and the transparency with which the Company adopted this new method, the solar capacity valuation method applied in this case does not squarely align with the two methods identified by Commission Order No. 16-326."<sup>95</sup> Because it did not select one of the two methods, Idaho Power subsequently requested an exception from application of the order.

Regarding the selection of a natural gas resource in 2030, Idaho Power indicated that this resource is intended to be a placeholder or "surrogate" resource that would behave like natural gas in terms of flexibility and dispatchability. Idaho Power reiterated its focus on a 100 percent clean energy by 2045 goal, and expects that future technology development and cost changes "will ultimately determine what the flexible resource will be," and "anticipates technology advancements and associated cost declines will facilitate the replacement of natural gas with clean, flexible resources."<sup>96</sup>

In Final Comments, the Company addressed the PTC's absence from the 2019 IRP and indicated that a larger factor in fewer wind resources in the IRP was the resource's limited contribution to meeting the Company's summer peak.<sup>97</sup> For the 2021 IRP, the Company said it would model the PTC for wind to the extent it is technically achievable.

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<sup>94</sup> See LC 74, Staff's Opening Comments, Attachment A, Idaho Power Response to Staff IRs 1-2.

<sup>95</sup> LC 74, Idaho Power's Final Comments, page 47.

<sup>96</sup> LC 74, Idaho Power's Final Comments, page 51.

<sup>97</sup> LC 74, Idaho Power's Final Comments, page 53.

Despite this agreement to model wind PTCs in the next IRP, Idaho Power said that Staff's Final Comments are inconsistent with Staff's position in the PGE IRP, and that "when PGE timed the development of a new wind project to take advantage of PTCs, Staff advocated to limit associated power cost recovery precisely because the project was timed to maximize PTC benefits."<sup>98</sup>

Regarding energy storage limitations, Idaho Power stated that for standalone storage, it did not limit the capacity to 80 MW. The Company provided a table showing storage solutions and total potential for each option modeled in the 2019 IRP.<sup>99</sup> However, it admitted that for solar *plus* storage, it did indeed limit the threshold to 80 MW and believed that it was reasonable because of "the typical size of battery storage projects, as well as the lack of any current battery storage on Idaho Power's system."<sup>100</sup> The Company agreed to evaluate higher limits for solar-plus-storage in the 2021 IRP cycle.

#### **Staff's Analysis and Recommendations**

For the Company's approach to the capacity contribution of solar, Staff does not disagree that 3-5 years of data is a reasonable requirement. Idaho Power explained that the rapidity of the solar penetration spike on its system meant that there was inadequate longitudinal data to perform the ELCC calculation. However, Staff believes it is possible to approximate the ELCC of solar from irradiance data for 3 to 5 years. While not based on actual data collected on the Company's system, an approximation would have been more consistent with the stipulation in UM 1719. The Company states it will have enough data to perform the correct calculation for the 2021 IRP. As a result, Staff is not opposed to an exemption for the 2019 cycle.

Regarding the high cost assumptions of Wyoming wind, Staff could not identify where the Company addressed Staff's questions around the high costs it assumed in the IRP. Staff is aware that the Company is in the process of completing the 2020 VER Integration study, which will incorporate more updated wind integration costs. As of writing this Staff Report, Staff is unaware of whether this report has yet been filed with the Commission. Staff asks that the Company notify the LC 74 service list once it files the 2020 VER Integration Study.

Staff also appreciates that the Company will include the wind PTC in the 2021 IRP. However, Staff disagrees that it was being inconsistent in its Final Comments regarding the addition of this resource. Staff's intent to encourage use of the PTC was not about Idaho Power pursuing wind to be long on the market or to pursue an economic opportunity. Staff simply believes that all available and appropriate data should be

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<sup>98</sup> LC 74, Idaho Power's Final Comments, page 53.

<sup>99</sup> LC 74, Idaho Power's Final Comments, page 49.

<sup>100</sup> LC 74, Idaho Power's Final Comments, page 50.

updated and used in the IRP, and the PTC fits within this universe of options. Idaho Power has argued in its IRP that it will have a resource need in 2026. Staff is not opposed to prudently incurred resource acquisition, and modeling wind correctly would be part of a prudently considered portfolio.

Regarding storage, Staff appreciates that the Company will raise the threshold for hybrid resources in the 2021 IRP.

Finally, while Staff can understand the use of a “surrogate” as a proxy for a flexible resource, Staff encourages the Company to carefully consider the fitness of this choice. A gas peaker is not an emerging technology, it relies on a well-established source of fuel and pipeline network, it is a more well-established technology, and the costs are better understood despite fluctuations in market prices for gas. Despite the fact that alternative technologies may decline in costs as time goes on, the risk of misapplying assumptions for one resource to another must also be considered. The selection of the gas resources is far outside the scope of the Action Plan window, so there is still time to investigate the optimal choice for a technology that will align with Idaho Power’s Clean by 2045 goal.

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#### **Recommendations for the 2021 IRP:**

- **Allow an exemption to Order No. 16-362.**
- **Perform the Company’s approved capacity factor approximation method using all the new data that has become available.**
- **Eliminate or raise the 80 MW cap on battery storage. This includes standalone battery storage as well as storage paired with solar.**
- **Model the PTC for wind to the extent it is technically achievable by the Company.**
- **Revise its Wyoming cost inputs to include more reasonable cost assumptions.**

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#### **Climate Change Risk Report**

In the 2017 IRP, Staff asked the Company to commission a report for the next IRP to assess the risks and uncertainties associated with climate change to Idaho Power and its customers. The Commission Order acknowledging the IRP adopted Staff’s

recommendation.<sup>101</sup> In the 2019 IRP, while the Company did briefly address this issue by stating that it performed a climate change analysis using data from various sources to analyze water availability in the Pacific Northwest under various climate change scenarios, Staff could not identify a unifying report specifically meeting the Commission's Order. Staff asked the Company to explain how it complied with the Commission's directive to develop this report, and Idaho Power pointed to analysis it had done to examine the effects of climate change on its hydropower system and that the Company was in the process of developing a "more comprehensive internal plan."<sup>102</sup> This appeared to include a Sustainability Report in addition to Idaho Power's Climate Change Adaptation Plan. It is unclear whether any of these reports were meant to comply with Commission Order No. 18-176. Staff recommends that the Company provide a standalone report to serve as the Climate Change Risk Report that accompanies its next IRP.

Since 2018, when Order No.18-176 was issued, Staff notes that there has been a great deal of work to refine and improve how companies assess climate risk. Staff suggests looking to approaches in other forums on how to assess and disclose climate-related risk.<sup>103</sup> The Company should consider including a description of the Company's process for identifying, assessing, and managing climate-related risks and how it integrates these risks into its overall risk management. Further, regarding climate risk evaluation and assessment in planning, financial reporting, and other business practices, Staff suggests that the Company consider the following elements in its report:

<sup>104</sup>

1. Describe the metrics and/or methods that the utility uses to evaluate climate-related financial and operational risks covering investments in and returns from generation;
2. Describe the methods used in considering financial and operational risk mitigation from non-generation activities that make the system more flexible and efficient, (such as investments in smart networks and customer solutions); and
3. Indicate which metrics and/or methods are used to track climate-related transition risks, physical risks, and catastrophic or "tail" risks.

Staff is very interested in further discussions on climate risk planning best practices and plans to engage with stakeholders to have robust conversations on this topic as part of its IRP related response to EO 20-04.

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<sup>101</sup> Order No. 18-176 at 17.

<sup>102</sup> LC 74, Idaho Power Reply Comments, page 76.

<sup>103</sup> See the TCFD Electric Utilities Preparer Forum paper, *Disclosure in a time of transition: Climate related financial disclosure and the opportunity for the electric utilities sector*. Accessible at [https://docs.wbcsd.org/2019/07/WBCSD\\_TCFD\\_Electric\\_Uilities\\_Prepaper\\_Forum.pdf](https://docs.wbcsd.org/2019/07/WBCSD_TCFD_Electric_Uilities_Prepaper_Forum.pdf).

<sup>104</sup> *Ibid*.

Further, in response to EO 20-04, Staff plans to launch a series of workshops in 2021 to explore additional, and in some cases more granular portfolio emissions data in the next IRP. Staff looks forward to working with the Company to identify the best ways to uncover and understand pathways to meet GHG emission reduction targets with this additional information. Staff hopes to see at least some of the following items included in the next IRP:

- A model and description of the necessary changes to the IRP Preferred Portfolio operations and resource mix to meet various emissions targets (both the Company's and where different, those in EO 20-04) and to reliably serve load.
- If hourly dispatch and emissions data are available, production of a 12 x 24 matrix of gross (not net) GHG emissions. If not available, a description of the challenges to producing a 12 x 24 matrix of gross (not net) GHG emissions using select portfolios from the IRP in select years.
- Estimates of the Company's carbon intensity per customer in select years.
- Load duration curves for select years that detail the estimated 8,760 hourly operation costs and emissions.
- Emissions associated with annual "sales for resale" from fossil fuel sources.

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**Recommendation for the 2021 IRP:**

- **The Company should produce the Climate Change Risk Report referenced in the 2017 IRP acknowledgment order and include it in the next IRP.**

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**Waiver**

In its Final Comments, Idaho Power requested a waiver from IRP 5 Guideline 3(f), which requires an annual update to the IRP. The reasoning behind the request is that the Company believes it will have filed the 2021 IRP before the annual update deadline, which will be one year after the Second Amended 2019 IRP acknowledgment.

Given the timing of when the Company anticipates filing its IRP, Staff is not opposed to recommending a waiver as long as the Company actually files its IRP within one year of the acknowledgment. If the Company believes there will be any delay to the filing, the Company should file an Update to the IRP.

---

**Staff Recommendation:**

- **Waive the IRP Update unless the Company is unable to file its IRP before the annual update deadline.**
- 

**Conclusion**

Staff appreciates the hard work of Idaho Power and each of the stakeholders participating in this case. Staff has presented a series of recommendations above. Below is a summary of Staff's recommendations in this proceeding.

1. Plan and coordinate with PacifiCorp and regulators for early exits from Jim Bridger units. Target dates for early exits are one unit during 2022 and a second unit during 2026. Timing of exit from second unit coincides with the need for a resource addition. (2020-2022)

**Recommendation:** Acknowledge

**Additional Recommendation:** Provide a reliability impact analysis for Jim Bridger retirement.

2. Incorporate solar hosting capacity into the customer-owned generation forecasts for the 2021 IRP. (2020-2022)

**Recommendation:** Acknowledge

3. Conduct ongoing B2H permitting activities. Negotiate and execute B2H partner construction agreement(s). (2020-2026)

**Recommendation:** Acknowledge

4. Conduct preliminary construction activities, acquire long-lead materials, and construct the B2H project. (2020-2026)

**Recommendation:** Acknowledge

**Additional Recommendations:**

- Continue to include the 20 percent cost contingency for B2H in the 2021 IRP.
- Update B2H costs prior to creating new portfolios in the 2021 IRP.
- Model cost risk as it relates to a change in ownership arrangement in the 2021 cycle. This could be in the form of a series of sensitivities, where the

Company continues to own 21 percent of the line and retail customers are held harmless, and introduce additional costs to customers based on a range of capital risks.

- Dedicate time in a 2021 IRPAC meeting addressing the issue of B2H cost risk as a result of new ownership structures. In the meeting, the Company should address the questions raised below:
  - What are the specifics of the ownership arrangements the Company is considering?
  - What is the risk that costs would increase under new arrangements?
  - What sort of capital risk would Idaho Power be taking on by assuming additional ownership?
  - How would these risks impact the Preferred Portfolio in an IRP?
  - How is the Company going to model this risk in the 2021 IRP cycle?
  - What would be the specific accounting authorizations needed for such an arrangement?
  - What actions will Idaho Power take to minimize supply chain risk?
  - What would be the specific types of contracts needed for such an arrangement?
  - Would a change in partnership or service arrangement affect the in-service date of B2H?
  - Is there still a possibility that another third party could assume ownership?

5. Monitor VER variability and system reliability needs, and study projected effects of additions of 120 MW of PV solar (Jackpot Solar) and early exit of Bridger units. (2020)

**Recommendation:** Not Acknowledge due to timing

**Additional Recommendation:** File the results of each of the VER studies with the Commission once they are complete and notify the LC 74 service list.

6. Exit Boardman December 31, 2020. (2020)

**Recommendation:** Not Acknowledge due to timing

7. Bridger Unit 1 and Unit 2 Regional Haze Reassessment finalized. (2020)

**Recommendation:** Not Acknowledge due to timing

**Additional Recommendation:** Update the Commission as soon as it knows the outcome of PacifiCorp's negotiation with the Wyoming DEQ regarding continued use of Jim Bridger Units 1 and 2 without SCR investments.

8. Conduct a VER Integration Study. (2020)  
**Recommendation:** Not Acknowledge due to timing
9. Conduct focused economic and system reliability analysis on timing of exit from Valmy Unit 2. (2020-2021)  
**Recommendation:** Acknowledge
10. Continue to evaluate and coordinate with PacifiCorp for timing of exit/closure of remaining Jim Bridger units. (2021-2022)  
**Recommendation:** Acknowledge
11. Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2022. (2022)  
**Recommendation:** Acknowledge
12. Jackpot Solar 120 MW on-line December 2022. (2022)  
**Recommendation:** Not Acknowledge
13. Exit Valmy Unit 2 by December 31, 2022.  
**Recommendation:** Not Acknowledge  
  
**Additional Recommendation:** Change the Action Item to include a Valmy Retirement in 2025 until the Company has completed the appropriate analysis to show 2022 is an optimal retirement date.
14. Subject to coordination with PacifiCorp, exit Jim Bridger unit (as yet undesignated) by December 31, 2026. Timing of the exit from the second Jim Bridger unit is tied to the need for a resource addition (B2H). (2026)  
**Recommendation:** Acknowledge

Following is a list of additional Staff Recommendations based on analysis in this Staff Report.

#### **Additional Staff Recommendations**

- Report qualitative benefits and risks by portfolio in the 2021 IRP and in all IRPs going forward in which a qualitative analysis plays a significant role.
- Devote resources to improve optimization techniques and address this issue in a 2021 IRP workshop. In particular, the Company should implement techniques in its next IRP to optimize resource buildouts based on the Company's system only.



- Implement a more robust measure of risk for evaluating portfolios. The Company should incorporate risks or situations that are not used to create the initial portfolios and should strive to incorporate qualitative risks into the portfolio development process.
- Review all energy efficiency measures piloted by Energy Trust in 2018-2020 and report on whether the Company has considered them, what research was conducted to look into these measures, whether there has been a decision on the inclusion of these measures, and what the determination is to date. The Company should share the status of its review at an Energy Efficiency Advisory Group meeting in 2021 and as a report in the 2021 IRP.
- Use a metric like the Akaike Information Criterion to confirm that indicator variables are not causing model overfitting.
- Present a plan for cross-validation or similar to check whether ARIMA models are likely to reduce load forecast error in the next IRP and check robustness of Idaho Power's load forecasting model.
- Address whether the upper and lower bounds on its customer load stochastic risk analysis are wide enough.
- Present to Commissioners the impact of COVID-19 on load.
- The 2021 IRP should model expanded DR with a LCOC based on real programmatic approximations for acquiring the said amount of incremental additional DR; LCOC estimates representative of incremental increases (e.g., 10 percent increase, 20 percent increase, 30 percent increase, 50 percent increase); or some other mutually agreed upon approach to more rationally model this key variable.
- Provide an update on the Oregon Residential Time-of-Day Pilot Plan including number of participants, total cost of the pilot since its 2019 launch, and peak capacity reduction by season, as well as propose an alternative venue for reporting pilot results, given that the Smart Grid Report will be suspended with the Commission approval of DSP guidelines.
- Work with Staff and stakeholders to develop a new modeling approach suitable for behavior-based DR programs that reflects such programs' typical lower costs and less certain results.
- Perform sensitivity analysis in its 2021 IRP pertaining to wind replacement assumptions to evaluate the impact on resource planning.
- Allow an exemption to Order No. 16-362.

- Perform the Company's approved capacity factor approximation method using all the new data that has become available.
- Eliminate or raise the 80 MW cap on battery storage. This includes standalone battery storage as well as storage paired with solar.
- Model the PTC for wind to the extent it is technically achievable by the Company.
- Revise its Wyoming cost inputs to include more reasonable cost assumptions.
- The Company should produce the Climate Change Risk Report referenced in the 2017 IRP acknowledgment order and include it in the next IRP.
- Waive the IRP Update unless the Company is unable to file its IRP before the annual update deadline.

**PROPOSED COMMISSION MOTION:**

Acknowledge Idaho Power's 2019 IRP in part and decline to acknowledge in part Idaho Power's 2019 Integrated Resource Action Plan. Staff recommends certain action and additional requirements on pages 52-56 of this Staff Report.

1 NRCS soil data, and to the extent the data was not available, made conservative assumptions  
2 that the land should be classified as forest land.

3  
4 Based on the above-described approach, and record of consultation with Union and Umatilla  
5 Planning Departments to accurately identify and account for forest zoned lands within the  
6 analysis area, the Council finds that the methods are valid for assessing potential impacts to  
7 forest practices.

8  
9 *Potential Impacts to Accepted, and the Cost of Accepted, Farm/Forest Practices*

10  
11 As presented in the ASC, the applicant identifies that accepted farm practices in forest-zoned  
12 lands within Union and Umatilla counties include range and pasture uses, exclusively. Potential  
13 impacts from proposed facility construction and operation to these accepted farm practices  
14 include temporary and permanent disturbance, changes in land use patterns, population  
15 density or growth rate, and the related effects of those changes on agriculture.

16  
17 As presented in the ASC, the applicant identifies that accepted forest practices in forest-zoned  
18 lands within Union and Umatilla counties include long-term forest management for sawtimber,  
19 pole-sized trees, and reproduction. Potential impacts to these accepted forest practices from  
20 right-of-way clearing; road construction, repair and use; and, slash abatement during proposed  
21 facility construction include: increased operating risk to future timber harvesting within a tree  
22 length of the proposed transmission line; loss in tree volume along the edges of the  
23 transmission line corridor; increased wildlife risk; increased risk of unauthorized use of land due  
24 to increased access from new roads (see Attachment K-2, Section 3.6.1). In some areas, the  
25 transmission line may separate blocks of forest land, which has the potential to impact access  
26 or the ability of landowners to perform forest practices. The results of this analysis identified  
27 that approximately 245.6 acres and 530 acres, totaling 776 acres, of forested lands within  
28 Umatilla and Union counties, respectively, could be permanently impacted by the proposed  
29 facility.

30  
31 Based on the removal of approximately 776 acres of land from timber harvest production, the  
32 applicant quantifies the estimated harvest value to then assess potential economic impacts  
33 from the proposed facility. Potential impacts to the cost of accepted forest practices is then  
34 based on the economic impact of the proposed facility. The applicant identifies the following  
35 facts, obtained from a 2013 report issued by the Oregon Forest Resources Institute, to support  
36 the analysis:<sup>234</sup>

- 37  
38
  - Union County # Forested Acres = 899,000 acres
  - Value of Forestland Economic Base = \$163,700,000

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<sup>234</sup> Based on the Department's website review, Oregon Forest Resources Institute is an educational organization created in 1991 by Oregon Legislature, to advance public understanding of forests, forest management and forest products. Available at: <https://oregonforests.org/>.

- Value of Economic Base = \$182/acre
- 530 acres lost x \$182/acre = \$97,000 lost plus or minus
- Umatilla County # Forested Acres = 715,000 acres
  - Value of Forestland Economic Base = \$354,200,000
  - Value of Economic Base = \$495/acre
  - 246 acres lost x \$495/acre = \$120,000 plus or minus

The preliminary ASC was submitted in 2013, aligning with the reference date of the Oregon Forest Resources Institute information source. However, due to the extended time interval (2013 – 2020) of the ASC review, the Department was not able to locate an electronic version of the referenced 2013 information source. Based on the Department’s review, electronic information available from the Oregon Forest Resources Institute provides the following 2017 facts (see source references in footnotes):

- Union County # Forested Acres = 791,000 acres<sup>235</sup>
  - Value of Forestland Economic Base = \$317,500,000<sup>236</sup>
  - Value of Economic Base = \$401/acre
  - 530 acres lost x \$401/acre = \$212,530/yr economic loss
  - \$212,530/yr x 100 yrs = \$21.3 million economic loss, over 100 years
- Umatilla County # Forested Acres = 572,000 acres<sup>237</sup>
  - Value of Forestland Economic Base = \$220,100,000<sup>238</sup>
  - Value of Economic Base = \$385/acre
  - 246 acres lost x \$385/acre = \$94,710/yr economic loss
  - \$94,710/yr x 100 years = \$9.5 million economic loss, over 100 years

Based on the Department’s evaluation of Oregon Forest Resources Institute’s 2017 timber harvest and economic base data by county, as presented above, potential impacts to the cost of accepted forest practices from the proposed facility include an annual economic revenue loss of \$212,530 and \$94,710 in Union and Umatilla counties, respectively; and, based on the 100 year (or more) estimated useful life of the proposed facility, a long-term loss of \$21.3 million and \$9.5 million in Union and Umatilla counties, respectively. The applicant notes that the actual value of a particular landowner’s timber would be valued based on a timber appraisal completed at the time of land acquisition. As further described below, in addition to the land

<sup>235</sup> Information source available at: <https://knowyourforest.org/sites/default/files/documents/Union-state-economic-19.pdf>. Accessed April 29, 2020.

<sup>236</sup> See Table A21, p. 101 in report available at: <http://theforestreport.org/wp-content/uploads/2019/07/OFRI-2019-Forest-Sector-Economic-Report-Web.pdf>. Accessed April 29, 2020.

<sup>237</sup> Information source available at: <https://knowyourforest.org/sites/default/files/documents/Umatilla-state-economic-19.pdf>. Accessed April 29, 2020.

<sup>238</sup> See Table A21, p. 101 in report available at: <http://theforestreport.org/wp-content/uploads/2019/07/OFRI-2019-Forest-Sector-Economic-Report-Web.pdf>. Accessed April 29, 2020.

1 acquisition process, which would provide compensation for the economic loss of timber harvest  
2 area, the applicant proposes mitigation measures to minimize potential impacts to, and the  
3 cost of, accepted forest practices.<sup>239</sup>

4  
5 To evaluate the significance of the removal of land from timber harvest potential, the applicant  
6 assesses the quantity of forest land lost compared to total forest land available (in acres), per  
7 county, resulting in approximately 0.07 and 0.4 percent loss in Union and Umatilla counties,  
8 respectively. The Department's evaluation of impact significance is presented after the  
9 evaluation of applicant proposed mitigation.

10  
11 *Proposed Mitigation for Potential Impacts to Accepted Forest Practices*

12  
13 As presented in ASC Exhibit K Attachment K-1, the applicant proposes to finalize an Agricultural  
14 Mitigation Plan, which would include measures to restore impacted agricultural lands to its  
15 former condition, compensate landowners for damages and/or impacts to agricultural  
16 operations caused as a result of proposed facility construction, micro-siting the towers to avoid  
17 agricultural areas, instituting weed control measures, preventing soil erosion, and other  
18 measures, all of which are consistent with the Council's OAR 345-001-0010(33) definition of  
19 mitigation.

20  
21 The applicant represents that it would implement logging best management practices, including  
22 seasonal restrictions, wildlife habitat restrictions, and riparian restrictions.

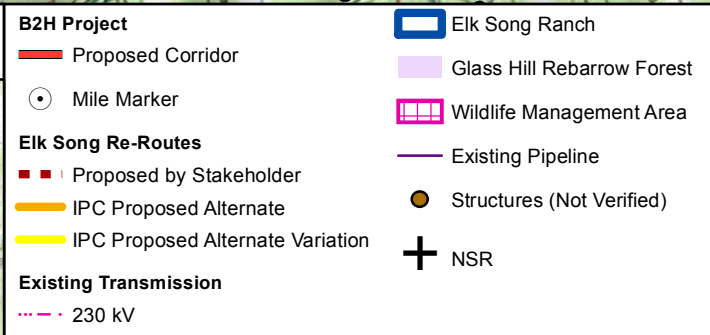
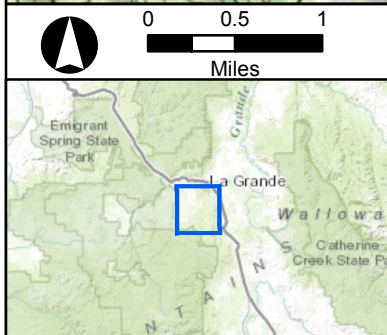
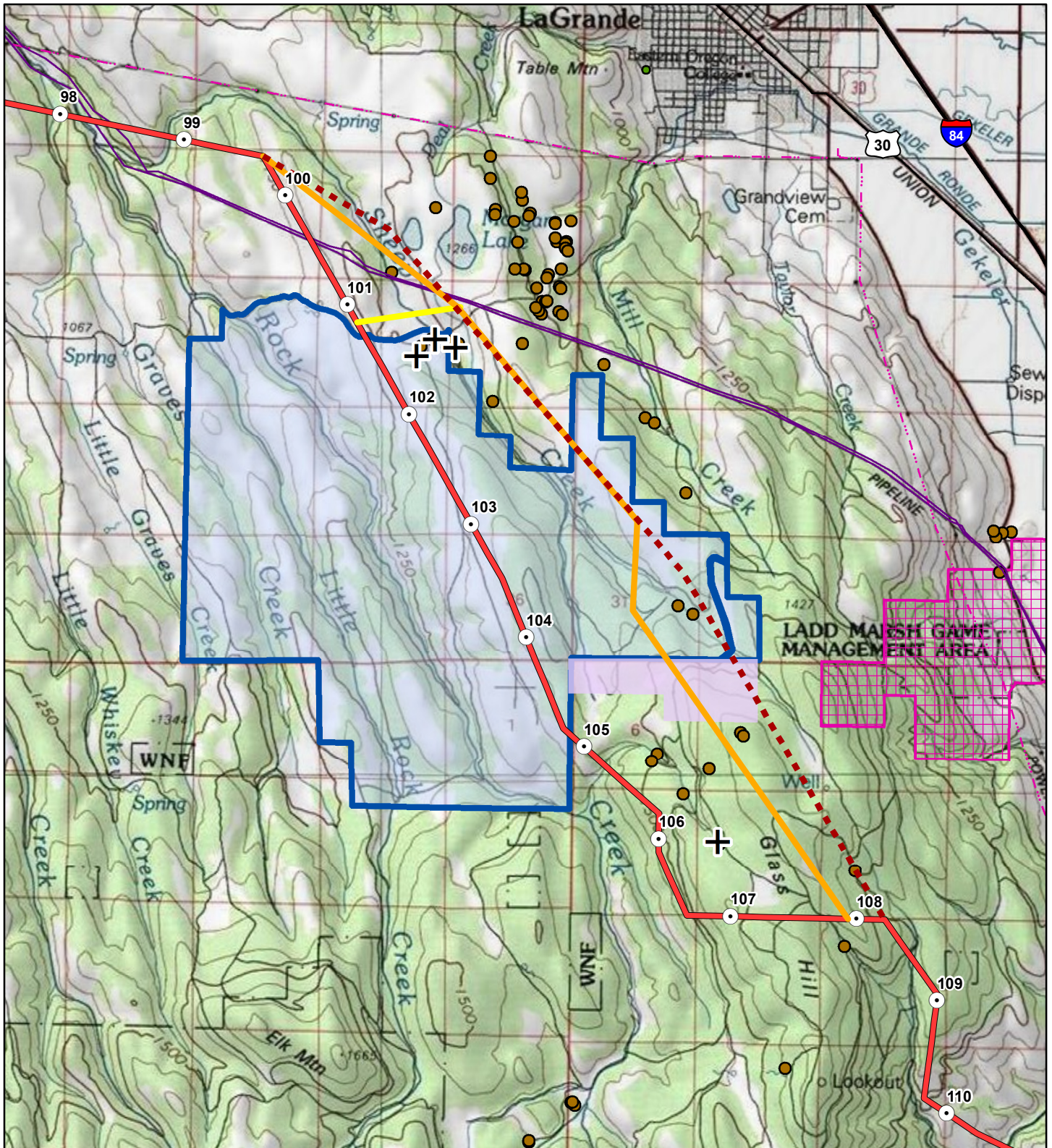
23  
24 Relating to seasonal restrictions, the applicant states that it may restrict the hours of operations  
25 during fire season, and that it may require water trailers on site, fire watches after operations,  
26 and may restrict "spark emitting operations." The applicant also represents that it may  
27 implement restrictions during "freeze-thaw" conditions that could arise during the spring.  
28 During a spring thaw, use of roads would cause significant damage and reconstruction cost;  
29 however, the applicant represents that the duration of spring thaws are generally short.

30  
31 Relating to wildlife habitat restrictions, the applicant represents that proposed Fish and Wildlife  
32 Conditions adequately mitigate potential harm to fish and wildlife habitat. The Council adopts  
33 these Conditions in Section IV.H *Fish and Wildlife Habitat* of this order. These conditions  
34 require, in pertinent part, the restriction of ground disturbing activities within elk or mule deer  
35 range between December 1 and March 31; the restriction of ground disturbing activities within  
36 certain areas around nesting bird species and during specific spring months; that biological  
37 surveys occur during avian migratory season, and that the applicant submit mitigation protocols  
38 for approval to the Department, which describes actions that would be implemented to avoid  
39 harming non-raptor bird species and their nests; that mitigation protocols be submitted if a

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<sup>239</sup> Public comments received on the record of the DPO questioned the information relied upon by the applicant to evaluate economic loss from acres removed from timber harvest production potential. B2HAPPDoc8-1 All DPO Comments Combined-Rec'd 2019-05-22 to 08-22: Molly Eekhoff, 8/21/19, 138-139; Tamson Ross, 8/22/19, 373; Carol Lauritzen, 8/14/19, 1342; Gilbert, et a.





**Elk Song Ranch  
Alternative Routes**

Boardman to Hemingway  
Transmission Line Project  
Oregon - Idaho

**IDAHO POWER**  
AN IDACORP company

February 2015



LOCAL

# As Labor Day fires exploded, Pacific Power employees worried power lines were at fault

**Zach Urness**

Salem Statesman Journal

Published 7:29 p.m. PT Feb. 28, 2023 | Updated 8:41 a.m. PT March 1, 2023

Employees of Pacific Power expressed concern that the utility's power lines may have ignited some of the 2020 Labor Day fires in private messages made public Tuesday in Multnomah County Circuit Court filings.

The messages, sent during the height of the infernos, came to light as part of a class action lawsuit that blames Pacific Power for igniting four of Oregon's Labor Day fires.

"God the fires near our service territories are right underneath our lines," PacifiCorp fire data scientist Pavel Grechanuk wrote in a message to Tyler Jones, a PacifiCorp senior transmission and distribution asset performance engineer, on the morning of Sept. 8, 2020.

In another message, referencing what became the Echo Mountain Fire in the Otis/Lincoln City area west of Salem, Grechanuk wrote that "it looks like there is a fire in Lincoln City which also started under our transmission lines. Like the fire is in the transmission corridor."

The messages are included as one exhibit in a motion asking the court to sanction PacifiCorp for "withholding documents about the cause and origin of the fires." Lawyers suing PacifiCorp allege the utility has not been forthcoming in disclosing all documents and information that would shed light on the causes of the fires.

**More:** Satellite maps show spread of Beachie Creek, Holiday Farm wildfires in Labor Day blowup

The class action lawsuit, currently scheduled for trial April 24, alleges Pacific Power's failure to maintain its power lines and shut down power during a historic east wind event led to the ignition of the Santiam Canyon/Beachie Creek, Echo Mountain, 242 and South Obenchain fires.

Pacific Power, which is owned by Berkshire Hathaway Inc., denies the claims. In previous court filings, the utility called the fires an "unavoidable accident or Act of God."

Two and a half years after they occurred, the official causes of the fires remain "under investigation" by federal and state officials. The lack of a government explanation for what happened sets up a scenario in which the jury trial will lack what would normally be a key piece of evidence in determining who's at fault for wildfire damage.

Plaintiffs in the case include owners of 2,500 properties burned by the four fires, which in location include the Santiam Canyon, Lincoln City/Otis area and southern Oregon. The outcome of the trial will impact anyone harmed by the fires, even if they haven't taken legal action.

In previous attempts at reaching comment, PacifiCorp said only that it did not comment on pending litigation.

**Investigation:** 'Missed opportunity?' Records detail Forest Service response to Beachie Creek Fire before blowup

Greg Larkin/1117

Greg Larkin/2

The messages included in the court filing make specific reference to the Echo Mountain Fire in the Otis/Lincoln City area and the Slater Fire in the Happy Camp., Calif. area. They reference, but do not call out, the wildfires in the Santiam Canyon that led to a mass evacuation and ultimately burned thousands of homes.

The messages do not appear to clearly show the two individuals knew power lines had ignited the fires.

In another message discussing the Echo Mountain Fire, Jones wrote, "My buddy lives in LC (Lincoln City), he's in the south part of town ... sent me a picture and the smoke is so thick."

Grchawk responded: "God I just hope it was another baby shower and not us."

**More:** 'They stayed and fought': Volunteer firefighters battled to save Mill City from the Labor Day fires

In reference to the Slater Fire, the conversation includes:

"It looks like a fire was started ... in one of our PDZ areas (proactive de-energization zones)," wrote Grechanuk.

Jones responded: "Uh oh. Wait so Happy Camp went into PSPS (public safety power shutoff)?"

Grechanuk replied: "A fire was started in the PDZ and then we went PSPS."

"Daaaang, not good," wrote Jones.

**More:** Report from lawsuit says Pacific Power utility to blame for Labor Day Fires

*Zach Urness has been an outdoors reporter in Oregon for 15 years and is host of the Explore Oregon Podcast. To support his work, subscribe to the Statesman Journal. Urness is the author of "Best Hikes with Kids: Oregon" and "Hiking Southern Oregon." He can be reached at [zurness@StatesmanJournal.com](mailto:zurness@StatesmanJournal.com) or (503) 399-6801. Find him on Twitter at @ZachsORoutdoors.*