

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

<p>IN THE MATTER OF IDAHO POWER COMPANY'S PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY</p>	<p>Docket: PCN 5</p> <p>Opening Testimony Intervenor Susan Geer representing Whitetail Forest LLC and Glass Hill State Natural Area</p>
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Date: February 1, 2023

Susan Geer, Intervenor

**906 Penn Ave
La Grande, OR 97850
susanmgeer@gmail.com**

1 **Introduction**

2 Intervenor Susan Geer, representing Whitetail Forest LLC and Glass Hill State Natural Area,
3 presents the following four arguments:

4 1. Of the Union County alternatives, the Morgan Lake route has the highest quality and
5 quantity of native habitat, rare organisms, and priority plant communities.

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7 2. Viable better alternatives to the Morgan Lake route exist

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9 3. Development of the Morgan Lake route is not compatible with the greatest public good or
10 the least private injury

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12 4. The Morgan Lake route was developed through fraud and deceit on the part of Idaho
13 Power

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18 Q: Please state your name and address, followed by your qualifications as an expert witness with
19 regards to these issues.

20 A: Susan Geer, 906 Penn Ave. La Grande, Oregon. I am a professional botanist and vegetation
21 ecologist with a B.A. in Biology from Knox College and M.S. in Ecology from Utah State

22 University, and 29 years professional experience for the most part in northeast Oregon. Most of
23 my career has been with the US Forest Service, but I have also worked for The Nature

1 Conservancy, Idaho Fish and Game, Union County SWCD, and National Park Service. In this
2 declaration I am not officially representing any agency, only myself. In my professional capacity,
3 I have become very familiar with native plant communities of northeast Oregon, and I collect
4 long-term vegetation monitoring data geared toward detecting changes in plant community
5 composition. While collecting and analyzing these data I have seen the trajectory of decline
6 once native plant communities are invaded by weeds. In addition, as a professional NEPA
7 Botanist, I have served on ID teams and written many Biological Evaluations assessing the
8 effects of proposed actions on rare plants, native plant communities, and noxious weeds in
9 planning areas.

10 Q: What is your interest in the CPCN process?

11 A: I am a long-time resident of Northeast Oregon. I have lived in La Grande for 19 years and
12 before that I was a resident of Wallowa County for 10 years. During that time, I have developed
13 a deep appreciation for the native flora of our area. I have a special interest in the plants of Glass
14 Hill, more precisely the monocline extending from Ladd Canyon across the headwaters of Sheep
15 Creek to Glass Hill and north to Morgan Lake. A large part of this area belongs to Dr. Joel Rice.
16 Dr. Rice is dedicated to preserving the landscape for native plants and animals; he has had a
17 conservation easement on over half of his land since 2001 and is working towards getting an
18 easement on the remaining acres. The Rice land contains element occurrences of rare plants and
19 animals and priority plant communities. I was able to assist Dr. Rice with getting the property
20 recognized as a State Natural Area. The northern terminus of this area is Morgan Lake, a very
21 popular City Park. The park also contains a hidden gem, Twin Lake, a little-visited pristine
22 pond. When I realized the B2H “Morgan Lake route” went through these areas I made public

1 comments in the EFSC process and eventually had four issues recognized in the contested case
2 process. Now I am continuing my quest to protect these special places by objecting to the CPCN.

3 Q: Do you own property that would be impacted by the B2H line? Please describe the location.

4 A: Yes. As members of Whitetail Forest LLC, we own 120 mostly forested acres jointly with Dr.
5 Rice. It is located along Glass Hill Road about 4 miles from town.

6 Q: What were your issues in the EFSC contested case process?

7 A: My issues as stated by ALJ Webster-Greene were

8 FW-3 Whether the Draft Noxious Weed Plan (Proposed Order Attachment P1-5) adequately
9 ensures compliance with the weed control laws, ORS 569.390, ORS 569.400, and ORS 569.445.

10 FW-6 Whether the Noxious Weed Plan provides adequate mitigation for potential loss of habitat
11 due to noxious weeds when it appears to relieve Applicant of weed monitoring and control
12 responsibilities after five years and allows for compensatory mitigation if weed control is
13 unsuccessful.

14 SR-5 Whether the Rice Glass Hill Natural Area should be evaluated as a Protected Area

15 And

16 TE-1 Whether Applicant was required to have an Oregon Department of Agriculture botanist
17 review the ASC.

18 Q: The Oregon Public Utilities Commission states in their FAQ presented at the November
19 public meeting “the PUC is not reviewing land use decisions made by the EFSC in their
20 process”. Why are you bringing up the issue of land use of Protected Areas since EFSC has
21 ruled that Glass Hill State Natural Area and Morgan Lake Park are not subject to the EFSC
22 Protected, Scenic, or Recreation areas rules?

1 A: First, I believe the ALJ and EFSC erred in their interpretation of Energy Facility Siting
2 Council (EFSC) Rule OAR 345-022-0040 as of 2020 which, although worded in a very
3 confusing way, clearly was meant to protect all State Natural Areas. The wording of that
4 existing rule was so ambiguous that a rule-making process was started by the EFSC. As a result
5 of the initiation of rulemaking, Idaho Power entered an ex parte communication to the Judge
6 Webster Greene, who ruled that Petitioners could file responses. **Exhibit 101** contains the filing
7 and responses. Others and I argued this point in public comments submitted during the
8 preliminary phase of Protected Areas Rulemaking process (**Exhibit 102**). Scenic Area and
9 Recreation Area rulemaking was lumped with the Protected Area rulemaking. None of these
10 rules had been updated for quite some time. The fact is that Glass Hill State Natural Area meets
11 all the criteria and is in fact a State Natural Area. It makes no sense to exclude a State Natural
12 Area from protection, especially as, it is my understanding that once a transmission line is built,
13 the same right of way and access roads are then subject to future unknown additional
14 developments.

15 Next, Oregon statutes state that OPUC must find the route to be justified in the public interest:
16 ORS 758.015(2) begins:

17 The commission shall give notice and hold a public hearing on such petition. The
18 commission, in addition to considering facts presented at such hearing, shall make the
19 commission's own investigation to determine the necessity, safety, practicability and
20 justification in the public interest (emphasis added) for the proposed transmission line and
21 shall enter an order accordingly.

22 In addition, the route must be justified as compared with alternatives. OAR 860-025-0035 states:

1 (d) Whether petitioner has justified construction of the proposed transmission line as in
2 the public interest, as compared with feasible alternatives for meeting the identified need
3 (emphasis added) considering the public benefits and costs of the project, as they relate to
4 the interests in land proposed to be condemned, petitioner's existing facilities and
5 equipment, petitioner's Oregon customers, and other considerations that may be relevant to
6 the public interest. Other such considerations include, but are not limited to, the benefits and
7 costs to other Oregon utilities, their customers, and all Oregonians, the value of connections
8 to regional and inter-regional electricity grids and to a petitioner's non-Oregon service
9 territories, and all Oregonians.

10 Furthermore, in ORS 35.235 the condemner must locate the route with the “greatest public good
11 and least private injury”:

12 (2)

13 The resolution or ordinance of a public condemner is presumptive evidence of the public
14 necessity of the proposed use, that the property is necessary therefor and that the proposed
15 use, improvement or project is planned or located in a manner which will be most
16 compatible with the greatest public good and the least private injury.

17 (3)

18 The commencement of an action to condemn property by a private condemner creates a
19 disputable presumption of the necessity of the proposed use, that the property is necessary
20 therefor and that the proposed use, improvement or project is planned or located in a manner
21 which will be most compatible with the greatest public good and the least private injury.

22 Q: Do you believe the construction of B2H transmission line is in the public interest?

1 A: No, I do not. There are many reasons why the B2H as currently planned, is not in the public
2 interest. Many people and STOP B2H especially, have submitted comments and testimony.

3 Q: Let's assume that despite these arguments, the OPUC is convinced that a B2H line must be
4 built. Probably no one wants a transmission line on their property, but it must go someplace.
5 You are particularly concerned with the choice of the alternative called the Morgan Lake route.
6 Are there any other viable alternatives?

7 A: Yes. There are several viable alternatives I have heard of, suggested by various people. I
8 listed them in my public comments to the PCN 5 submitted last week (**Exhibit 103**). Despite
9 these other viable Alternatives, Idaho Power made their Application for Site Certificate (ASC) in
10 2018 to the Energy Facility Siting Council (EFSC) with only two Alternatives: the "Mill Creek
11 route" and the "Morgan Lake route".

12 Q: Are you suggesting that neither Mill Creek or Morgan Lake route is the best alternative? Why
13 not?

14 A: That's right. Mill Creek route goes just outside the edge of town and would be very obviously
15 visible and impact quite a few residences. Morgan Lake route not quite as close to town, but still
16 very close, and is the most environmentally impactful. It directly affects several residences,
17 particularly with noise levels, and furthermore affects the experience of many people enjoying
18 nature and recreating most obviously at Morgan Lake Park and Glass Hill State Natural Area, but
19 also near the mouth of Ladd Canyon and at Spring Creek Recreation Area. Most germane to my
20 expertise, the Morgan Lake route is the most environmentally harmful route suggested; the
21 resources under threat are of higher quality and more importance to the state of Oregon and the
22 people of Oregon, than those found on either the Mill Creek or Glass Hill routes.

1 Q. Please elaborate further on alternatives, and why you mentioned them in your Public
2 Comment to PCN 5?

3 A: In my public comment on PCN 5, **Exhibit 103**, I discuss three alternatives, not necessarily
4 routes, that would have much less environmental impact than either the Mill Creek or Morgan
5 Lake routes. These can be summarized as: 1. Decentralized microgrids, 2. An underground
6 direct current line along the interstate or railroad right of way, and 3. Use the federal corridor
7 known as Central Oregon ROW. Combinations of these alternatives may also be viable. These
8 are the least environmentally destructive options. Microgrids would impact much less of the
9 landscape and would be more flexible in their placement, a DC line along the interstate or
10 railroad would be confined to an existing area of impact, and the federal corridor has already
11 been analyzed.

12 Another option, which already has NEPA, is known as the “Agency-preferred” or “NEPA route”
13 a.k.a. Glass Hill alternative. This was the route selected in the BLM and USFS Records of
14 Decision (RODs) of 2017 and 2018.

15 I mention these in my public comment because I believe it is not in the public interest to site the
16 B2H on the Morgan Lake route.

17 Q. Which of those Alternatives -not found in Idaho Power’s ASC- was analyzed by the federal
18 agencies?

19 A. Only the Agency-preferred/Glass Hill route was analyzed by the BLM and USFS. In the
20 early days of the analysis, microgrids were not yet a thing, and federal dollars were not available
21 for co-development with interstates of railroad ROWs. That has just changed in the last few
22 years.

1 Q. What explanation does Idaho Power give for the omission of the Agency-preferred/Glass Hill
2 route, approved in the federal RODs, from their Application for Site Certificate?

3 A. Idaho Power did not provide an explanation for the omission. Currently Mike McAllister,
4 also a Pro se petitioner in the EFSC contest case process, has a case before the Oregon Supreme
5 Court regarding the denial of his properly raised issue: to wit, the Council erred in excluding
6 Petitioner's properly raised issue relating to ORS 469.370(13) from the contested case.

7 Michael's Issue concerned the exclusion of the Agency-preferred route from the ASC by Idaho
8 Power and thus from review by EFSC.

9 Q. ORS 469.310 states policy is, "to establish in cooperation with the federal government a
10 comprehensive system for the siting, monitoring and regulating of the location, construction and
11 operation of all energy facilities in this state." What was EFSC's response to Idaho Power's
12 exclusion of the Agency-preferred alternative from the ASC?

13 A. Their internal deliberations are unknown, but they issued a Draft Proposed Order without
14 asking IPC to include the Glass Hill or any other alternatives in their application.

15 Q. You have stated that Morgan Lake route is the most environmentally harmful. What routes
16 are you comparing?

17 A. The Morgan Lake route affects the most sensitive native habitats and valuable occurrences of
18 species when compared to either the Agency-preferred/NEPA/Glass Hill route or the Mill Creek
19 route. The route includes the highest elevation and has a series of moist meadows, while the
20 Agency-preferred route is on dry ridges and the Mill Creek route is lower and does not contain
21 the quantity and quality of habitat the Morgan Lake route has.

22 Q: What makes the habitat on Morgan Lake route so valuable?

1 One valuable feature on the Morgan Lake route is the fragile and unique wetland of Twin Lake
2 (aka Little Morgan Lake), the subject of a recent article by Dr. Karen Antell

3 <https://therevelator.org/protect-twin-lake/>

4 **(Exhibit 104)**. Dr. Antell was inspired to write it after reading another article describing the
5 ecological importance and special nature of undisturbed ponds, the fact that they have the least
6 protections of any type of wetland and decrying worldwide threats to them Why Scientists are
7 Rallying to Save Ponds

8 <https://therevelator.org/protect-twin-lake/>

9 **(Exhibit 105)** . Twin Lake has established nesting sites for bald eagles, osprey, and celebrated
10 return last year of the sandhill cranes, and Columbia spotted frogs have spawned there. Further
11 information on the history and character of Twin Lake is found in a memo written in 2017 by
12 Wildlife biologist Michael McAllister in response to a City of La Grande call for information
13 **(Exhibit 106)**. McAllister points out the recognition in the Oregon Conservation Strategy of
14 Twin Lake, as a persistent emergent wetland with both submerged and floating plants, as well as
15 the unique waterfowl nesting community. It is one of the premier birding locations in Northeast
16 Oregon.

17 The Morgan Lake route bisects Glass Hill State Natural Area. Over half of the property has been
18 under conservation easement with Rocky Mountain Elk Foundation since 2001 **(Exhibit 107)**.

19 When Dr. Rice acquired the property, it was towards a lifelong dream to conserve 2000 acres for
20 native plants and animals. Dr. Rice's 2022 letter concerning Protected Areas rulemaking
21 expresses his vision for the land **(Exhibit 108)**. At this point there has been no development,
22 livestock grazing, or commercial logging for well over 20 years. The property contains three
23 major wet meadow systems; the highest and most pristine is the 36-acre Winn Meadows. In

1 2011, botanist Dr. Antell inventoried the meadow (*Vegetation of Winn Meadows*, **Exhibit 109**.
2 In the Introduction she recognizes the botanical richness and pristine unroaded quality of the
3 montane meadow, together with its value as part of a corridor of undisturbed native habitat. The
4 property is bounded to the west by Rebarrow Experimental Forest (EOU) and to the east by
5 ODFW foothills property that connects to the Ladd Marsh Wildlife area. This corridor was
6 called “the Miracle Mile” in communication between ODFW and Rocky Mountain Elk
7 Foundation when RMEF acquired the Foothills property and eventually transferred it to ODFW.
8 A 2001 article in the La Grande Observer celebrated the win for wildlife, the public good, and
9 public access and learning (**Exhibit 110**).
10 In 2019 the Rice property was dedicated as a State Natural Area. Over half of the Rice property
11 is under the 2001 conservation easement, including the Winn Meadows and Bushnell Meadows;
12 Dr. Rice is currently working with Blue Mountain Land Trust to get a conservation easement
13 funded for the remaining acres. In my testimony for issue SR-5, a contested case with the EFSC
14 (**Exhibit 111**), I elaborated on why Glass Hill Natural Area deserves protection. Documents
15 recognizing the Registration and Designation of Rice Glass Hill State Natural Area are in
16 **Exhibits 112 and 113**.

17 Q: What about the Morgan Lake route south of Winn meadows? Are there any special concerns?

18 A: I am not as familiar in general with that southern reach, but it does include a special south-
19 facing hillslope where the largest occurrence of narrow-leaf milkweed (*Asclepias fascicularis*) in
20 Union County grows. The milkweed species itself is much less common than it once was. Far
21 rarer is the monarch butterfly, *Danaus plexippus*, which I documented there in 2016 and 2017 for
22 the non-profit called Journey North. At the time, I was collecting seeds for a USFS effort to
23 make re-seeding with milkweed part of our restoration program. Narrow-leaf milkweed has

1 proved to be preferred by monarchs over the more common showy milkweed, and caterpillars
2 grow faster when they eat it. This hillslope full of narrow-leaf milkweed is important for
3 monarchs on their journey.

4 Q: How was the Rice property able to qualify for Natural Area designation?

5 A: Only properties where the landowner has made conserving native plants and animals the
6 priority are accepted; there must be no plans for development or disruptive land management
7 activities. In addition, there must be rare organisms and plant communities. The Natural Areas
8 Plan (Plan) for Oregon (**Exhibit 114**) contains lists of rare plants and animals that qualify as
9 “element occurrences”- species that are rare and need protection. Through Dr. Antell’s work and
10 time I spent on the Rice property, we knew the property contained several occurrences of
11 Douglas clover (*Trifolium douglasii*) a List 1 species through Oregon Biodiversity Information
12 Center (ORBIC). We also had documented white-headed woodpeckers and Columbia spotted
13 frogs. The Plan also recognizes native plant communities for each ecological province in Oregon,
14 with a goal of protecting some of each. The Rice property contained several communities that
15 were considered “priority” because they were not yet protected in the Natural Areas program.

16 Q: Has more survey work been done on the Glass Hill Natural Area since designation?

17 A: In August 2022 myself and Paula Brooks, retired botanist, spent a day surveying Winn
18 Meadows to document the Douglas clover more fully. We found it was more extensive than
19 previously thought, and it may be the largest occurrence in Oregon. The clover is highly
20 concentrated in the moister parts of the meadow. I have the survey tracks but have not had time
21 to enter them in GIS to provide to ORBIC. I understand that Tetra-tech (under contract with
22 Idaho Power) was seen surveying there in June, but that was before the clover was in bloom so I
23 doubt they fully captured it. In November 2021 I observed what I believe was a fisher on the

1 Glass Hill Natural Area near a spring. Camera traps set by the USFWS in spring 2022 did not
2 record any; At this time wildlife biologist Michael McAllister has set up camera traps in likely
3 places, but we hear that capturing fisher on camera can take years. Fisher have not been seen in
4 Northeast Oregon since the 1960s, so it would be an important find. Other than that, those of us
5 with the most interest in the flora and fauna of the area have been pre-occupied with the EFSC
6 contested case process, in addition to working full time in our careers so we have not conducted
7 the surveys we otherwise would have done.

8 Q: In your Public Comment (**Exhibit 103**) you mention a new species of goldenweed
9 (*Pyrrocomma*). Tell us more about your concerns for that taxon, and what is its status?

10 A: In the grasslands around Morgan and Twin Lakes, I noticed a goldenweed that reminded me
11 of the rare plant *Pyrrocomma scaberula*, a relict species of prairie remnants found only in isolated
12 parcels on the south edge of the Palouse. I could not quite get this taxon to key to that species
13 using the new Flora of the Pacific Northwest (Flora), so retired botanist Paula Brooks and I made
14 collections, then I sent specimens to Dr. David Giblin, the lead author of the Flora, in both 2021
15 and 2022. When Dr. Giblin had a chance to study them, he emailed saying he thought they were
16 an undescribed species (**Exhibit 115**) and we agreed to work together in describing it.

17 My concern is, this is an undescribed rare species that has no legal protection and there is going
18 to be potential habitat on the Morgan Lake route. Obviously, It was not included in the surveys
19 done by contractors. In my opinion the importance of the grasslands around Morgan Lake is
20 almost completely unappreciated. These are relictual mid-elevation grasslands of the southern
21 edge of the Palouse. Very little remains of the native plants of the Palouse since most have long
22 since been plowed under. These communities should be described and added to ORBIC's list of

1 priority plant communities, but they are so rare in Oregon that the Plan does not even recognize
2 their presence in Oregon at the southern edge of the Palouse.

3 Q: You have established that Morgan Lake route has the highest quantity and quality of native
4 habitat, rare plant and animals, and priority plant communities, of the three Union County routes
5 that were considered in the BLM and USFS Environmental Impact Statements of 2017 and 2018.
6 You have also established that there are viable alternatives to the Morgan Lake route. How is
7 this related to the locating the line," in a manner which will be most compatible with the greatest
8 public good and the least private injury" as required in ORS 35.235?

9 A: As time goes on, the importance of natural areas has become more and more apparent.
10 Natural Areas benefit all Oregonians through learning, quality time in nature, preservation for
11 future generation. The goals for the Natural Areas program (Natural Areas Plan 2020) exemplify
12 their value: "Natural Areas protect many high-quality native ecosystems and rare plant and
13 animal species. Valued for teaching and scientific research, Natural Areas provide a relatively
14 undisturbed setting in which to study native ecosystems and species. Research projects on these
15 sites provide important answers to statewide land management questions. Native forests,
16 grasslands, tide pools, bogs, and sagebrush steppe are a few of the diverse ecosystem types
17 protected in Oregon's Natural Areas, as are many of Oregon's rarest plants and animals".
18 Just as important as the very high-quality habitat of Morgan Lake Park, particularly Twin Lake,
19 and the Glass Hill State Natural Area, are the connectivity of these areas to other high quality
20 habitat patches through habitat that may not be ideal but is still important for the overall survival
21 of species, termed the conservation matrix in a pivotal article by Franklin and Lindenmayer 2009
22 (**Exhibit 116**). Such a situation exists for the landscape around the Morgan Lake route.

1 Q: Morgan Lake is a City Park, and both the Mill Creek and Morgan Lake routes are very close
2 to town. Did the City of La Grande have a response to those two routes being the only routes
3 presented in Idaho Power's ASC?

4 A: Yes. There was an Observer article that outlines the City's negative response, and a
5 Proclamation was issued by the Mayor asking that the B2H proposal be withdrawn, or failing
6 that, the Glass Hill route be re-instated as the only route to be considered in the La Grande area
7 **(Exhibits 117 and 118).**

8 Q: Were you aware of the introduction of the Morgan Lake route, and can you act as an expert
9 witness?

10 A: No, at the time the Morgan Lake route was introduced, I was unaware. I knew about the
11 prospect of B2H and spent a lot of time on the Rice property and area around Morgan Lake, but I
12 was unaware of the route and the facts surrounding its introduction. The names of the routes
13 were confusing, and at that point everyone I knew assumed no new or different routes would be
14 introduced because the federal NEPA process was nearly finished.

15 Q: Do you have an expert witness to speak about the origin of the Morgan Lake route?

16 A: Yes. Michael McAllister will be my expert witness and his credentials are as follows:

17 Michael McAllister (expert witness)

18 Wildland Resource Enterprises

19 60069 Morgan Lake Road,

20 La Grande, Oregon 97850.

21

22 Bachelor of Science in Wildlife Resources, University of Idaho, Moscow, 1985.

1 Qualifications: 35 years as contract Landscape Ecologist specializing in Forest, Range and
2 Wildlife Inventory for Federal, State, Tribal, and Private land managers.

3 Proactive since 2008 in sharing with Oregon Department of Energy and Idaho Power in the
4 development of the Bureau of Land Management's NEPA/DEIS/FEIS Agency Preferred
5 Alternative through Union County.

6
7 Q: Where did the idea of the Morgan Lake route come from and why was it introduced so late in
8 the NEPA process?

9 A: Expert witness Michael McAllister answers that question (**Exhibit 123**). McAllister testifies
10 about the origin and adoption of the Morgan Lake route, and he is also highly qualified to testify
11 on the character of Twin Lake and the ecological diversity which makes the Morgan Lake route
12 so valuable.

13 Q: How was the Morgan Lake Route analyzed in the federal NEPA process by the BLM and
14 USFS?

15 A: The Morgan Lake route was analyzed in a cursory manor. A Supplemental analysis was only
16 done after a meeting of the Union County B2H Advisory Committee on July 28, 2016 (**Exhibit**
17 **119**) where landowner Brad Allen convinced the committee that the only two routes available
18 were the Morgan Lake route and Mill Creek routes, so they decided to lobby the BLM for further
19 analyses.

20 Q: Was a comparative analysis ever done to directly compare natural features of the Morgan
21 Lake route to the Glass Hill route?

22 A: Michael McAllister did a comparative analysis, and it can be found together with a letter to
23 Todd Cornett dated April 26, 2020 in **Exhibit 120**.

1 Q: What is the basis for your allegation of fraud and deceit on the part of Idaho Power, in the
2 matter of the Morgan Lake route?

3 A: There was a lot of confusion and secrecy surrounding the introduction and development of the
4 Morgan Lake route. It has been hard to figure out. The lateness of the introduction and certainty
5 by most people that a federal Record of Decision is the final word, the wording in certain
6 documents by Idaho Power, the lack of very much notification and the wording in notification
7 from Idaho Power to landowners, all play a part in the confusion.

8 My expert witness Michael McAllister sent a Memo to the PCN 5 Docket on January 6,
9 2023(**Exhibit 121**; also <https://edocs.puc.state.or.us/efdocs/HAC/pcn5hac144747.pdf>) which
10 explains, “The Morgan Lake
11 Alternative (per IPC’s application/ASC) was developed by one landowner late in the BLM’s
12 NEPA process. He proposed the Morgan Lake Alternative to IPC by letter and this route first
13 appeared in the FEIS, along with the newly created Mill Creek Route, after comments closed in
14 the DEIS. Neither were selected by the BLM. The BLM did not allow for public comment of the
15 FEIS; there was no public notice or opportunity for comment on the two Union County routes.
16 IPC manipulated these two routes (which were not selected during the EIS process), as the only
17 two routes for Union County in their application at ODOE/EFSC; and then they shepherded the
18 Morgan Lake Alternative to final approval for the certificate. The only explanation given by IPC
19 about their creation of the Morgan Lake Alternative is that they were

20 “working with landowners.” That single landowner has since sold the property.”

21 As I understand it, Idaho Power performed a bait and switch operation. More evidence of the
22 fraud and deceit by Idaho Power can be found in Michael McAllister’s court record, OAH Case
23 No.2019-ABC-02833, on appeal in Case S069920 at the Supreme Court.

1 Michael McAllister's public comment of January 10 in the PCN 5 Docket (**Exhibit 122**)

2 <https://edocs.puc.state.or.us/efdocs/HAC/pcn5hac161936.pdf>

3 provides further evidence in this matter.

4 Q: Do you have another witness who will testify about fraud and deceit?

5 A: Yes. Michael McAllister will serve as my expert witness in this matter. His testimony is

6 **Exhibit 123.**

7 Q: Do you have a concluding statement?

8 A; To summarize, the Morgan Lake route has the highest preservation value of the three routes
9 that were analyzed at various levels of completeness in the federal NEPA process. Placing the
10 B2H line on the Morgan Lake route goes against the public good, even more than the other two
11 routes do. There are viable alternatives to the Morgan Lake route, and the most obvious and
12 expedient is the Agency-preferred/NEPA/ Glass Hill route. Idaho Power's choice to exclude the
13 Glass Hill route from their ASC is founded upon the self-interest of one landowner that bought in
14 during the development of the FEIS and sold out with the Morgan Lake route in place. Their
15 choice to misrepresent the NEPA route demonstrates that Idaho Power's justification is
16 fraudulent.

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Susan Geer Opening Testimony PCN 5 List of Exhibits (Separate files)

101. EFSC contested case Pro Se Petitioners responses to Ex Parte communication in the matter of Protected Areas rulemaking 59 p
102. Public comments on EFSC Protected Areas rulemaking 14 p
103. Susan Geer's public comment on PCN 5 p
104. Karen Antell's article on Twin Lake Wetlands for Protect this Place series, the Revelator 7 p
105. 105. Revelator article The Importance of Ponds 6 p
106. Michael McAllister memo to Stu Spence of City Parks Department in 2017 3 p
107. Conservation Easement Deed dated December 28, 2001, granted by Joel Rice to Rocky Mountain Elk Foundation 23 p
108. Joel Rice final public comment to EFSC rulemaking on Protected Areas 2 p
109. *Vegetation of Winn Meadows*, 2011, by Dr. Karen Antell 45 p
110. La Grande Observer article from 2001 on "Miracle Mile" 2 p
111. Susan Geer's Testimony in EFSC contested case SR-5 10 p
112. Letter stating Registration of Glass Hill State Natural Area by Oregon Parks and Recreation Dept. in 2019 1 p
113. Article of Designation for Glass Hill State Natural Area in 2020 7 p
114. Oregon Natural Areas Plan 2020 189 p
115. Email from David Giblin concerning a new species of *Pyrocoma* from Morgan Lake area 3 p
116. Franklin and Lindenmayer 2009 2 p
117. La Grande Observer article concerning the City's opposition to B2H 1 p
118. Proclamation by Mayor Clements of La Grande opposing B2H 1 p
119. Minutes of the B2H County Advisory committee on July 28, 2016, Letter from the Committee to Chairman Howard, and Letter from Chair Howard to the BLM 8 p
120. Michael McAllister's letter to Todd Cornett of ODOE with attachments including Comparative Analysis of Morgan Lake route and Glass Hill route 38 p
121. Memo of Michael McAllister to Judge Mellgren concerning his Supreme Court case 2 p
122. January 10 public comment on PCN 5 by Michael McAllister 6 p
123. Expert Witness Testimony of Michael McAllister including five Attachments

I hereby declare that the above statements are true to the best of my knowledge and belief, and I understand that they are made for use as evidence in administrative and court proceedings and are subject to penalty for perjury.

Dated this 1st day of February 2023.

s/ Susan Geer

Susan Geer

CERTIFICATE OF MAILING

On February 1, 2023, I certify that I filed the above Opening Testimony with the Administrative Law Judge via the OPUC Filing Center, for the Docket # PCN-5, and to the following party as noted below.

/s/ Susan Geer

Susan Geer

Intervenor, PCN-5

By: Arrangement for hand delivery:

John C. Williams
PO Box 1384
La Grande, OR 97850

Susan Geer's Opening Testimony PCN 5

Exhibit 101

Responses to Ex Parte Communication regarding

EFSC Protected Areas rulemaking

May 28, 2021

Alison Greene Webster, Senior Administrative Law Judge
Oregon Department of Energy
500 Capitol Street NE
Salem OR 97301

SENT VIA EMAIL TO: OED OAH Referral@oregon.gov and service list

RE: OAH-2019-ABC-02833 Petitioner McAllister's Rebuttal to Idaho Power Company's Ex Parte Communication with the Energy Facility Siting Council.

Dear ALJ Green Webster,

I greatly appreciate the opportunity to respond to Idaho Power Company's (IPC) improper ex parte communication to the Energy Facility Siting Council (EFSC) seeking to influence the outcome of this case. It is troubling that IPC presumably regarded such attempts to influence the decision-maker on matters directly related to issues parties are currently litigating to be appropriate and raises further concerns of undisclosed past conduct and communications, which have been sought and denied in discovery.¹ Here, IPC not only asks EFSC to halt its rulemaking duties, but to ensure that Oregon Department of Energy (ODOE) will not interfere with IPC's transmission line to the detriment of Oregon's protected areas, scenic resources, recreation resources, and the interests of its residents.

IPC Misconstrues the Project History to Claim Unfair Surprise.

IPC's most recent ex parte attempt to improperly influence the outcome of this case is consistent with a past pattern of misconstruing facts, the record, and the history of this project in order to achieve IPC objectives that provide no benefit to the Oregon public. Significantly here, while IPC claims the rulemaking in question would unfairly prejudice IPC such that the Council should "pause the rulemaking entirely" and direct ODOE staff to ensure that the B2H project is not impacted, any prejudice IPC suffers is a result of its own making. Not only has IPC long been aware of the issues relating to Protected Areas, Scenic Resources, and Recreation on the Morgan Lake Alternative, which petitioners are now litigating in this case, it chose to pursue this high impact route instead of the Bureau of Land Management's (BLM) Agency Preferred Route—identified as the Agency Preferred Alternative since 2014—that obviates the issues IPC details in its ex parte communication.

¹I sought such communications in my discovery requests and subsequent motion for discovery order, which was denied on the basis of relevance. IPC's April 22, 2021 letter to EFSC underscores the relevance of communications I requested but have been withheld. I respectfully request that the ALJ reconsider my Motion for Discovery Order with respect to my requests for IPC communications.

Among material misrepresentations IPC has made in its Application for Site Certificate (ASC) relevant to its current claim of unfair prejudice are those found in **IPC's Application for Site Certificate, Exhibit B Project Description**, and the associated **Attachment B-6 2017 Supplemental Siting Study**. Indeed, the entire Supplemental Siting Study as it relates to the routes with which IPC's ex parte communication is concerned (Mill Creek and Morgan Lake Alternative) is founded on false premises including that (1) the Mill Creek route was the BLM's agency preferred route in its FEIS (it was not), and (2) that the actual Agency Preferred Route in the FEIS, the Glass Hill Alternative, was not carried forward (it was). Here, IPC misrepresents, among other things: the origin of both its Proposed Mill Creek Route and its Morgan Lake Alternative; the BLM's study of identified routes; the BLM's conclusions in its Final Environmental Impact Statement (FEIS); and the BLM's fundamental role in this process, falsely claiming the BLM *developed* the Mill Creek route.² Importantly, IPC's concerns expressed in its April 22, 2021 ex parte communication primarily, if not entirely, pertain to this stretch of the transmission line through Union County and the contested case issues relating to Protected Areas, Scenic Resources, and Recreation on this segment—the standards subject to the current rulemaking with which IPC is concerned.

Understanding the significance of the falsehoods contained in **Attachment B-6 2017 Supplemental Siting Study** requires explanation. In December of 2014, the BLM identified the Glass Hill Alternative Route (referenced in the ASC) as the Agency Preferred Alternative for this project. In November 2016, the BLM identified this same route as its Agency Preferred Alternative pursuant to its analysis of proposed routes under National Environmental Policy Act (NEPA). Contrary to this well-documented fact, IPC represents in its 2018 Exhibit B Project Description that the "*Glass Hill Alternative Corridor Segment was not carried forward by BLM as the agency preferred route*" as its "Basis for Corridor Change." See Table B-6, Page B-39 of **Exhibit B (IPC Basis for Corridor Change)**. This is patently false. In fact, the Glass Hill Alternative Corridor, has been the Agency Preferred Route since 2014 when it was identified as the NEPA preliminary preferred alternative in the Draft Environmental Impact Statement (DEIS).

Further, IPC falsely represents that the Mill Creek Route (rather than the Glass Hill Route) is the BLM's Agency Preferred NEPA Alternative. For example, Table 3.1.1 "Summary of the EFSC and NEPA Status of the Routes and Stations Considered in the Amended pASC" (Attachment B-6 at p. 3) represents the following:

² The BLM did not "develop" any routes for this project. The BLM only evaluated routes that were developed by others and presented for comparative analysis.

Table 3.1-1. Summary of the EFSC and NEPA Status of the Routes and Stations Considered in the Amended pASC

Route Originator	Route Designation	EFSC Status	Status in FEIS
Union County			
IPC	Proposed Route	Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
IPC	Morgan Lake	Not Analyzed in the Draft Amended pASC. IPC Alternative Route in the Amended pASC.	Not Analyzed in the FEIS.
BLM	Mill Creek	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.

As stated above, Mill Creek is not the BLM's Agency Preferred Alternative in the FEIS. The BLM did not analyze this route. IPC further states that "In Union County, the Proposed Route includes portions of the Proposed Route that were included in the Draft Amended pASC and the Mill Creek Route that was developed by the BLM." (Exhibit B, Attachment B-6 at p.9) This is, again, a gross misrepresentation of the Mill Creek (IPC Proposed) Route. Not only is the Mill Creek Route not the Agency Preferred Alternative, as conveyed throughout IPC's ASC, the Mill Creek route was not developed by the BLM. As stated above, the BLM did not "develop" routes for this project, but evaluated routes presented, which did not include either the Mill Creek or Morgan Lake Route.

IPC has since acknowledged in its discovery responses that the Mill Creek Route is **not the BLM's Agency Preferred Alternative** in the FEIS, as it falsely claimed in its ASC. Specifically, in response to McAllister Request No. 13, IPC states "Table 3.1-1 indicating that the Mill Creek route was part of BLM's agency preferred alternative in the Final EIS, that statement is incorrect." (See attached Exhibit 1, IPC Discovery Responses). IPC has also represented to the Hearing Officer that this is a "typographical error." (See Applicant Idaho Power Company's Objections to Discovery Requests at p.129, submitted to ALJ March 5, 2021). This is clearly not so, as the misrepresentation is consistently perpetuated throughout the Exhibit B Project Description (2018) and Attachment B-6 Supplemental Siting Study. See Exhibit B at p.40 (omitting that the Glass Hill Alternative was the BLM selected route in the DEIS); p. 41 (inferring that the Glass Hill Alternative was eliminated by the BLM); p. 44 (again failing to recognize the Glass Hill Alternative was identified as the Agency Preferred Alternative); Attachment B-6 at p.1 (falsely asserting that in March 2016, BLM "developed a revised Agency Preferred Alternative" when, in fact, the only route that the BLM has ever identified as its preferred alternative is the Glass Hill Route)). Thus, IPC's claim this is a typo is not credible and implies that either IPC is unaware of the contents of its own application or that it purposefully misrepresented this fact to ODOE.

IPC further falsely claims in its Supplemental Siting Study that “*The Morgan Lake Alternative was developed by IPC with input from local Land owners*” (Attachment B-6 at p. 9, 3.2.3.3 IPC’s Morgan Lake Alternative). In reality, the majority of landowners opposed the Morgan Lake Alternative due to impacts on the natural resources, including Scenic Resources, Recreation Resources, and land meeting Protected Area criteria. Troublingly, a single landowner, who had recently acquired land in the area, developed and proposed the Morgan Lake Route, which IPC readily adopted and has since pursued. This fact is reflected in IPC’s private correspondence with this landowner, attached hereto as Exhibit 2, stating IPC intended to adopt the route the landowner proposed (now called the Morgan Lake Alternative). While the Glass Hill Alternative was developed to minimize impacts on sensitive resources including Protected Areas, Scenic Resources, and Recreation, the Morgan Lake Alternative was developed to minimize impacts to one new landowner’s personal interest. And, unlike the Glass Hill Alternative, IPC’s Morgan Lake Route was not studied or subjected to public comment.

IPC’s misrepresentations outlined above and its course of action during the application process undermine its claims of unfair prejudice if EFSC continues with “the current direction of the rulemaking to update the standards related to Protected Areas, Scenic Resources, and Recreation Resources.” For reasons that remain unclear, IPC chose to exclude the actual Agency Preferred Alternative identified in the FEIS and evaluated pursuant to NEPA from its application, while at the same time falsely representing to ODOE that the Mill Creek Route (for which it has applied) was the Agency Preferred Route in the FEIS. In reality, in the eleventh hour of the project, IPC opted to apply for multiple routes through Union County that had never been studied, and remain unevaluated by the BLM.³ IPC chose to pursue one of these unevaluated routes, the Morgan Lake Alternative, in favor of a single land owner who proposed the route to IPC.

Significantly, the concerns IPC raised to the Council in its ex parte communication would be moot if IPC had pursued the route the reviewing federal agency identified pursuant to NEPA analysis. NEPA’s stated purpose is to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation.” 42 USC § 4321. This is consistent with ODOE’s stated mission and values,⁴ the purpose of EFSC oversight which seeks to “ensure that **Oregon** has an adequate energy supply while **protecting Oregon’s environment and public safety**,”⁵ and the discussed updates to EFSC’s Protected Areas, Scenic Resources, and Recreation standards that IPC contests.

Contrary to IPC’s claims, “the current direction of the rulemaking” does not unfairly prejudice IPC. IPC chose to (1) exclude the BLM’s agency evaluated and preferred route from the ASC,

³ The issue of the need for the BLM to conduct supplemental study on these newly added routes is currently being litigated in federal district court. Case No. 2:19-cv-01822-SU.

⁴ See <https://www.oregon.gov/energy/About-Us/Pages/Mission-Values.aspx>

⁵ <https://www.oregon.gov/energy/facilities-safety/facilities/pages/about-the-council.aspx#:~:text=The%20Energy%20Facility%20Siting%20Council,disposal%20sites%2C%20and%20other%20projects.>

(2) include routes that have not been studied, and (3) pursue a route that has been the source of public concern since it became known to the public due to its impacts on, among other things, Scenic Resources, Recreation Resources, and sensitive areas that meet the Protected Area criteria. IPC and ODOE have advanced the position that an applicant may apply for any route it chooses, regardless of NEPA and the federal agency review—or the underlying motives driving selection of a specific route—so long as the applied for route comports with EFSC standards.⁶ Accordingly, IPC must accept the outcomes of its decision to apply for, or not apply for, a particular route. Now, after excluding the actual Agency Preferred Route evaluated pursuant to NEPA, which obviates the issues giving rise to IPC's current concerns, IPC asks that EFSC conform its standards and rulemaking procedures to ensure IPC's success to the detriment of Oregon's protected areas, scenic resources, recreational resources, and the interests of its residents. Oregonians should not suffer the consequences of IPC's poor business decisions.

IPC's Claims Regarding "Other Problems with ODOE's Proposals" are Baseless.

Finally, IPC's contentions in **Section III** of its April 22, 2021 ex parte communication further undermine IPC's credibility and expose IPC's claims of potential prejudice as a red herring. Here, IPC appears to purport that it relied on an absurd interpretation of OAR 345-022-0040(2) in its *Alternative Route Analysis*, which runs counter to the interpretation ODOE provided to IPC in the Second Amended Project Order. Specifically, ODOE states:

Note that OAR 345-022-0040(1) generally prohibits siting of transmission lines through protected areas, which include state parks. However, under OAR 345-022-0040(2), EFSC may approve a route that passes through a protected area if the council determines that other routes outside the protected area would "have greater impacts." If the transmission line routing proposed by the applicant will pass through a protected area, the applicant shall describe in detail the alternative routes it studied and provide analysis in the application to support a finding that routing the transmission line through the protected area would have less impacts than the alternatives. (Second Amended Project Order, July 26, 2018, at p. 14).

In the subsequent ODOE rulemaking project that IPC contests, ODOE explains that "Staff believes this rule is intended to allow a transmission line...to pass through a protected area when greater impacts cannot be avoided, but the construction implies that a linear facility could be sited on a protected area when other lesser impact alternatives may be available." (October 22-23 EFSC Meeting, Agenda Item D (October 9, 2020)). The proposed amendment only seeks to clarify that the original intent of the rule is to allow the project to pass through a protected area only when Council finds that no alternative routes or sites would have lesser impacts, which is the logical interpretation.

⁶ This position conflicts with ORS 469.370(13) requiring that that the council *shall* conduct its site certificate review...in a manner that is consistent with and does not duplicate federal agency review, including development with the federal agency and reliance on a joint records to address applicable council standards.

The analytical framework has never changed. Rather, ODOE seeks to clarify the construction of the language so as not to achieve an absurd result. IPC appears to argue that the proper analytical framework is to conclude that an alternative may pass through protected areas if that alternative has *greater* impacts than other routes. This is nonsensical and has clearly never been the intent of OAR 345-022-0040(2). If IPC relied on this perverse interpretation, as it appears to claim, this exposes troubling fundamental issues with its route analysis.

IPC's ex parte communication asking EFSC to halt required, common-sense rulemaking claiming unfair prejudice, at its core, intends to obscure the fact that, in the eleventh hour of what IPC points out was a 12-year process, it added new routes that had never been studied, while excluding the Agency Preferred NEPA route, which adequately addressed the issues of Protected Areas, Scenic Resources, and Recreation that are the basis of IPC's current concern. EFSC should not bend standards and procedures to suit the needs of an Idaho corporation at the expense of Oregon's natural resources and the public interest of Oregonians.

Sincerely,

Michael McAllister
Petitioner

CERTIFICATE OF SERVICE

On May 28, 2021, I emailed the foregoing Rebuttal to Idaho Power Company's Ex Parte Communications to the Administrative Law Judge in OAH Case No. 2019-ABC-02833, with copies sent as follows:

By: Electronic Mail:

David Stanish
Attorney at Law
Idaho Power Company
dstanish@idahopower.com

Lisa Rackner
Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Christopher Burford
Attorney at Law
Office of the President
Eastern Oregon University
cburford@eou.edu

Kellen Tardaewether
Agency Representative
Kellen.tardaewether@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Sam Myers
sam.myers84@gmail.com

Susan Geer
susanmgeer@gmail.com

Whit Deschner
deschnerwhit@yahoo.com

Gail Carbiener
mcccarb@bendbroadband.com

Charles H. Gillis
charlie@gillis-law.com

David Moyal
moyald@gmail.com

Corrine Dutto
dutto@eoni.com

John B. Milbert
jmfisherman9@gmail.com

Kathryn Andrew
lkathrynandrew@gmail.com

Jerry Hampton
jerryhampton61@gmail.com

Ken and Marsha Hildebrandt
ken_marsha@comcast.net

Greg Larkin
larkingreg34@gmail.com

Kathryn Morello
cndyrela@eoni.com

Stacia Jo Webster
staciajwebster@gmail.com

Daniel L. White
danno@bighdesign.biz

Joann Marlette
garymarlette@yahoo.com

John H. Luciani
dirtfarmerjohn@gmail.com

Dr. Karen Antell
Professor of Biology Eastern Oregon
University, Science Office
kantell@eou.edu

Norm Cimon
ncimon@oregontrail.net

Joe Horst and Ann Cavinato
joehorst@eoni.com

Matt Cooper
mcooperpiano@gmail.com

Virginia and Dale Mammen
dmammen@eoni.com

Jim and Kaye Foss
onthehoof1@gmail.com

Miranda Aston
tranquilhorizonscooperative@gmail.com

Charles A. Lyons
marvinroadman@gmail.com

Dianne B. Gray
diannebgray@gmail.com

Timothy C. Proesch
tranquilhorizonscooperative@gmail.com

Janet Aston
owyheeoasis@gmail.com

Suzanne Fouty
suzannefouty2004@gmail.com

Susan Badger-Jones
sbadgerjones@eoni.com

Lois Barry
loisbarry31@gmail.com

Anne March
amarch@eoni.com

Colin Andrew
candrew@eou.edu

Peter Barry
petebarry99@yahoo.com

Kevin March
amarch@eoni.com

Louise Squire
squirrel@eoni.com

Jennifer Miller
rutnut@eoni.com

Ralph Morter
amorter79@gmail.com

Stop B2H Coalition
fuji@stopb2h.org

Irene Gilbert
ott.irene@frontier.com

Kelly Skovlin
kskovlin@gmail.com

Greg Larkin
larkingreg34@gmail.com

Ryan W. Browne
browner@eou.edu

Jonathan White
jondwhite418@gmail.com

Jim and Jane Howell
d.janehowell@gmail.com

John Winters
wintersnd@gmail.com

Jeri Watson
lotusbsilly@eoni.com

Sam Hartley
samhartley57@gmail.com

Brian Doherty
bpdoherty@hughes.net

Sue McCarthy
suemc@eoni.com

Nichole Milbrath
nichole.milbrath@centurylink.com

By: Hand Delivery

John C. Williams
PO Box 1384
La Grande, OR 97850

Michael McAllister
Petitioner

EXHIBIT 1

EXHIBIT 1

February 5, 2021

Subject: OAH Case No. 2019-ABC-02833 - Boardman to Hemingway Transmission Line – Idaho Power Company's Responses to Michael McAllister Discovery Request Nos. 1-46

Issue No. R-2, SP-2, FW-13

MICHAEL MCALLISTER'S DISCOVERY REQUEST NO. 1:

Identify all individuals likely to have discoverable information that you may use to support your claim that the Morgan Lake Alternative Route ("MLA") complies with OAR-345-022-0100, OAR-345-022-0060 (incorporated OAR 635-415-0025), and OAR-345-022-0022.

IDAHO POWER'S RESPONSE TO MICHAEL MCALLISTER'S DISCOVERY REQUEST NO. 1:

Idaho Power objects to this request as vague, ambiguous, and overbroad. Without waiving this objection, Idaho Power identified its witnesses for these issues (to the extent the identity of such witnesses is known at this time) below in response to Question 2.

Issue No. R-2, SP-2, FW-13**MICHAEL MCALLISTER'S DISCOVERY REQUEST NO. 13:**

Explain the basis for your claim in Attachment B-6 of the ASC that the Mill Creek Route is the Agency Preferred Alternative in the FEIS.

- a. Produce the documents on which you rely to make this claim.

IDAHO POWER'S RESPONSE TO MICHAEL MCALLISTER'S DISCOVERY REQUEST NO. 13:

Idaho Power objects to this request as vague and ambiguous, as it is unclear what statement in Attachment B-6 you are referring to.

Without waiving that objection, if this request is referring to the statement in Table 3.1-1 indicating that the Mill Creek route was part of BLM's agency preferred alternative in the Final EIS, that statement is incorrect and an error on Idaho Power's part. For the Blues Mountain segment of the project, in the Final EIS, BLM identified the Glass Hill Alternative as modified by route variations S2-A2, S2-D2, and S2-F2 as the Environmentally Preferable Action Alternative Route and BLM's Agency Preferred Alternative Route.

EXHIBIT 2

EXHIBIT 2



27 February 2015

Brad Allen
Via electronic mail

Subject: Elk Song Ranch Alternative Routes

Dear Brad and June Allen:

Thank you for providing an alternative route for Boardman to Hemingway Transmission Line Project where it crosses your property known as the Elk Song Ranch. We took your proposed route and modified it slightly to avoid known constraints in the area. Both your proposed route (red dashed line) and the modified routes (orange line and yellow line) are shown on the attached map and explained below.

Your proposed route follows the general route of the Glass Hill Road area you state has a higher human presence than the location of the proposed route. In the siting of a transmission line we must consider the impacts to the human as well as the natural environment. We modified your proposed route to avoid passing over several structures and to be further away from Morgan Lake, a local recreation site. We also developed an alternative route (yellow line) that would further reduce impacts to Morgan Lake. The above recommendations reflect the same methodology we used for routing along the entire length of the project.

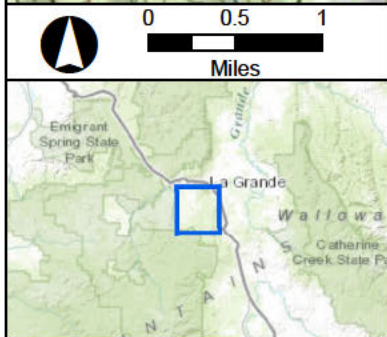
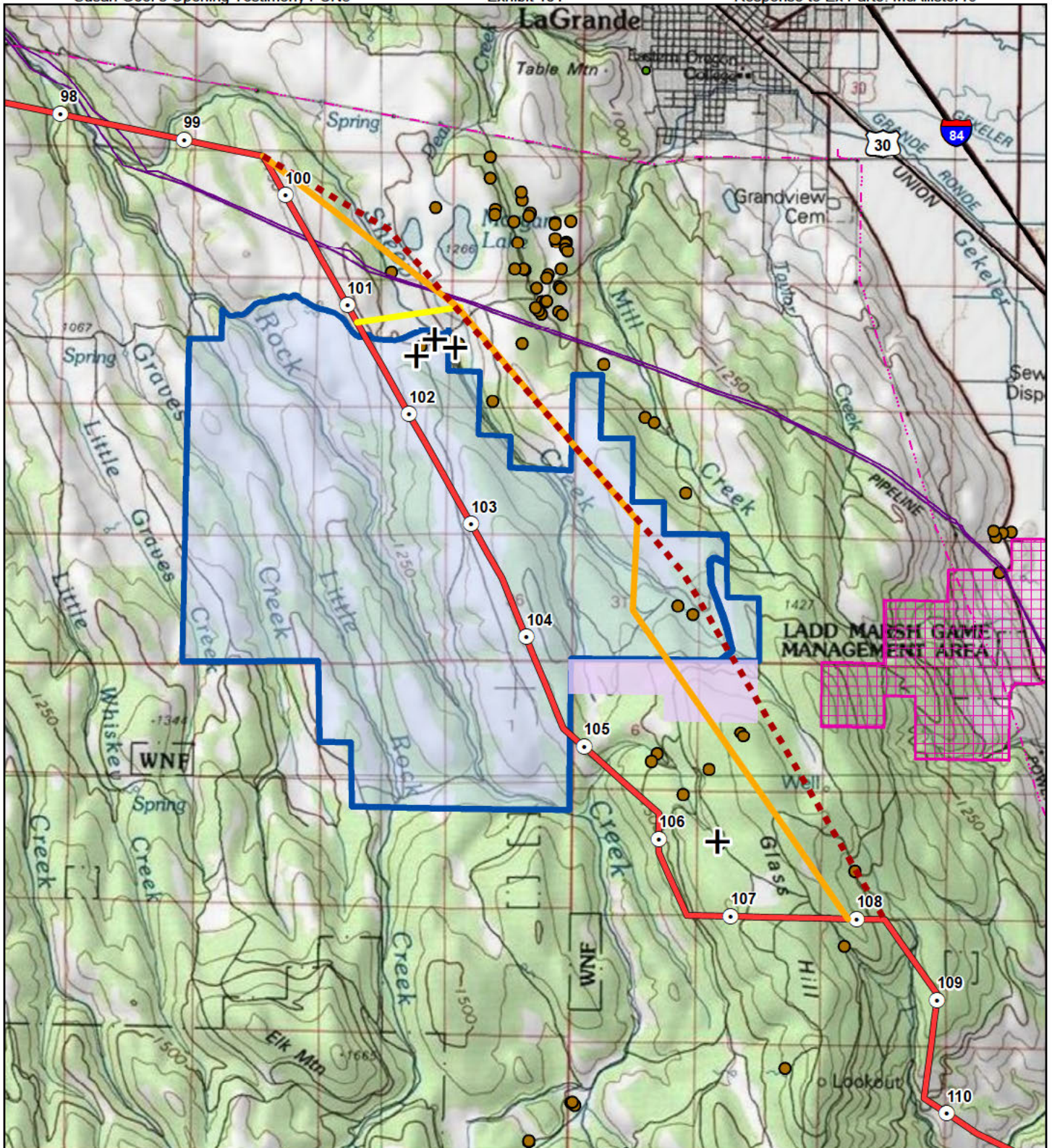
A site visit to the area by Idaho Power transmission engineers and final design of the transmission line could result in further refinement of the modified route on the Elk Song Ranch. Please contact me if you would like to discuss any aspect of the routing.

Regards,

Todd Adams
B2H Project Leader

Enc: map

cc: D Gonzalez BLM
T Gertch BLM
R Straub BLM
Z Funkhouser IPC
M Colburn IPC




B2H Project	Proposed Corridor	Elk Song Ranch
Mile Marker	Proposed by Stakeholder	Glass Hill Rebarrow Forest
Elk Song Re-Routes	IPC Proposed Alternate	Wildlife Management Area
IPC Proposed Alternate Variation	Existing Pipeline	Structures (Not Verified)
Existing Transmission	230 kV	NSR

**Elk Song Ranch
Alternative Routes**

Boardman to Hemingway
Transmission Line Project
Oregon - Idaho

February 2015



AN IDACORP COMPANY

-----Original Message-----

From: Brad Allen <bradallen4030@hotmail.com>
To: wildlandmm@netscape.net <wildlandmm@netscape.net>
Sent: Sat, Mar 7, 2015 9:09 am
Subject: Fwd: B2H Elk Song Ranch Alternative Route

Sent from my iPhone

Begin forwarded message:

From: "Adams, Todd" <TAdams@idahopower.com>
To: "bradallen4030@hotmail.com" <bradallen4030@hotmail.com>
Cc: "Don Gonzalez" <dgonzale@blm.gov>, "Gertsch, Tamara" <jgertsch@blm.gov>, "Renee L 'Straub" <rstraub@blm.gov>, "Funkhouser, Zach" <ZFunkhouser@idahopower.com>, "Colburn, Mitchel" <MColburn@idahopower.com>
Subject: B2H Elk Song Ranch Alternative Route

Brad,

Attached please find a map showing your alternative route as you proposed along with a suggested route variation as explained in the letter. Don't hesitate to contact me if you have any questions.

Regards,
Todd Adams



This transmission may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, use of the information contained herein (including any reliance thereon) is STRICTLY PROHIBITED. If you received this transmission in error, please immediately contact the sender and destroy the material in its entirety, whether electronic or hard copy format. Thank you.

2 Attachments



May 23, 2021

Alison Greene Webster
Senior Administrative Law Judge
Office of Administrative Hearings

RE: Reply to Notice of *ex parte* communication pursuant to OAR 137-003-0055(2)

I provide my response to Idaho Power's letter of April 22 to the Energy Facility Siting Council.

In that letter, IPC says they have, "concern about rule changes that would move the goalposts for applicants that are in the middle of a contested case proceeding, including Idaho Power and its Boardman to Hemingway Transmission Line Project (B2H)."

IPC is being purposefully dense. The EFSC rule-making process initiated in November 2020 is clearly due to their recognition that the ,"goalposts" ARE unclear in OAR 345-022-0040 as it stands, they are not only ambiguous but many years out of date, given that goal was to update them every 5 years.

IPC claims that, "If adopted, ODOE's proposed rule changes would introduce new Protected Area resources that have not yet been analyzed by Idaho Power and ODOE for B2H, and inject a significant amount of uncertainty into the B2H contested case process that has been in development for over 12 years and is now finally near the finish line."

The statement is completely misleading. The "project in development over 12 years" resulted in the "Agency Selected Route" identified in 2016 by the BLM (as stated on page 1 of the 2017 Supplemental Siting Study in the ASC) and subsequently the USFS Final ROD signed 11.15.18, NOT either of the "Proposed Routes" in the DPO now being falsely represented by IPC as "fully reviewed".

On page 2 of their April 22 letter IPC says, "The Protected Area Standard currently includes a May 11, 2007 cut-off date, such that the standard applies only to resources designated as of that date. The cut-off date provides certainty for developers as to which resources should be analyzed as a protected area...".

This is a questionable interpretation of the mention of "May 11, 2007" that is completely self-serving for IPC, and makes no sense. Clearly the date applies to the list of Protected Areas at the time of that OAR's writing 13 years ago, and it makes absolutely no sense to regard that list as static. Updated lists of Protected Areas are available.

IPC goes on to state, "As Idaho Power considered possible routes for B2H in the early stages of this process, avoidance of "protected areas" under the EFSC standard was a major factor in the Company's siting decisions."

On the contrary, it appears to me that Idaho Power did nothing to seek local information on areas worthy of protection. Following a protracted NEPA process that resulted in selection of a route of "least environmental impact" in 2016 (BLM), IPC-in a baffling move-ditched that route and proposed 2 different routes, both being closer and more impactful in the area of La Grande than the Agency Selected route. It is nearly inconceivable to myself and other local biologists and naturalists that IPC proposed a route next to Morgan Lake Park, an extremely important recreation and scenic spot, and the adjacent Twin Lakes, a hidden gem full of unique assemblages which should be part of the Natural Areas

program, not to mention the Rice Glass Hill Natural Area, of huge ecological significance with a Conservation Easement dated 2001.

IPC then talks more about “proposed elimination the ‘cut-off date’” again, a distortion of reality since the 2007 date is clearly not a ‘cut-off date’ but the artifact of an OAR forgotten by EFSC and in desperate need of review.

Next IPC complains that, “a private landowner with a parcel that will be crossed by the project sought designation of his land as a state “natural area” through the Oregon Parks and Recreation Department without informing Idaho Power or ODOE.”

This is ridiculous. The landowner in question is Joel Rice, and his goal as a landowner for the entire time he has owned land in Union County since 1999, has been conservation for native plants and animals. To that end he acquired a Conservation Easement with Rocky Mountain Elk Foundation in 2001, and worked with ODFW's Access and Habitat program for many years, since 2008. The Rice Glass Hill acres are highly valued habitat not only because of their high quality vegetation but because they are continuous with a large piece of ODFW land known as Ladd Marsh Management Area along Foothill Road. The ODFW land, Rice land and adjacent land owned by the Smutz family makes up the Glass Hill Access area. The property is also continuous with Rebarrow Forest, a research forest of EOU which provides more continuous wildlife habitat. While long valued for elk, other animals and plants are under-appreciated on the landscape, so when Joel Rice learned of the State Natural Areas program he was eager to apply. IPC's implication that there is something wrong with Joel Rice's application to the Natural Areas program is just plain mean. Further, their implication that it was his job to “inform” IPC of his acceptance to the program is ludicrous.

IPC was not unaware that Rice manages his land solely for native plants and animals; public comments by Joel Rice and several other parties in every phase of the B2H process show as much. Since the Access and Habitat program, the designation of the Glass Hill Access Area, and Rebarrow Forest, are all part of the State of Oregon, it does not stand to reason that IPC or ODOE could have overlooked these or the relationship to the Rice property. It is really contradictory that IPC says they chose a Route between the Rebarrow and the Ladd Marsh Game Management Area, when so much of the habitat value is dependent on the continuity of these parcels. From my perspective as a botanist and ecologist, certain of the plant communities of the Rice property are the most unique of the Glass Hill monocline/Mill Creek fault area assemblages. The presence of the Douglas clover, spotted frogs and white headed woodpeckers of course adds to their value in the eyes of the Natural Areas Program. At the landscape level, the series of moist meadows and wetlands along the Glass Hill monocline/Mill Creek fault from the headwaters of Sheep Creek to Twin Lake and perhaps beyond, is truly an under-appreciated biological treasure which the State of Oregon should go to great lengths to preserve.

IPC then talks again about the inconvenience of “eliminating the cut-off date” and the possibility of the Council giving them an exception for B2H. .

While it would have been better for all concerned if OARs were clearly written and regularly updated, the fact that they were not, does not warrant destruction of an extremely valuable and unique piece of Oregon's natural heritage, especially in light of the fact that the Routes now being considered in the State process--were rejected by the two federal agencies in their NEPA process.

IPC speaks of, "creating uncertainty for projects under review". Yet how much uncertainty has been created in a process where the Applicant has not only completely ignored the "Agency Preferred Route" of the federal process already completed, for no apparent reason. Also, they have either by negligence or deceit, mislead us with their portrayal of the routes; one example is in Attachment B-6 2017 Supplemental Siting Study Table 3.1.1 lists Mill Creek as "BLM Preferred Alternative in FEIS" – when it was not.

Similar to their complaints about the timing of clarifying rules for Protected Areas, IPC complains of EFSC, "clarifying the criteria for identifying important recreational resources. While it is not clear precisely what is intended here, this could be problematic to the extent that it may require analysis of resources that were not previously identified in our ASC."

While IPC may find the current clarification process "problematic", it signals openness to a more thorough evaluation, in the public interest, as it should.

Sincerely,

Susan Geer, contested case petitioner
906 Penn Ave
La Grande OR 97850

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARING
STATE OF OREGON
for the
OREGON DEPARTMENT OF ENERGY**

IN THE MATTER OF:) **NOTICE OF EX PARTE**
) **COMMUNICATION PURSUANT**
THE APPLICATION FOR SITE) **TO OAR 137-003-005(2)**
CERTIFICATE FOR THE)
BOARDMAN TO HEMINGWAY)
TRANSMISSION LINE) **OAH CASE No. 2019-ABC-02833**

28 May 2021

Alison Greene Webster
Senior Administrative Law Judge
Office of Administrative Hearings

RE: Rebuttal to Notice of *ex parte* communication pursuant to OAR 137-003-0055(2)

On April 22, 2021, Idaho Power submitted a letter to Council describing IPC's concerns regarding potential proposed rulemaking revisions to update the siting standards related to Protected Areas, Scenic Resources, and Recreation Resources. Their letter described IPC's concerns that the proposed rule revisions, if enacted, could impact the contested case regarding IPC's application for a site certificate for the Boardman to Hemingway transmission line. This action was recognized by Administrative Law Judge Alison Greene Webster as *ex parte* communication pursuant to OAR 137-003-0055(2). Consequently, the ALJ offered all parties and limited parties opportunity to rebut the substance of IPC's letter in writing.

This letter constitutes the rebuttal evidence response of Lois Barry to IPC's *ex parte* communication with Council.

COMMENT ONE: Methodology for Analysis of Impacts.

In the Staff Report, ODOE Staff is signaling some openness to considering a stakeholder proposal that the Council adopt one or more methodologies for analyzing impacts to protected areas. This would be incredibly disruptive and problematic for B2H to potentially require a new or different methodology for analysis at this stage of our process.

It is essential for the Council to adopt a consistent methodology for analyzing project impacts to scenic, recreation, and protected areas. Currently the Council is in the untenable position of evaluating an ASC for a \$1.2 billion transmission line based on a methodology so outdated that it was written on a manual typewriter.

As early as 2011 when they conducted early planning for the B2H project, Idaho Power was aware of and discussed the current manual for evaluating important recreation opportunities in forested areas (USFS 1995 SMS, Scenic Management System). Without a precise methodology requirement from ODOE, Idaho Power chose to use an obsolete manual (USFS 1974 VMS, Visual Management System). This is comparable to a contractor choosing an outdated building

code, hoping to save on materials and labor by choosing to follow obsolete requirements, 2x4's rather than 2x6's and R15 rather than R50 insulation.

This self-serving choice is obviously unacceptable. If using a different and more demanding methodology is *disruptive and problematic*, the resulting problems are entirely Idaho Power's responsibility.

Without a consistent methodology, the Council must accept an applicant's determination that a project is "not likely to result in significant adverse impact" based solely on the applicant's choice of criteria. This regulatory oversight has allowed Idaho Power to determine that the B2H transmission line will have "no significant impact" or "less than significant impact" on at least 21 of the 24 Protected, Scenic and Recreation areas they ostensibly analyzed.

The obsolete 1974 USFS VMS manual was designed to help foresters avoid locating clear cuts and transmission lines where they would be seen from visitor centers, viewing platforms or highway overlooks. This choice resulted in applicant's absurd evaluation of potential impacts on Important Recreation Opportunities based entirely on whether hikers, boaters and picnickers would be looking up, down, sideways, straight on or peripherally. The cumulative effect of transmission towers bordering a site, the importance of preserving undeveloped natural areas and the cultural and historic resonance of protected areas to communities is therefore missing from applicant's evaluations.

The 1995 USFS SMS (Scenic Management System) manual, which supersedes the 1974 manual, recognizes that forested areas are not simply being observed by viewers, but are being experienced by visitors. A 30 page chapter contains information on appropriate methodology for analyzing recreationists' appreciation of and expectations from undeveloped natural surroundings and their attitudes about the impact of proposed projects, as well as methods for researching the reactions of residents who value these unspoiled locations as part of their local heritage.

Manuals are superseded for a reason. The current situation defies logic and is, literally, ridiculous. ODOE maintains that no specific manual is required for analyzing projects; however, a manual is required, and common sense indicates that the most recent method of analysis would be followed. No other state regulatory agency allows applicants to choose the criteria by which their applications for licensure or certification will be evaluated. Chaos would result if ODOT, DEQ and other regulatory agencies allowed applicants to choose their licensing criteria.

One example of this regulatory error follows:

The applicant's revised analysis changes the previous conclusion low resource change to a conclusion of high resource change because the landscape character and scenic attractiveness of the park will be reduced due to areas where the proposed facility will be close (within 0.2-1 mile) and vegetation will provide no or limited screening, primarily around the southern and southwestern shores of Little Morgan Lake [a 27 acre lake in a remote natural wild area valued by birders, botanists and hikers] where visual contrast will be strong and the proposed facility will appear dominant. Based on the applicant's methodology and revised conclusions under

visual contrast and scale dominance, resource change, and viewer perception the applicant maintains the impacts are still less than significant.

Proposed Order, p. 531

COMMENT TWO: BACKGROUND

. . . Due to the scale and complexity of the B2H Project, Idaho Power has been working through the federal and state permitting processes for approximately 12 years, including the following major milestones in the

EFSC process:

- *Notice of Intent (2010)*
- *Project Order (2012)*
- *Preliminary Application (2013)*
- *First Amended Project Order (2014)*
- *Amended Preliminary Application (2017)*
- *Second Amended Project Order (2018)*
- *Complete Application (2018)*
- *Draft Proposed Order (5/2019)*
- *Proposed Order (7/2020)*
- *Contested Case (2020-present)*

To put this timeline in perspective: Three other transmission projects, of similar scale and complexity, selected in 2008 at the same time as Idaho Power's B2H as "fast track projects," are already complete and in service. Another is under construction, scheduled for completion this year. Two have been cancelled.

It is not *scale and complexity*, but the errors and omissions in Idaho Power's OPUC and DOE applications, followed by the numerous time extensions needed to correct them, that have caused delays in their application process. The fact that Idaho Power hastily chose two inappropriate routes for the B2H is delaying the project even further.

THE "FAST TRACK B2H" FALLS FAR BEHIND

In the meantime, what happened to the other six "fast track transmission projects on President Obama's 2008 list?

Gateway West, Wyoming/Idaho, several segments are complete and in service.

Susquehanna to Roseland, New Jersey/Pennsylvania, complete and in service, May 2015.

Hampton-Rochester La Crosse Line, Minnesota/Wisconsin, complete and in service, April 2016.

Trans-West Express, line under construction, April 2019 site approval. Completion projected 2021.

1-5 Corridor Reinforcement Transmission Line cancelled by BPA in May 2017: [doubling costs] *prompted us to take a hard look at all of our transmission practices and analytics, including a fresh look at load (electrical demand) forecasts, generation changes and market dynamics.*

SunZia Southwest Transmission Project, New Mexico/Arizona. New Mexico regulators rejected the SunZia project in 2018 based on uncertainties about the route and withdrawal of partners.

TIME LINE FOR B2H PROJECT

2007 1st IRP with B2H presented to OPUC.

2008 President Obama names B2H one of the seven fast track transmission projects,*designed “to speed economic recovery by creating thousands of jobs.”

2008 Idaho Power files its first Plan for Preliminary EFSC Application for Site Certificate (ASC).

2010 Idaho Power files new plan for ASC.

2011 President Obama’s Pilot Project Rapid Response Team arrives in Idaho to “help move the project along.” Idaho Power plans to have rights of way approved between 2012 – 2014.

2013 Idaho Power submits its Preliminary ASC, 5 years after its first submission.

2016 Idaho Power’s fails “essential” completed construction date for B2H.

2018 Idaho Power receives OPUC acknowledgement of IRP. Using that acknowledgement as “proof of need,” the Company promptly delivers 240 lb. 17,000 page EFSC Applications for Site Certificates to 5 eastern Oregon county planning offices with a 30 day response period. County Commissioners are informed “it’s a done deal.”

2018 Idaho Power, citing time constraints, announces its choice of the Mill Creek and Morgan Lake routes for the B2H. Within a month, BLM announces the Environmentally Preferred and Alternate routes for the B2H. The BLM Environmentally Preferred route is remote, far to the west of Idaho Power’s selected routes which would border the city of La Grande’s viewshed or Morgan Lake City Park.

2018 Idaho Power’s Seconded Amended ASC is finally “completed.” Because of numerous errors and omissions, this was a 12 year process.

2020 Idaho Power files, then withdraws its 2019 IRP, receives at least five time extensions to modify its IRP.

2020 Idaho Power sends a letter to local landowners stating that the Mill Creek Route is no longer under consideration.

2021 Based on 76 errors, omissions and discrepancies in Idaho Power's ASC, ALJ Webster Green grants 36 individuals Contested Case standing on the B2H EFSC application. The hearing calendar continues through July 2022.

2021 Judge Simon will rule on BLM and USFS failures to conduct adequate NEPA evaluations of B2H proposed routes. Court may require a Supplemental EIS which will result in another delay in the application process well into 2022.

2021 IPUC staff notes that *Idaho Power proposes using B2H, a project estimated to cost \$1 billion to \$1.2 billion, with a 21 percent ownership share at \$292 million, to fill a 5 MW capacity deficiency in August 2029.*

2021 Idaho Power "expects to finalize permitting" for B2H.

After fourteen years, Idaho Power is still burdening state agencies and concerned citizens with its flawed applications. It is truly ironic that the Company is now arguing against possibly *disruptive and problematic* agency activities.

Sincerely,

Lois Barry
60688 Morgan Lake Road
PO Box 566
La Grande, Oregon 97850

CERTIFICATE OF MAILING

On May 28, 2021, I mailed the foregoing RESPONSE TO NOTICE OF EX PARTE COMMUNICATIONS PURSUANT TO OAR 137-003-0055(2) issued on this date in OAH Case No. 2019-ABC-02833.

By: First Class Mail:

John C. Williams
PO Box 1384
La Grande, OR 97850

By: Electronic Mail:

David Stanish
Attorney at Law
Idaho Power Company
dstanish@idahopower.com

Lisa Rackner

Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Alisha Till
alisha@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Christopher Burford
Attorney at Law
Office of the President
Eastern Oregon University
cburford@eou.edu

Mike Sargetakis
Attorney at La
Oxbow Law Group, LLC
mike@oxbowlaw.com

Karl G. Anuta
Attorney at Law
Law Office of Karl G. Anuta
kga@integra.net

Kellen Tardaewether
Agency Representative
Kellen.tardaewether@oregon.gov

Sarah Esterson
Oregon Department of Energy
Sarah.Esterson@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Jesse Ratcliffe
Assistant Attorney General

jesse.d.ratcliffe@doj.state.or.us

Jeffery R. Seeley

jeff.seeley@doj.state.or.us

Stop B2H Coalition

fuji@stopb2h.org

Stop B2H Coalition

Jim Kreider

jkreider@campblackdog.org

Colin Andrew

candrew@eou.edu

Kathryn Andrew

lkathrynandrew@gmail.com

Dr. Karen Antell

Professor of Biology Eastern Oregon

University, Science Office

kantell@eou.edu

Susan Badger-Jones

sbadgerjones@eoni.com

Lois Barry

loisbarry31@gmail.com

Peter Barry

petebarry99@yahoo.com

Ryan W. Browne

browner@eou.edu

Gail Carbiener

mcgcarb@bendbroadband.com

Matt Cooper

mcooperpiano@gmail.com

Whit Deschner

deschnerwhit@yahoo.com

Jim and Kaye Foss

onthehoof1@gmail.com

Suzanne Fouty

suzannefouty2004@gmail.com

Susan Geer
susanmgeer@gmail.com

Irene Gilbert
ott.irene@frontier.com

Charles H. Gillis
charlie@gillis-law.com

Dianne B. Gray
diannebgray@gmail.com

Joe Horst and Ann Cavinato
joehorst@eoni.com

Jim and Jane Howell
d.janehowell@gmail.com

Virginia and Dale Mammen
dmammen@eoni.com

Anne March
amarch@eoni.com

Kevin March
amarch@eoni.com
JoAnn Marlette
garymarlette@yahoo.com

Michael McAllister
wildlandmm@netscape.net

Jennifer Miller
rutnut@eoni.com

David Moyal
moyald@gmail.com

Sam Myers
sam.myers84@gmail.com

Timothy C. Proesch
tranquilhorizonscooperative@gmail.com

Louise Squire

squirrel@eoni.com

Stacia Jo Webster

staciajwebster@gmail.com

Daniel L. White

danno@bighdesign.biz

Jonathan White

jondwhite418@gmail.com

John Winters

wintersnd@gmail.com

Charles A Lyons

marvinroadman@gmail.com

[Lois Barry, Petitioner](#)

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
STATE OF OREGON
for the
OREGON DEPARTMENT OF ENERGY
IN THE MATTER OF:**

**THE APPLICATION FOR SITE
CERTIFICATE FOR THE
BOARDMAN TO HEMINGWAY
0055(2)
TRANSMISSION LINE**

**RESPONSE TO NOTICE OF
COMMUNICATIONS PURSUANT TO
OAR 137-003-**

OAH Case No. 2019-ABC-02833

Hearings Officer Webster:

27 May 2021

Alison Greene Webster
Senior Administrative Law Judge
Office of Administrative Hearings

RE: Rebuttal to Notice of *ex parte* communication pursuant to OAR 137-003-0055(2)

On April 22, 2021, Idaho Power submitted a letter to Council describing IPC's concerns regarding potential proposed rulemaking revisions to update the siting standards related to Protected Areas, Scenic Resources, and Recreation Resources. Their letter described IPC's concerns that the proposed rule revisions, if enacted, could impact the contested case regarding IPC's application for a site certificate for the Boardman to Hemingway transmission line. This action was recognized by Administrative Law Judge Alison Greene Webster as *ex parte* communication pursuant to OAR 137-003-0055(2). Consequently, the ALJ offered all parties and limited parties opportunity to rebut the substance of IPC's letter in writing.

This letter constitutes the rebuttal evidence response of Karen Antell to IPC's *ex parte* communication with Council.

In their letter of April 22, 2021 to Chair Grail and Councilmembers, Idaho Power states that rule changes proposed by ODOE "would introduce new Protected Area resources that have not yet been analyzed by Idaho Power and ODOE for B2H, and inject a significant amount of uncertainty into the B2H contested case process". Idaho Power

further states that “any designation of a new natural area could derail a project when it is well into a contested case process.” Idaho Power specifically mentions that in 2019 “a private landowner with a parcel that will be crossed by the project sought designation of his land as a state ‘natural area’ through the Oregon Parks and Recreation Department without informing Idaho Power or ODOE.” Idaho Power claims that “it would be unreasonable to ask Idaho Power” to re-route around the site.

In their *ex parte* communication, Idaho Power mischaracterizes several aspects of well-documented events. I wish to rebut and correct several statements in their letter to the EFSC.

1. Idaho Power claims a May 11, 2007 cut-off date for the Protected Area Standard. However, the current Morgan Lake route was not even proposed until 2016, nearly a decade later.

The general public, and landowners on Glass Hill, participated in the NEPA process in good faith. At the last minute, after completion of the NEPA process, in which the BLM recommended a different route, Idaho Power proposed the current Morgan Lake route over Glass Hill without consultation with affected landowners, and without thorough review of habitat or Protected Areas within the path of the new route. Idaho Power’s request to Council now for exemption to siting rules, disregards the established process developed by EFSC and ODOE, which is designed to protect the public’s interest and to provide private landowners a measure of representation.

2. In their letter to Council, Idaho Power states that the proposed transmission line route was designed intentionally to cross the Joel Rice property in order to avoid other known Protected Areas on Glass Hill, and they identify a cut-off date of May 11, 2007 for identification of known Protected Areas. The Rice property was protected by a conservation easement with the Rocky Mountain Elk Foundation on 28 December 2001, six years prior to announcement of the proposed B2H transmission line.

Idaho Power admits that they knew about Eastern Oregon University’s Rebarrow Research Forest and Oregon Department of Fish and Game’s Ladd Marsh Game Management Area on Glass Hill southwest of La Grande. Although they don’t mention it in their *ex parte* communication to Council, they also were aware of the close proximity of La Grande’s Morgan Lake Park and Oregon Trail ruts on the adjacent Webster property.

Idaho Power states that the proposed transmission line route was designed to cross the Joel Rice property in order to avoid these other known Protected Areas (paragraph 1, page 3). The Rice property was protected by a conservation easement with the Rocky Mountain Elk Foundation on 28 December, 2001. This predates by nearly a decade the 2009 date in which the Project Order for the proposed B2H line was issued.

3. Idaho Power suggests that the Rice property was designated an Oregon State Natural Area in a last-minute attempt to avoid having the line pass through the property (last paragraph, Page 2). Extensive factual evidence to the contrary exists.

Oregon State Natural Area status is not a courtesy designation that is automatically granted upon request. The Rice property contains extraordinary and unique habitat and wildlife qualities. Indeed, it is because the area represents such an outstanding example of Blue Mountains forest ecosystems that it was selected for Natural Area status.

“The Oregon Legislature established the **Oregon Natural Areas Program** in 1979 as a way to protect and recognize high quality native ecosystems and rare plant and animal species. The program is managed by the Oregon Parks and Recreation Department and includes lands of many different ownerships.”

<https://www.oregon.gov/oprd/PRP/Pages/PLA-natural-resource.aspx>

The stated purpose of the Oregon Natural Areas Program is as follows:

“Purpose: (1) To protect examples of terrestrial and aquatic ecosystems; (2) to serve as gene pool reserves; (3) to serve as benchmarks against which the influences of human activities may be compared; and (4) to provide outdoor laboratories for research and education.”

Dr. Rice recognized the unique and outstanding habitat qualities, plant diversity, and exceptional wildlife potential when he began purchasing land on Glass Hill decades ago. I've been a PhD Botany/Biology Professor at Eastern Oregon University since 1988. Dr. Rice first requested my help with surveying his property for native plants about 20 years ago. I began developing a vascular plant checklist and inventory of species for the Rice property on Glass Hill prior to 2007. I completed a more detailed description of the Plants of Winn Meadow in 2011. Winn Meadow is owned by Dr. Rice, and is adjacent to EOU's Rebarrow Research Forest. On 12 January, 2012, I sent this document to Keith Georgeson, B2H project manager.

Enrollment in the Oregon State Natural Area is not Joel Rice's first step toward protecting the natural values of his land. The following timeline provides specific information about additional, long-standing efforts by Joel Rice to pursue official, certified, conservation protections for his property on Glass Hill.

- 1) First, Dr. Rice placed most of his property on Glass Hill in a conservation easement with the Rocky Mountain Elk Foundation on 28 December 2001. This predates by over a decade any notice of interest in constructing a power line through the area by Idaho Power. Dr. Rice has a lifelong interest in land conservation. The Rocky Mountain Elk Foundation provided him a means to begin to establish some conservation status for his land, while also allowing hunting access as a benefit to the community.

- 2) Subsequently, Dr. Rice also enrolled this same Glass Hill land in Oregon Department of Fish and Wildlife's Access and Habitat Program. The property was most recently reenrolled in March, 2016. This program promotes good stewardship of private lands in order to maintain high quality wildlife habitat for the public benefit.
- 3) Finally, designation of the Rice property in Oregon's State Natural Area program in 2019-20 was an act of extreme generosity of Dr. Joel Rice to the state of Oregon. His desire has always been to see the unique values of the land, habitat, and wildlife protected in perpetuity for the public good. In doing so, he has foregone opportunities for making personal financial gains from resource extraction, such as timber harvest or livestock grazing. He has done everything he could to protect the outstanding natural qualities of his private land, while also keeping access open for public hunting and recreational use. His generosity has been widely appreciated by the community of La Grande.

The current Oregon Natural Areas Plan published in 2020, and administrated by Oregon Parks and Recreation, describes ecosystem types that occur within the state and identifies priority areas for protection. Riparian and meadow ecosystems in Douglas-fir, Grande fir, and Western larch forest types are considered a priority for natural area designation and protection. The Rice property contains outstanding examples of these priority habitats at mid-elevation in NE Oregon. This is one reason why the state of Oregon enrolled the Rice property into the state Natural Areas program.

In 2011, Mr. Keith Georgeson was the B2H Project Manager. In email communications with Glass Hill landowners and an in-person meeting held on Glass Hill, Mr. Georgeson was made well aware of the unique and high-quality natural values of the Glass Hill area, including EOU's Rebarrow Forest, and the Rice properties. Consequently, in 2012, the Coulter Ridge Alternative route was proposed following a line farther south of the current Morgan Lake Route, in order to avoid all of the current Protected Areas, including ODFW, EOU Rebarrow Forest, Morgan Lake, and the Joel Rice property.

Upon learning about the Oregon State Natural Area designation for the Rice property, Idaho Power's response should have been to immediately recognize the importance of this outstanding Natural Area to all Oregonians, and to reconsider the proposed Morgan Lake route in good faith. Instead, they chose to malign the intentions of not just Joel Rice, but also the knowledgeable scientists and individuals who oversee the Oregon State Natural Areas program.

In the long run, the state of Oregon and its citizens will benefit far more from both private and public land partnerships and protections such as the Oregon State Natural Areas program provides, than from Idaho Power's proposed transmission line.

Sincerely,

Dr. Karen Antell
Professor of Biology
Eastern Oregon University

CERTIFICATE OF MAILING

On May 27, 2021, I mailed the foregoing RESPONSE TO NOTICE OF EX PARTE COMMUNICATIONS PURSUANT TO OAR 137-003-0055(2) issued on this date in OAH Case No. 2019-ABC-02833.

By: First Class Mail:

John C. Williams
PO Box 1384
La Grande, OR 97850

By: Electronic Mail:

David Stanish
Attorney at Law
Idaho Power Company
dstanish@idahopower.com

Lisa Rackner
Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Alisha Till
alisha@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Christopher Burford
Attorney at Law
Office of the President
Eastern Oregon University

cburford@eou.edu

Mike Sargetakis
Attorney at La
Oxbow Law Group, LLC
mike@oxbowlaw.com

Karl G. Anuta
Attorney at Law
Law Office of Karl G. Anuta
kga@integra.net

Kellen Tardaewether
Agency Representative
Kellen.tardaewether@oregon.gov

Sarah Esterson
Oregon Department of Energy
Sarah.Esterson@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Jesse Ratcliffe
Assistant Attorney General
jesse.d.ratcliffe@doj.state.or.us

Jeffery R. Seeley
jeff.seeley@doj.state.or.us

Stop B2H Coalition
fujj@stopb2h.org

Stop B2H Coalition
Jim Kreider
jkreider@campblackdog.org

Colin Andrew
candrew@eou.edu

Kathryn Andrew
lkathrynandrew@gmail.com

Dr. Karen Antell
Professor of Biology Eastern Oregon
University, Science Office

kantell@eou.edu

Susan Badger-Jones
sbadgerjones@eoni.com

Lois Barry
loisbarry31@gmail.com
Peter Barry
petebarry99@yahoo.com

Ryan W. Browne
browner@eou.edu

Gail Carbiener
mcgccarb@bendbroadband.com

Matt Cooper
mcooperpiano@gmail.com

Whit Deschner
deschnerwhit@yahoo.com

Jim and Kaye Foss
onthehoof1@gmail.com

Suzanne Fouty
suzannefouty2004@gmail.com

Susan Geer
susanmgeer@gmail.com

Irene Gilbert
ott.irene@frontier.com

Charles H. Gillis
charlie@gillis-law.com

Dianne B. Gray
diannebgray@gmail.com

Joe Horst and Ann Cavinato
joehorst@eoni.com

Jim and Jane Howell
d.janehowell@gmail.com

Virginia and Dale Mammen
dmammen@eoni.com

Anne March
amarch@eoni.com

Kevin March
amarch@eoni.com
JoAnn Marlette
garymarlette@yahoo.com

Michael McAllister
wildlandmm@netscape.net

Jennifer Miller
rutnut@eoni.com

David Moyal
moyald@gmail.com

Sam Myers
sam.myers84@gmail.com

Timothy C. Proesch
tranquilhorizonscooperative@gmail.com

Louise Squire
squirrel@eoni.com

Stacia Jo Webster
staciajwebster@gmail.com

Daniel L. White
danno@bighdesign.biz

Jonathan White
jondwhite418@gmail.com

John Winters
wintersnd@gmail.com

Charles A Lyons
marvinroadman@gmail.com

[Karen Antell, Petitioner](#)

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
STATE OF OREGON
for the
OREGON DEPARTMENT OF ENERGY
IN THE MATTER OF:**

**THE APPLICATION FOR SITE
CERTIFICATE FOR THE
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE**

**RESPONSE TO NOTICE OF
COMMUNICATIONS PURSUANT TO
OAR 137-003-0055(2)**

OAH Case No. 2019-ABC-02833

Hearings Officer Webster:

Idaho Power was successful in influencing the Oregon Department of Energy to extend the process for promulgation of the Protected Area rules. Per their letter dated April 22, 2021, their motivation was to avoid having to provide protection for areas impacted by the Boardman to Hemingway Transmission Line. Following are my responses to the statements made by Idaho Power in their illegal ex parte communications with the Oregon Energy Facility Siting Council.

I reviewed the following documents in coming to my conclusions:

1. Idaho Power's letter to the Energy Facility Siting Council dated April 22, 2021
2. The verbal and written transcripts of the April 23, 2021 Energy Facility Siting Council public comments and discussions regarding the procedure for implementing the Protected Area rule revisions.
3. The email I received from Elaine Albrich.
4. "Vegetation of Winn Meadow Glass Hill, Union co., Oregon" by Dr. Karen Antell, August 16, 2011
5. "Deed of Conservation Easement" between Joel Rice and the Rocky Mountain Elk Foundation dated December 28, 2001. File Number 20015945.

6. The email from me to Brad Allen dated June 8, 2016 just prior to the announcement that the Morgan Lake route was going to be proposed.

Following is a list of a portion of the information in Idaho Power's 5 page letter which I believe are misleading.

Idaho Power claims that the promulgation of the Protected Area standard would result in moving a "goalpost" regarding their application.

There exists no "goalpost" date for the issue of protected properties. The statutes define when the standard is to be applied, and for this type of issue, it is the date the Site Certificate is issued.

Idaho Power's actions to influence the Oregon Department of Energy to extend the timeframe for completing the Amendments to their Protected Areas standard will not keep them from having to address the legitimate Protected Areas including the "Rice parcel". This rule should have been updated years ago had the Oregon Department of Energy maintained their rules in a manner consistent with the state policy in ORS 469.010 requiring them to pay special attention to the preservation and enhancement of environmental quality and ORS 469.100 stating that all agencies shall review their rules and policies to determine they are consistent with ORS 469.010.

469.320 Requires an amended site certificate to add area to the site. The review includes all rules included in the processing of the original site certificate. Idaho Power has stated that there will be the need for amending the site certificate which will require a review of the Protected Areas standard as it exists at that time. Hopefully the Energy Facility Siting Council will not allow this developer to avoid addressing all legitimate protected areas by putting off the updating of the Amendment Rules beyond a single public meeting.

Idaho Power claims that this rule would introduce a protected Area resource that has not already been analyzed by Idaho Power.

This point is moot since Idaho Power has not completed all the required analysis regarding either of the two other Protected Areas that will be crossed by the transmission line. The Rice property would only be added to this list which it should already have been. OAR 345-022-0000(2) requires

that the developer evaluate specific items to be allowed to cross a protected area. There was some discussion regarding this rule in the January 23, 2020 EFSC meeting at approximately 42.55. It was stated that no project had been approved previously that crossed a protected area and that there was a meeting “a couple of years ago” where ODOE staff discussed one additional route and it was agreed the planned route was better than the other one they were presented with. This statement in a council meeting regarding discussions is not documentation nor does it provide a “preponderance of evidence” that the development complies with the rules and statutes requiring a review of alternative routes. The fact that BLM identified a preferred route other than either of the ones proposed by Idaho Power makes any argument that there was not a better route questionable.

The ex parte communication does not appear to have any purpose other than extending the timeframe for getting these rules implemented due to Idaho Power’s belief that this will benefit them.

Evidence supporting this conclusion:

- A. Idaho Power submission of a 5 page letter to the Energy Facility Siting Council dated April 22, 2021 which is devoted almost entirely to their arguments regarding what they see as potential impacts of this rule revision on the Boardman to Hemingway Transmission Line.
- B. The fact that the letter was not submitted until the day prior to the topic appearing on the agenda which failed to provide opportunity for the public at large to prepare arguments in opposition to their recommendations.
- C. The fact that this rule revision was not scheduled for Public Comment, and yet six individuals representing developers and industry associations spoke in support of the recommendations from Idaho Power.
- D. This rule revision did not propose significant changes other than correcting the omission of protected areas that have been designated since 2007. Any issues could easily have been included during the completion of the formal rule amendment timeframe when the public at large along with the developers and special interest groups are provided opportunity to influence changes in the rule language.

- E. The testimony provided by Idaho Power and others calling a simple update to the Protected Areas standard “major”, supports the possibility that the presenters may have been coached.
- F. The actual changes proposed in the rule include the following which can hardly be considered “major”:
- a. Updating the date for identifying “Protected Areas” to include those areas determined to be protected after 2007.
 - b. Requiring the developer to identify the responsible party for managing protected areas. (Page 6)
 - c. (Page 18) Adds the requirement to identify the responsible party for managing protected area. Other changes are simply word smithing which does not change the requirements.
 - d. Changing the word “shall” to “may” which is less restrictive on actions of the council, (Page 39) and
 - e. While there is a lot of red ink on pages 39 through 41 it is due to removing the examples of the areas which fall under the different protected area topics and referring instead to the enabling legislation, removing areas recommended for inclusion as Wilderness areas from inclusion, and adding federally designated special resource management areas.
 - f. On page 40 where it appears there are additional federally protected areas added, they are areas that have been treated as protected due to federal law, and areas included previously in other areas of the rule.
- G. I was contacted directly by email from Elaine Albrich of Davis, Wright and Tremaine on April 22, 2021 with a request that I comment in support of more than one workshop for the Protected Areas Rule, stating “we” would like to see at least 3 workshops and indicating that since there was no public comment period scheduled for this rule, I would have to comment during the open “Public Comment” period.

The above actions lend support for my belief that Idaho Power's ex parte communication to the Council is for the following reasons::

- A. They intended to influence the Energy Facility Siting Council actions in a manner they believed would support their defense of the contested cases regarding Protected Areas.
- B. They enlisted the support of representatives from other organizations to make comments in order to increase the probability that the rules would be delayed.
- C. They wanted to assure the updates to the Protected Area standard would not occur until after the site certificate process is completed for the Boardman to Hemingway transmission line in order to avoid providing protection for the Rice property.
- D. They were successful in delaying the implementation of necessary revisions to the Protected Area standard by a minimum of months while the Oregon Department of Energy schedules public input sessions.

Idaho Power states on Page 3 of their letter to the Council that a change in the cut off date for protected areas for B2H would make their analysis obsolete and could require the project to be rerouted well into the contested case.

This argument and the statements indicating that it was nearly 10 years into the EFSC process before Idaho Power became aware of the protected status of the Rice property and the statement on the prior page that they did not become aware of the status of the Rice property until 2020 is not supported by documentation. They claim that early in the process avoidance of protected areas was a major factor in their siting decisions. The developer is the responsible party for identifying protections for land they plan to cross and they had several methods available to them to determine that this land is protected. They may not have intended to initially run the transmission line across the Rice property, however, just prior to June 8, 2016 it was disclosed by Brad Allen that Idaho Power was going to use the "Morgan Lake" route as one of the routes proposed. By this time, they should have done an analysis of the impacts of the line on not only the Rice property, but also the other properties that this route would now impact. If that had been done, they would have discovered the 2001 Conservation Easement was in force. That document states that the purpose of

the Easement is to “protect forever the relatively natural wildlife habitat, open space forest land and other natural and open space values of the real property described below, assuring its availability for forest, recreational and open space use, and protecting natural resources through private conservation effort, which are recognized in the Oregon Conservation and Highway Scenic Preservation Easement Act, ORS 271.215 to 271.795, inclusive (1999).” This document also talks to the importance of the property as a migration corridor. They also would have identified the “Vegetation of Winn Meadow Glass Hill, Union Co., Oregon” August 16, 2011 documentation of the plant species present and the importance of the area as part of the wildlife corridor between Ladd Marsh and the Rebarrow property in providing a continuous, uninterrupted by development, wildlife corridor. Joel Rice, the property owner, also made an impassioned comment during the Environmental Impact Statement process regarding the need to protect this property.

Idaho Power indicates that if the Council were to adopt one or more methodologies for analyzing impacts to protected areas it would be “disruptive and Problematic” for them to have to use a different method for their analysis.

It should be noted that Idaho Power ignored the accepted and proven methods for completing the noise measurements required for multiple locations including protected areas. Their actions in using unproven methods have necessitated several contested cases. This alone is evidence of the need for requiring a standard that provides consistent, accurate results.

While it would be possible to respond to additional comments in the remainder of the document provided by Idaho Power, the above information documents the fact that Idaho Power misrepresented the situation and status of the Boardman to Hemingway Project in relation to the Protected Area updates and in so doing, succeeded in leaving any protected properties designated between 2007 and the present day and into some future timeframe as yet undetermined vulnerable to development impacts.

The council is encouraged to bring the Protected Area Amendments before the public in a legitimate rulemaking process as defined by statute rather than allowing Idaho Power and others to word smith the draft rule until it becomes meaningless. Pushing this rule promulgation out for months accomplishes nothing other than allowing irreparable damage to protected areas because the paperwork designating them was not completed before an arbitrary date

CERTIFICATE OF MAILING

On May 26, 2021, I mailed the foregoing RESPONSE TO NOTICE OF EX PARTE COMMUNICATIONS PURSUANT TO OAR 137-003-0055(2) issued on this date in OAH Case No. 2019-ABC-02833.

By: First Class Mail:

John C. Williams
PO Box 1384
La Grande, OR 97850

By: Electronic Mail:

David Stanish
Attorney at Law
Idaho Power Company
dstanish@idahopower.com

Lisa Rackner
Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Alisha Till
alisha@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Christopher Burford
Attorney at Law
Office of the President
Eastern Oregon University
cburford@eou.edu

Mike Sargetakis

Attorney at La
Oxbow Law Group, LLC
mike@oxbowlaw.com

Karl G. Anuta
Attorney at Law
Law Office of Karl G. Anuta
kga@integra.net

Kellen Tardaewether
Agency Representative
Kellen.tardaewether@oregon.gov

Sarah Esterson
Oregon Department of Energy
Sarah.Esterson@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Jesse Ratcliffe
Assistant Attorney General
jesse.d.ratcliffe@doj.state.or.us

Jeffery R. Seeley
jeff.seeley@doj.state.or.us

Stop B2H Coalition
fuji@stopb2h.org

Stop B2H Coalition
Jim Kreider
jkreider@campblackdog.org

Colin Andrew
candrew@eou.edu

Kathryn Andrew
lkathrynandrew@gmail.com

Dr. Karen Antell
Professor of Biology Eastern Oregon
University, Science Office
kantell@eou.edu

Susan Badger-Jones

sbadgerjones@eoni.com

Lois Barry

loisbarry31@gmail.com

Peter Barry

petebarry99@yahoo.com

Ryan W. Browne

browner@eou.edu

Gail Carbiener

mcgccarb@bendbroadband.com

Matt Cooper

mcooperpiano@gmail.com

Whit Deschner

deschnerwhit@yahoo.com

Jim and Kaye Foss

onthehoof1@gmail.com

Suzanne Fouty

suzannefouty2004@gmail.com

Susan Geer

susanmgeer@gmail.com

Irene Gilbert

ott.irene@frontier.com

Charles H. Gillis

charlie@gillis-law.com

Dianne B. Gray

diannebgray@gmail.com

Joe Horst and Ann Cavinato

joehorst@eoni.com

Jim and Jane Howell

d.janehowell@gmail.com

Virginia and Dale Mammen

dmammen@eoni.com

Anne March
amarch@eoni.com

Kevin March
amarch@eoni.com

JoAnn Marlette
garymarlette@yahoo.com

Michael McAllister
wildlandmm@netscape.net

Jennifer Miller
rutnut@eoni.com

David Moyal
moyald@gmail.com

Sam Myers
sam.myers84@gmail.com

Timothy C. Proesch
tranquilhorizonscooperative@gmail.com

Louise Squire
squirrel@eoni.com

Stacia Jo Webster
staciajwebster@gmail.com

Daniel L. White
danno@bighdesign.biz

Jonathan White
jondwhite418@gmail.com

John Winters
wintersnd@gmail.com

Charles A Lyons
marvinroadman@gmail.com

[Irene Gilbert, Petitioner](#)

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
STATE OF OREGON
for the
OREGON DEPARTMENT OF ENERGY
IN THE MATTER OF:**

**THE APPLICATION FOR SITE
CERTIFICATE FOR THE
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE**

**RESPONSE TO NOTICE OF
COMMUNICATIONS PURSUANT TO
OAR 137-003-0055(2)**

OAH Case No. 2019-ABC-02833

May 28, 2021

Alison Greene Webster
Senior Administrative Law Judge
Office of Administrative Hearings

RE: Reply to notice of ex parte communication, pursuant to OAR 137-003-0055(2) from Idaho Power to EFSC, OAH Case No. 2019-ABC-02833

Judge Webster:

I reply here to Idaho Power Company's improper ex parte communication to the Energy Facility Siting Council on April 22, 2021. Surprisingly, in that letter, Idaho Power felt it was not inappropriate to ask the EFSC to postpone or indefinitely suspend the (already overdue) rulemaking process related to Protected Areas, Scenic Resources, and Recreation Resources, because continuing that process might negatively impact Idaho Power's position in the B2H contested case. The request itself indicates that it is Idaho Power, not "landowners," who are "gaming the system." Other parties and limited parties in the B2H contested case will provide important historical and procedural references in detail, but I will keep my responses general and brief.

Idaho Power argues that it should not have to analyze or evaluate all Protected Areas that the project may affect, but rather only those identified more than 13 years ago, because the "goalposts" have been moved as other Protected Areas were added over those years. At the time those "goalposts" were relevant, the current B2H route was not identified as a proposed route, so those evaluations would be obsolete now, as Idaho Power surely knows. Given the massive,

irreversible impact that the project will have on the land, Idaho Power Company should of course be required to meet all current relevant protection standards as a condition of construction.

Idaho Power is also concerned that the Council could adopt one or more methodologies for analyzing impacts to protected areas. They claim this "would be incredibly disruptive and problematic for B2H to potentially require a new or different methodology for analysis at this stage of our process." It should be noted that, rather than employing standardized methods, Idaho Power created its own methodology for assessing noise impacts (for example), and so introduced unproven methods into the analysis which are now under challenge in the contested case.

Additionally, Idaho Power is concerned that ODOE Staff is "signaling some openness to clarifying the criteria for identifying important recreational resources. While it is not clear precisely what is intended here, this could be problematic to the extent that it may require analysis of resources that were not previously identified in our ASC." This openness to clarification may be "problematic" for Idaho Power, only in that it signals ODOE openness to a more thorough siting evaluation, in the public interest, as it should.

It is evident that Idaho Power improperly attempted to influence the EFSC evaluative process in hopes of securing a more favorable outcome in the B2H contested case, through both misinformation and omission of fact. Given Idaho Power's historical subterfuge and lack of transparency regarding the B2H proposal, that finding is perhaps not surprising, but it is most concerning and damaging to the public's interest in environmental resource protection.

Sincerely,

Charles A. Lyons, contested case petitioner
60332 Marvin Rd.
La Grande, OR 97850

CERTIFICATE OF MAILING

On May 28, 2021, I mailed the foregoing RESPONSE TO NOTICE OF EX PARTE COMMUNICATIONS PURSUANT TO OAR 137-003-0055(2) issued on this date in OAH Case No. 2019-ABC-02833.

By: First Class Mail:

John C. Williams
PO Box 1384
La Grande, OR 97850

By: Electronic Mail:

David Stanish
Attorney at Law
Idaho Power Company
dstanish@idahopower.com

Lisa Rackner
Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Alisha Till
alisha@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Christopher Burford
Attorney at Law
Office of the President
Eastern Oregon University
cburford@eou.edu

Mike Sargetakis
Attorney at La
Oxbow Law Group, LLC
mike@oxbowlaw.com

Karl G. Anuta
Attorney at Law
Law Office of Karl G. Anuta
kga@integra.net

Kellen Tardaewether

Agency Representative
Kellen.tardaewether@oregon.gov

Sarah Esterson
Oregon Department of Energy
Sarah.Esterson@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Jesse Ratcliffe
Assistant Attorney General
jesse.d.ratcliffe@doj.state.or.us

Jeffery R. Seeley
jeff.seeley@doj.state.or.us

Stop B2H Coalition
fuji@stopb2h.org

Stop B2H Coalition
Jim Kreider
jkreider@campblackdog.org

Colin Andrew
candrew@eou.edu

Kathryn Andrew
lkathrynandrew@gmail.com

Dr. Karen Antell
Professor of Biology Eastern Oregon
University, Science Office
kantell@eou.edu

Susan Badger-Jones
sbadgerjones@eoni.com

Lois Barry
loisbarry31@gmail.com
Peter Barry
petebarry99@yahoo.com

Ryan W. Browne
browner@eou.edu

Gail Carbiener
mcgccarb@bendbroadband.com

Matt Cooper
mcooperpiano@gmail.com

Whit Deschner
deschnerwhit@yahoo.com

Jim and Kaye Foss
onthehoof1@gmail.com

Suzanne Fouty
suzannefouty2004@gmail.com

Susan Geer
susanmgeer@gmail.com

Irene Gilbert
ott.irene@frontier.com

Charles H. Gillis
charlie@gillis-law.com

Dianne B. Gray
diannebgray@gmail.com

Joe Horst and Ann Cavinato
joehorst@eoni.com

Jim and Jane Howell
d.janehowell@gmail.com

Virginia and Dale Mammen
dmammen@eoni.com

Anne March
amarch@eoni.com

Kevin March
amarch@eoni.com
JoAnn Marlette
garymarlette@yahoo.com

Michael McAllister

wildlandmm@netscape.net

Jennifer Miller
rutnut@eoni.com

David Moyal
moyald@gmail.com

Sam Myers
sam.myers84@gmail.com

Timothy C. Proesch
tranquilhorizonscooperative@gmail.com

Louise Squire
squirrel@eoni.com

Stacia Jo Webster
staciajwebster@gmail.com

Daniel L. White
danno@bighdesign.biz

Jonathan White
jondwhite418@gmail.com

John Winters
wintersnd@gmail.com

Charles A Lyons
marvinroadman@gmail.com

Charles A. Lyons, Petitioner

DOUG HAGEMAN
DOUG@OXBOWLAW.COM
(503) 694-9361

OXBOW
LAW GROUP, LLC
735 SW FIRST AVE, 2ND FLOOR
PORTLAND, OR 97204
OREGON TRIAL ATTORNEYS
STATE & FEDERAL COURT

MIKE SARGETAKIS
MIKE@OXBOWLAW.COM
(503) 694-9362

May 28, 2021

Via Electronic Mail Only

Alison Greene Webster
Senior Administrative Law Judge
Office of Administrative Hearings

RE: Reply to Notice of *ex parte* communication pursuant to OAR 137-003-0055(2)

I. Introduction

On April 22, 2021, Idaho Power Company (IPC) submitted a letter to EFSC describing IPC's concerns about proposed rulemaking revisions to update the state's energy facilities siting standards related to Protected Areas, Scenic Resources, and Recreation Resources. That letter described IPC's concerns that, if enacted, the rules could impact the B2H contested case.

IPC's action was properly recognized by ALJ Webster as an *ex parte* communication. Consequently, pursuant to OAR 137-003-0055(2) the ALJ offered all parties and limited parties an opportunity to rebut the substance of IPC's letter in writing.

The Stop B2H Coalition (STOP) responds in this comment to both the general nature of this communication, and attempts to correct a number of misrepresentations in IPC's assertions to EFSC.

II. Background

IPC begins by addressing the avoidance requirement within the protected areas standard, OAR 345-022-0040, and its analytical framework and "2007 cut-off date." The current rules include an outdated listing of resources. There is no "analytical framework" per se, except a desire for avoidance. That is one of the reasons that ODOE is trying to update the 2007 rules. The state needs to do its work and move forward.

When IPC first applied for a site certificate for the Boardman to Hemingway (B2H) project in 2010, and again in 2013, there were two routes in Union County that were undergoing National Environmental Policy Act (NEPA) review by the Bureau of Land Management (Bureau) and the US Forest Service (USFS). The two routes put forward for analysis by the federal agencies did not include protected areas in Union County.

By the time the Application for Site Certificate was filed (2017), IPC had replaced these two Union County NEPA-reviewed routes with their own selected routes. The NEPA reviewed routes were, as a result, dropped from ODOE/EFSC review.

IPC provides a distorted (and purely self-serving) narrative of the project's background. EFSC, and all parties, need to recognize that the people of Eastern Oregon: ratepayers, taxpayers, property owners, recreationists, conservationists, and more, have also worked tirelessly as volunteers (which cannot be said for IPC), many since 2006, to engage professionally throughout this 15-year process. Over this time, STOP and others have gained considerable knowledge of the energy industry as well as the protected, scenic and recreation areas at issue. Hundreds of thousands of volunteer hours, and considerable personal resources have gone into providing rigorous analysis of the errors and omissions in IPC's applications.

III. "ODOE's Proposed Elimination of the Cut Off Date Would Render IPC's Protected Area Analysis for B2H Obsolete and Potentially Require that the Project be Re-Routed Well into the Contested Case"

The IPC title of this section is illuminating. If IPC was so confident in their analysis and willing to stand by its choices regarding the environment, why is it so concerned? Section II of IPC's letter seems to focus on a particular parcel and portion of the route in Union County.

First, IPC would not be in this situation had it not chosen to pre-empt the public processes. Mark Stokes, B2H Project Manager, said at the DPO Public hearing in La Grande on June 20, 2018¹ the company was experiencing delays with the federal process and decided to move ahead. If IPC had let the federal process play-out before applying to EFSC, there would have been minimal challenges to the BLM environmentally preferred route.

In short, IPC has created many of its own current "problems" by trying to rush or side step the proper sequence of analysis. Having made its own bed, IPC should now be forced to lie in it.

IPC claims that it did not know of the valuable resources (protected, scenic and recreational) that would be affected by its new alignments/routes in Union County. That is farcical, and contrary to what STOP and others know to be the fact. Moreover, even if it were true, then IPC should have contacted adjacent and nearby landowners to get more information.

The Bureau, in a letter to IPC in February of 2015, did ask IPC to assess the "constructability" of this new (secretly designed) route. The conservation easements that were being developed to adjoin contingent properties of existing protected areas for recreation and species protections have been in the works since 2001 (with the first Rocky Mtn Elk Foundation easement on the Rice property) before anyone knew of the B2H and well-before 2007. The property in question was never put on county or state lists, but the work was in progress and IPC knew very well about it, as testified by EOU's Karen Antell and early meetings with Keith Georgeson, IPC Project Leader before Mark Stokes. There was an attempt to "thread the needle" between known sensitive and protected areas in Union County without adequate analysis and without any public review until the DPO phase of the EFSC process.

Second, in its letter, IPC says that proposed rule changes "would introduce new Protected Area resources that have not yet been analyzed by IPC and ODOE for B2H, and inject a significant amount of uncertainty into the B2H contested case process... " and that in 2019 "a

¹ See Transcript from the DPO Public Hearing in La Grande on June 20, 2019 at 150-151.

private landowner with a parcel that will be crossed by the project sought designation of his land as a state 'natural area' through the Oregon Parks and Recreation Department without informing IPC or ODOE ... it would be unreasonable to ask IPC" to re-route around the site."

To re-route around this site might require an amended application, which IPC claims would be burdensome. The Company wants EFSC to believe that it would be a major inconvenience; however, if the line were to be re-routed, there are alternative routes already available, like the exhaustively analyzed federal Right of Way proposed in the Records of Decision (by both BLM and USFS).

As active interveners in all of the Oregon and Idaho Public Utility Commission processes, STOP knows that IPC frequently chooses to "pause the process, to correct errors in their application process. In fact, the Company asked the OPUC, to "pause" five times in its recent duties to provide oversight to the 2019 IRP process.² IPC's "delays" are self-created, and their self-imposed deadlines are continually being pushed further into the future. In a recent IPC Integrated Resources Planning meeting, in April 22, 2021, their Advisory Council³ discovered that the supposed "need" for the B2H has moved from 2026 into the 2030's. Energy conservation and new technologies continue to push the supposed need further into the future. To ask the company to pause to "re-route" if necessary—too finally get it right—is indeed a timely request for the public to make.

Third, IPC's contention that "... this rule change may even encourage landowners to try to game the system to introduce a siting obstacle late in the process" is at best speculative and disingenuous at worst. Given IPC's clandestine communications with one landowner in 2015 while a public process was under way, PC's concern about "gaming the system" appears to be little more than projection. The unsupported implication that a Union County citizen, was trying to "game the system" is self-serving hyperbole intended only to chill public participation in public processes. This landowner is not a party to this contested case, but others (working in the public interest,) are supporting his land which is a valuable community resource; they are parties in the case. The intent of this maligned property owner is clear from his testimony during the DPO comment period⁴ and the background section of his application for renewal to the ODFW access and habitat program.⁵

VI. Other problems

Change to Alternative Route Analysis. STOP believes that as above, IPC's objection is speculative and hyperbolic. To claim that an inordinate amount of work and resources *might* have to go into determining if alternative routes have "greater or lesser impacts" per rule change is an

² OPUC Docket #74: <https://apps.puc.state.or.us/edockets/Docket.asp?DocketID=21987&Child=action>; Staff report: <https://edocs.puc.state.or.us/efdocs/HAU/lc74hau16475.pdf> Procedural History pp 6-8; STOP's Final Comments: <https://edocs.puc.state.or.us/efdocs/HAC/lc74hac18632.pdf> p 1.

³ https://docs.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2021/2021_IRP_Aurora_Workshop.pdf, Slide 71 and discussion. Fifteen percent reserve margin not until 2030 and beyond.

⁴ See Joel Rice-EFSC comments *available at*: <https://www.oregon.gov/energy/facilities-safety/facilities/Pages/B2H.aspx>

⁵ See Glass Hill Access & Habitat Program Application Materials at p. 6, *available at*: https://www.dfw.state.or.us/lands/AH/minutes/2016/april/2016-10_Glass_Hill.pdf

exaggeration, particularly because alternative routes or sites have been thoroughly studied. Not only that, but IPC must follow the law, regardless of whether or not it is convenient or preferable for its shareholders.

Methodology for Analysis of Impacts and Criteria for Important Recreation Resources. IPC claims that this “would be incredibly disruptive and problematic for B2H to potentially require a new or different methodology for analysis at this stage of our process.” STOP contends that is essential to the public and developers to adopt a standardized methodology for the analysis and review of protected, scenic and recreational areas. An updated consistent methodology could have prevented many of the contested cases. Again, the Company is promoting self-serving interests and is apparently indifferent to the needs and obligations of the State of Oregon to manage its lands and protect its citizens.

V. Conclusion

Under the veil of ODOE rulemaking communication, IPC’s April 22, 2021 letter demonstrates a desire to influence the Council on several contested case issues in the Boardman to Hemingway case OAH 2019-ABC 02833. STOP B2H appreciates the ALJ responding to this situation by providing all parties (full and limited) an opportunity to respond.

STOP finds it alarming that IPC considered it appropriate to ask the Council, as the ultimate decision-maker in an ongoing matter (and an entity serving the public interest,) to forego their public responsibilities in favor of the interests of a private corporation to effectively pause its rulemaking to ensure IPC's success in an active case.

While IPC cries foul, it cites what amounts to little more than inconvenience associated with *following the law*. IPC’s protestations should be viewed with appropriate skepticism. It is the job of the State to protect the public’s interest, and the public’s right to participate in public processes. The State must proceed with the processes that they are mandated to perform in the interest of the public good. As a part of its *ex parte* efforts, IPC has presented several misrepresentations in its letter.

Sincerely,



Mike J. Sargetakis
Of attorneys for STOP B2H Coalition

CERTIFICATE OF MAILING

On May 28, 2021, I certify that I filed the foregoing RESPONSE TO NOTICE OF EX PARTE COMMUNICATIONS PURSUANT TO OAR 137-003-0055(2) in OAH Case No. 2019-ABC-02833 with the Hearings Coordinator via electronic mail, and with each party entitled to service, as noted below.

/s/ Mike J. Sargetakis

Mike J. Sargetakis
Attorney for STOP B2H Coalition

By: First Class Mail:

John C. Williams
PO Box 1384
La Grande, OR 97850

By: Electronic Mail:

Lisa Rackner
Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Alisha Till
alisha@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Christopher Burford
Attorney at Law
Office of the President
Eastern Oregon University
cburford@eou.edu

Karl G. Anuta
Attorney at Law
Law Office of Karl G. Anuta
kga@integra.net

Kellen Tardaewether
Agency Representative
Kellen.tardaewether@oregon.gov
[v](#)

Sarah Esterson
Oregon Department of
Energy
Sarah.Esterson@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Jesse Ratcliffe
Assistant Attorney General
jesse.d.ratcliffe@doj.state.or.us

Jeffery R. Seeley
jeff.seeley@doj.state.or.us

Fuji Kreider
Stop B2H Coalition
fuji@stopb2h.org

Stop B2H Coalition
Jim Kreider
jkreider@campblackdog.org

Colin Andrew
candrew@eou.edu

Kathryn Andrew
lkathrynandrew@gmail.com

Dr. Karen Antell
Professor of Biology Eastern
Oregon
University, Science Office
kantell@eou.edu

Susan Badger-Jones
sbadgerjones@eoni.com

Lois Barry
loisbarry31@gmail.com

Peter Barry
petebarry99@yahoo.com

Ryan W. Browne
browner@eou.edu

Gail Carbiener
mcccarb@bendbroadband.com

Matt Cooper
mcooperpiano@gmail.com

Whit Deschner
deschnerwhit@yahoo.com

Jim and Kaye Foss
onthehoof1@gmail.com

Suzanne Fouty
suzannefouty2004@gmail.com

Susan Geer
susanmgeer@gmail.com

Irene Gilbert
ott.irene@frontier.com

Charles H. Gillis
charlie@gillis-law.com

Dianne B. Gray
diannebgray@gmail.com

Joe Horst and Ann Cavinato
joehorst@eoni.com

Jim and Jane Howell
d.janehowell@gmail.com

Virginia and Dale Mammen
dmammen@eoni.com

Anne March
amarch@eoni.com

Kevin March
amarch@eoni.com

JoAnn Marlette
garymarlette@yahoo.com

Michael McAllister
wildlandmm@netscape.net

Jennifer Miller
rutnut@eoni.com

David Moyal
moyald@gmail.com

Sam Myers
sam.myers84@gmail.com

Timothy C. Proesch
Tranquilhorizonscooperative@gmail.com

Louise Squire
squirel@eoni.com

Stacia Jo Webster
staciajwebster@gmail.com

Daniel L. White
danno@bighdesign.biz

Jonathan White
jondwhite418@gmail.com

John Winters
wintersnd@gmail.com

Charles A Lyons
marvinroadman@gmail.com

Susan Geer's Opening Testimony PCN 5

Exhibit 102

Comments on EFSC Protected Areas rulemaking

December 31, 2020

To: Energy Facilities Siting Council

EFSC.rulemaking@oregon.gov

The following is in response to Energy Facility Siting Council request for the public's assistance in the development of revisions to its Protected Areas (OAR 345-022-0040), Scenic Resources (OAR 345-022-0080), and Recreation (OAR 345-022-0100) Standards. The website posting about the 10/23 meeting stated the goal of revision is, "to ensure that each of these standards clearly identifies the resources the standard intends to protect and is consistent with the policy set forth in ORS 469.310." First are my responses to some of the Issues and Alternatives in the document Agenda item D Attachment 1 dated October 9, 2020:

1. *Issues Analysis Document Issue 1 – Notification of Protected Area Land Managers.* As a manager of a State Natural Area (Rice Glass Hill Private Natural Area), Alternative 2 seems the most appropriate and on par with existing practice, since almost any other land manager is already included as a "reviewing agency". Alternative 3, providing notification only at the "Notice of Intent" stage--just does not cut it. Alternative 1 also is inadequate.
2. *Issues Analysis Document Issue 2 – Scope of Required Findings.* This is really confusing. It is not clear what the implications are. The Council should run through an actual example.
3. *Issues Analysis Document Issue 3 – Effective Date of Areas and Designations.* The Analysis Document interprets the wording of OAR 345-022-0040(1) as the date a protected area was designated, "Issue description: The Protected Areas Standard refers to 'designations in effect as of May 11, 2007.' A number of new areas have been designated for protection since that time". Alternatives 1 and 2 both seem like viable alternatives. It is really unclear why a date of 2007 (13 years ago!) is attached to this rule. Alternative 3 falls flat because "the date the preliminary application is submitted" can be literally YEARS if not DECADES, so that important areas that should be protected are not, because no one could foresee a day when they would be threatened. The statute is meaningless unless all areas that fall under the Protected Areas statute are truly protected. This law should reflect the State of Oregon's commitment to protecting natural areas, as voiced not only in the Natural Areas Plan and related legislation, but in the Oregon Conservation Strategy. The date of an area's designation should not preclude important conservation areas from being protected. **Wording should be amended to leave no doubt that all Protected Areas no matter what type or date of adoption, are covered by OAR 345-022-0040.**
4. *Issues Analysis Document Issue 4 – Lists of Protected Areas.* Issue description: The rule contains lists of designations and specific protected areas that may be incomplete or out of date. No other choice but Alternative 3, "Amend rule to remove lists of specific protected areas and rely on categories and designations" makes any sense at all. If as the "Discussion" says, "the lists in the rule are not intended to be exhaustive", then that should be stated in the rule and wording about what other areas might be protected should be added. It really seems like this is a lack of coordination between State agencies in sharing lists or perhaps in updating them on internet sites. No Protected Area should be left out because someone forgot to update their list.

5. *Issues Analysis Document Issue 5 Outstanding Resource Waters. Issue Description: The current rule does not list Outstanding Resource Waters as Protected Areas. They should definitely be included and the rule should make that clear.*
6. *Issues Analysis Document Issue 6 – Linear Facilities Located in Protected Areas. Issue Description: The current rule may permit a transmission line or natural gas pipeline to be sited in a protected area when other lesser impact alternatives are available. From wording in OAR 345-022-0040(2), it is very obvious that a site certificate should only be issued for a protected area “* * * if other alternative routes or sites have been studied and determined by the Council to have greater impacts.” If the Council believes this is unclear then the rule should be amended to clarify. Applicants should be required to **consider all possible Alternative Routes** that may be less impactful, not just “Alternative Routes” that they have cherry-picked for some other reason, to manipulate the results of the analysis. In the case of B2H we have seen the Applicant drop their Proposed Route analyzed by the federal government and apply to the EFSC with a different Proposed Route which is more impactful, with no good reason given for this bait and switch.*
7. *Issue 7 State Scenic Resources. Issue description: The Scenic Resources does not specify that scenic resources and values identified as significant or important in state land management plans are protected under the standard. It is painfully obvious that scenic resources identified in a state land management plan should be recognized by another state agency. “It is not clear why state plans were omitted from the rule.”*

Following are my additional comments and recommendations for rulemaking:

8. ORS 469.310 states policy is, “to establish in cooperation with the federal government a comprehensive system for the siting, monitoring and regulating of the location, construction and operation of all energy facilities in this state.”
Despite this policy, commenters in the B2H process have been told that compliance with federal laws is beyond the jurisdiction of the EFSC. This, despite the fact that the IPC’s Proposed Route is now a different Route than when the BLM/USFS Record of Decision was issued in 2018. Clearly, accepting the Application from IPC containing a different Proposed Route—one not fully reviewed by the federal agencies—is a violation of ORS 469.310. **The Applicant should not be permitted to go through the State process with a different Proposed Route than that already approved in the Federal process.**
9. The wording of the Protected Areas Statute is unclear. OAR 345-022-0040 says “References in this rule to protected areas designated under federal or state statutes or regulations are to the designations in effect as of May 11, 2007.” It makes no sense to only protect areas designated by a random date over 13 years ago. This seems really bizarre. No reason is given for this date. The intent was probably toward using the definitions of the various types of Protected Areas as the definition was understood in 2007, for example, the definitions terms such as “scenic waterway”, “state natural heritage area” or “experimental areas established by the Rangeland Resources Program”. **A full listing of the categories of places that should be Protected Areas should be made.**

10. OAR 345-022-0040 lists areas designated under federal or state statutes. There is no explanation for why County or City areas such as parks, wildlife areas, or monuments open to the public are not included. It is unclear how Oregon Department of Energy has decided what areas are worth protecting. It seems really arbitrary. Apparently just by how large the governing body is? **All areas that meet criteria for Protected Areas should be categorized and considered for status, regardless of land ownership. This process should be made completely clear and transparent to affected land owners and to the public who value these lands for Natural, Scenic, or Recreational values.**
11. OAR 345-022-0040 appropriately includes State Natural Areas as Protected Areas. The State Natural Areas Program is a great program, yet very few people outside of State government know about it. Land trusts and conservation organizations who issues conservation easements often work very hard to protect land that would meet criteria for a State Natural Area yet because they do not know about the program these areas are not Protected. For example, I contacted Wallowa Land trust and Blue Mountain Land trust here in Eastern Oregon and neither had heard of the Natural Areas program. The Natural Areas Program should conduct an outreach to land conservation groups. **Conservation Easements which meet criteria for a State Natural Area should be considered. Land trusts and conservation groups which hold conservation easements that meet the criteria for Natural Areas should be invited to the formal rulemaking process, as should County and City managers of areas such as as parks, wildlife areas, or monuments. This is assuming state and federal agency personnel concerned with Natural Areas, Scenic Areas, and Recreation Areas will of course be invited to the formal rule making.**

Respectfully submitted,

Susan Geer

susanmgeer@gmail.com

12/16/2021

To: EFSC

From: Fuji Kreider, public

RE: EFSC Rulemaking schedule and prioritization for 2022

I am sorry to miss your meeting today but I wanted to be sure to comment on this agenda item. I would like to recognize that Christopher Clark is managing the process well and has a lot on his plate. However, I'd also like to acknowledge the participation—especially by the public who are completely volunteers. Obvious from the participation, the rulemaking process for Protected, Scenic and Recreation areas is of great concern. The public has been very outnumbered by developers during the workshops, although I suspect this may be common. I hope that the Council will consider the skewed participation in the process (and likely others) and weigh that in their decision making.

We began the rulemaking processes for Protected, Scenic and Recreation areas, a year ago, with scoping comments due in December 2020. In 2021, we had three-- half-day workshops (some people taking time off of work) and some people have provided additional comments. Our last workshop was in October. We were under the impression—and to keep the momentum going-- that the draft rules and the formal rulemaking would be open this month (Dec) or by January: 2-3 months after the last workshop.

Maintaining this level of interest and participation among the volunteering public, is difficult. And so, to not fuel more cynicism in our public institutions and processes, I would urge the Council to prioritize the rulemaking of Protected Areas, Scenic and Recreation areas for 2022.

We need to get through is process asap as the rules are very outdated; and staff and the Council have even more rules needing attention. In particular, the rules have old lists and dates that do not serve anyone or any development well. More important are the critical and important resources that are very vulnerable because the rules as they currently stand are not useful.

Some options that I see; there are probably more:

1. Adjust the schedule. Prioritize the rules that are already in progress in the first quarter. Hence, Protected, Scenic and Recreational rules should open up for formal rulemaking this month or early January '22. With the proposed schedule, the process won't be taken up again for another 4 months—in April 2022?!
2. Break up the rulemaking process into three separate ones. This is how the rules are today. It sounds like scenic areas may be more complex and slowing down the others. If this is the case, break-away the protected and recreation areas and get them done right away.
3. If more the input on scenic resources, particularly the assessment methodologies are hold things up, consider a less prescriptive and more process oriented approach. I do NOT mean that it should be as it exists today: the developer can pick any method or parts of methods they want. Rather, a

process for "selection" of the "current best practices" approach/methodologies at the time, to be used and prescribed for that unique development.

4. Add more staff to Christopher's team and get through these quicker.

Our beloved resources are depending on you. I hope you can hear my urgency. Our current rules are ineffective and must be updated as quickly as possible.

Thank you for taking the time to read this public comment.

Sincerely,

Fuji Kreider
60366 Marvin Rd
La Grande, Oregon 97850

12/17/2021

To: Energy Facility Siting Council and the EFSC Secretary Energy Siting Division/ODOE

From: Susan Geer, public

RE: public comment on EFSC Rulemaking schedule for 2022

I will only be able to attend the first hour of the EFSC meeting later this morning, so I am submitting a comment on Item H ahead of the meeting.

First of all, thank you Chris Clark for being well organized and providing rulemaking meeting materials far ahead of time.

The rulemaking process for Protected, Scenic and Recreation areas should be top priority. The lack of clarity in the rules is extreme and obvious. It would be a mistake to delay and extend the process. An entire year has passed since stakeholder and public comments were first submitted to the EFSC. Back then, the entire process was projected to take less than 4 months according to Staff Report of October 2020 meeting! Since then we had three lengthy half-day workshops, each spaced 3 or more months apart. Through the laborious length of the workshops and the discussions raised it has become apparent that considering Protected, Scenic and Recreation together is probably too much. Trying to consider Protected, Scenic, and Recreation Area rulemaking concurrently is confounding and confusing since they require very different considerations. Amplifying this are the long time lags between workshops, during which we lose focus.

Now in December that last October meeting seems long ago. It became evident during that third workshop that Scenic rulemaking is less explored than Protected or Recreation, and that different and new professional advice is at hand.

I urge the council to move forward with formal rulemaking this month, or January at the latest. If others think that Scenic needs more exploration, the Council could consider moving forward with Protected Areas and Recreation rulemaking ASAP and delaying Scenic. That being said, April seems like yet another unnecessarily long delay, and if the choice is to move forward with all three or delay all three, I advise the council to urgently move forward.

The delays and long times between workshops have been frustrating and I believe delays reduce public involvement and make it harder to engage at the next meeting. Also the length of the workshops is too long to maintain attendance, especially for those who have jobs.

The rules are very outdated and unclear; no one is served by keeping them in place. Valuable and unique natural resources, especially in protected areas, are vulnerable because the rules as they stand are not useful.

Please update the rules for Protected Areas, Recreation, and Scenic values as soon as possible. This is an urgent agenda item and long overdue.

Thank you for taking the time to read this public comment.

Sincerely,

Susan Geer
906 Penn Ave.
La Grande, Oregon 97850

April 12, 2022

To: Energy Facilities Siting Council
EFSC.rulemaking@oregon.gov

From: Susan Geer, public
susanmgeer@gmail.com

Re: Draft Proposed Rules <https://www.oregon.gov/energy/Get-Involved/rulemakingdocs/2022-03-04-R184-Draft-Proposed-Rules.pdf> .

Issues Analysis document <https://www.oregon.gov/energy/Get-Involved/rulemakingdocs/2022-03-04-R184-Issues-Analysis.pdf>

The Issues, Affected Rules, Issue Description, and a few Background statements are from the Issues document, followed by my comments:

Issue 1 – Notification of Protected Area Land Managers

Affected Rules: OAR 345-001-0010; 345-022-0040

Issue description: Rules do not require the department or applicant to give notice to or request comment.

Alternative 1 is not viable. Alternative 2 calls for making the manager of protected area(s) a “reviewing agency” while Alternative 3 simply gives them notice: “Amend rules to provide public notice to the managers of a protected area identified in the Notice of Intent, application, or Request for Amendment.” While I agree with EFSC staff that automatically making the manager of Protected Areas a reviewing agency, when they may not always wish to be or they may actually not have time to participate in an in-depth role, may not be the best choice, it seems like there could be a compromise between Alternatives 2 and 3, where the Protected Areas manager is notified, and as part of that notification they are offered the option of being a “reviewing agency” and also given the option of appointing a representative or alternate person. If they are not interested, they would not be added to the list of reviewing agencies, but they would continue to get notifications of stages in the EFSC process.

Issue 2 – Scope of Required Findings

Affected Rules: OAR 345-022-0040(1); 345-022-0080(1); 345-022-0100(1)

Issue description: The Council’s Scenic Resources and Recreation Standards both limit the scope of Council’s findings to resources in the appropriate analysis area identified in the project order. This is inconsistent with the Protected Area Standard, which contains no similar limitation. Because there is considerable overlap between the resources and impacts considered under these three standards, there may be some benefits to improving consistency between the three standards.

Alternative 1 is not viable. Alternative 2 proposes to “to limit findings to protected areas within the analysis areas established by the project order”. This is problematic from an ecological point of view. The special status species or unique communities of organisms that were the reasons for the protected area designation could well be affected by some aspect of a proposed project outside of the “analysis area”. Effects on migratory birds nesting near power lines or on fish species upstream of hydro projects

come to mind. I agree with EFSC staff, rather than artificially and perhaps tragically limiting the protected areas, that, "amending the Scenic Resources and Recreation Standards, as identified in Alternative 3, would result in more robust findings and would not result in undue burdens on the applicant because the required analysis would still be controlled by the project." The proposed wording for OAR 345-022-0080(1) and OAR 345-022-0100(1) seems reasonable, except that it is not clear how the size and location of Analysis area vs. Study area.

OAR 345-022-0080 (3) concerning scenic resources should include a "land use management plan" adopted by not only various levels of government, but private land trusts and conservancies which offer public access.

Issue 2.1 – Size of Study Areas for Protected Areas, Recreation, and Scenic Resources Standards

Issue description: Some stakeholders recommend that the study areas for impacts to Protected Areas, Recreation, and Scenic Resources are too large, especially for renewable energy facilities.

Background: In its notice of intent, the applicant must provide an initial description of the impacts that could result from construction or operation of the proposed facility within designated study areas. Under OAR 345-001-0010(59), the "study area" for impacts to Protected Areas is 20 miles; for impacts to scenic resources, 10 miles, and for impacts to recreational opportunities, 5 miles. This information is used to inform the "analysis areas" for the application. These analysis areas may be the same as the "study areas" required for the notice of intent or may be adjusted based on the information provided in the notice of intent and any comments from reviewing agencies or the public.

After reviewing proposed Alternatives, I agree with EFSC Staff. The Analysis document states that "Because staff does not have an appropriate empirical basis to recommend changes to the study areas at this time, staff recommends Council make no changes, as described under Alternative 1." It is especially important to note that there is no basis for reducing the size of the study areas.

Issue 2.2 – Extent of Study Areas for Facilities near State borders

Issue description: A stakeholder recommended that the Council limit study areas for impacts to Protected Areas, Recreation, and Scenic Resources to areas within the borders of Oregon.

Background: In its notice of intent, the applicant must provide an initial description of the impacts that could result from construction or operation of the proposed facility within designated study areas. Under OAR 345-001-0010(59), the "study area" for impacts to Protected Areas is 20 miles; for impacts to scenic resources, 10 miles, and for impacts to recreational opportunities, 5 miles. If the facility is proposed to be located near Oregon's borders, the study area may extend into Washington, Idaho, or California. It is not always clear if a protected area designated by one of these neighboring states is protected under the protected areas standard, or if a scenic resource identified in the land use plan for a local government with jurisdiction outside of Oregon should be given consideration in determining what scenic resources or recreation opportunities are significant or important.

After reviewing proposed Alternatives, I agree with the EFSC Staff "Because the standards under consideration in this rulemaking protect resources that may be used and valued by Oregonians, regardless of their location, staff does not recommend changes based on this issue".

Issue 3 – Effective Date of Areas and Designations

Affected rules: OAR 345-022-0040(1)

Issue description: *The Protected Areas Standard refers to "designations in effect as of May 11, 2007." A number of new areas have been designated for protection since that time.*

After reviewing proposed Alternatives, I do NOT agree with the EFSC staff recommendation which is "To allow rules to remain up to date while minimizing uncertainty for applicants, staff recommends that Council amend the rule to specify that Council must make findings based on designations in effect at the time a complete application is filed, as described in Alternative 3."

As noted in the Issues document, ORS 469.401 requires a site certificate or amended site certificate to require both the Council and applicant to abide by local ordinances, state laws, and the rules of the Council in effect on the date the site certificate or amended site certificate is executed. Clearly Protected Areas established before the date of the site certificate MUST be protected. The process for attaining Protected Area status is often long, as is the process for attaining a site certificate. It would be wrong to impact an important Protected Area, usually years in the making, because its official date of designation fell after the time a "complete application" is filed by an energy developer. In reality, following a "Complete Application" are years of processes including the draft Proposed Order, public comments, Proposed Order, and contested case process. Suggested wording:

OAR 345-022-0040(1) To issue a site certificate, the Council must find:

- (a) The proposed facility will not be located within the boundaries of a protected area designated on or before the date the site certificate is issued.
- (b) Taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impacts to a protected area designated on or before the date a site certificate is issued.

Issue 4 – Lists of Protected Areas

Affected rules: OAR 345-022-0040(1)

Issue description: *The Protected Areas Standard contains a list of designation categories and specific protected areas that may be incomplete or out of date.*

Background: *OAR 345-022-0040(1) provides a list of categories of areas designated for protection by the state or federal government that must be considered when making findings under the Protected Areas Standard. Some of the listed categories contain lists identifying specific areas within the categories that appear to be incomplete or out of date. We have provided additional background on each of the categories of protected area designations included in the current rule, as well as additional categories that provide comparable protections to resources and values in the recommendations section below.*

I agree with the EFSC staff statement "Removing the lists as described in Alternative 3 would reduce the need to update the rule, by relying solely on specific designation categories. Several commenters supported this approach as not having outdated lists in the rule would reduce confusion."

The suggested categories and wording for these categories in the Issues document provided seems reasonable but it appears limited to federal and state designated areas. It is prejudicial to limit these to the state level and above. County, city and tribal areas in those categories (parks, monuments,

waysides, refuges, recreation areas) need to be protected so those categories should be included as categories.

A similar problem arises when it comes to natural areas. At the initiation of OAR 345-022-0040, the Nature Conservancy was the primary holder of Conservation Easements, and the State Natural Heritage Areas designation originated with them. Although The Nature Conservancy still exists, its funding has waned; other land trusts and conservation organizations have arisen and now occupy parts of the same niche that TNC once did. The natural areas scenario is now more complicated. In recent years, the management of the Natural Heritage Areas (now called State Natural Areas) was transferred to the State (currently under ORPD-Oregon Parks and Recreation Dept.), the assessment function to OSU (ORBIC-Oregon Biological Information Center) and the ownership/Conservation Easement functions were taken on by a combination of private landowners and land trusts. With so many entities involved, the connections between them are not as clear. Ideally the State of Oregon would include outreach in their Natural Areas program to coordinate the functions. Under the current situation, Conservation Easements should a category in the rule.

Issue 6 – Linear Facilities Located in Protected Areas

Issue Description: *The current rule may permit a transmission line or natural gas pipeline to be sited in a protected area when other lesser impact alternatives are available.*

This is major Issue, and rulemaking should not be delayed! It appears that what is up in the air is 1. How many alternatives must be studied, and 2. What is the definition of a “reasonable” alternative, and 3. Are “impacts” mentioned only those to Protected Areas?

It is very apparent that rule needs updating to say more than two alternative routes must be studied by the applicant. Study of only two routes leaves little choice and leads to unnecessarily impacting Protected Areas. At least four alternative routes should be studied, and greater emphasis should be placed on avoiding designated Protected Areas but also sensitive areas such as nature preserves and conservation easements whose obvious intent is to protect significant (rare, unprotected, and/or unique) natural resources and likely to meet the Protected Area standard but have not yet been designated as such since the Protected Areas rule is not well known even among land managers. “Reasonable” alternatives would have to have been included in a federal process, if the federal process were completed before the state process. All alternative routes given approval in the federal process should be included in the state process to provide as many alternatives as possible for consideration. There could be some guidelines as to the relative length and/or relative cost of “reasonable” alternatives to counter the suggestion that the applicant would have to study an “infinite number” of alternatives. The applicant should be able to amend their application at any time to incorporate less harmful alternatives.

Considering EFSC Chapter 345, 345-020-0011 lists many details that an Applicant needs to find and include about lands that would be impacted by a proposed facility. Conspicuously missing from this list is whether a property is under a Conservation Easement, and the goals of that easement.

Contents of a Notice of Intent related EFSC rule which need to

While I agree with the EFSC Staff recommendation that they “consider these issues further in the Council’s Application Process Review rulemaking”, this should not preclude updating language in OAR 345-022-0040(2).

Issue 7 – State Scenic Resources

Affected rules: OAR 345-022-0080

Issue description: *The Scenic Resources standard does not specify that scenic resources and values identified as significant or important in state land management plans are protected under the standard.*

EFSC Staff Recommendation to OAR 345-022-0080(1) is a valid one, yet it does not address the problem of local governments which have not made the effort to list obvious scenic resources. I understand the hesitancy behind the statement in the Issues document,” Staff acknowledges that relying on land use plans and land resource management plans to identify significant or important scenic resources presents some challenges. This is further complicated by the fact the under Statewide Planning Goal 5, local governments are only encouraged, but not required, to identify scenic views and sites in a comprehensive plan. As such, staff believes that further consideration of Alternative 4 may be appropriate, but we do not have enough information at this time to recommend Council pursue this option and recommend it be considered further in future rulemaking.”

Since county and other local planning departments may not have the time or resources to spend on designating scenic areas, there should be a process for individuals or groups to nominate scenic areas to a state program. In many cases these areas might also warrant Protected Areas status.

In addition to scenic resources identified in state land management plans and local government plans, scenic resources designated in land management plans of conservation organizations and tribes. In fact the plans of same kinds of government and organizations/group as mentioned in Issues 2 and 4.

Issue 8 – Applicability of Updated Rules and Standards

Issue description: A stakeholder recommended that the application of new rules or standards to an application for Site Certificate that is under review on or before the effective date of the rules could prejudice the applicant.

The title of the issue says “updated” rules and standards, but in the Issue description the “application of *new* rules or standards” is what “could prejudice the applicant.” There are cases where rules are unclear or outdated in a way which may result in negative unintended long-term consequences unless the updated and clarified rules are applied to an application that is under review. That is the case with some rules about Protected, Scenic and Recreation areas. Rule revisions and updating are often undertaken because problems are noticed during review processes, so it makes sense that clarifications, updates, and revisions to those rules should be applied to make sure the rules meet their intent in an ongoing application. This is especially true when the process takes years to complete. On the other hand, rules that are *new additions* should in most cases be reserved for the next new application that comes along. While the application of a revised rule might be considered to “prejudice” an applicant, ignoring a needed revision to the rule would certainly harm protected, scenic, and recreation areas and the citizens

who care about them. Because of the vagaries and variations in interpretation of unclear rules, places which many citizens thought safe from development have been compromised.

OAR 345-001-0020(3) is a prescient rule. As the Issues document noted, the Council "contemplated the application of new rules or standards to a facility under review" when they made this rule. The Council's options should not be limited, in this case by imposing a "date of application" limitation proposed by Alternative 2 or 3 of the Issues document.

Clearly Alternative 1 is the wisest choice in to leave options open for the Council and not apply a limiting one-size-fits-all to unforeseen circumstances of the future.

Respectfully submitted,

Susan Geer

susanmgeer@gmail.com

Susan Geer's Opening Testimony PCN 5

Exhibit 103

Public Comment PCN 5 by Susan Geer

January 10, 2022

To: PUC.PublicComments@puc.oregon.gov

Subject: Susan Geer, representing Whitetail Forest LLC and Glass Hill State Natural Area, comments on PCN 5 Idaho Power application for Certificate of Public Convenience and Necessity – CPCN

Dear OPUC members,

Alternative routes need to be considered per the new PCN rules.

In their review process, the Energy Facility Siting Council considered only the routes provided in the Application for Site Certificate (ASC) and did not require Idaho Power to consider any of the better alternatives.

First, I will list superior Alternatives not included in the Application for Site Certificate (ASC), and therefore not reviewed by EFSC. These alternatives are not mutually exclusive, and all are better than Idaho Power's intended route. Next, I specifically object to Idaho Power's choice of the Morgan Lake Alternative (now their intended route) which is the most environmentally sensitive of any alternative suggested for Union County.

1. The best and most obvious alternative to the B2H is decentralized energy production, or microgrids. **Provide energy closer to customers through decentralized energy generation and resources.** Mega-transmission lines are outdated and should be a thing of the past. The B2H is vulnerable for over 300 miles to fire, wind, and terrorism or vandalism. It calls for massive clearcutting and roadbuilding plus condemnation of unwilling landowners and impacts to areas that should have been protected. Much has changed since the old Idaho Power energy plans (IRPs) were acknowledged. From Energy.gov, "Microgrids support a flexible and efficient electric grid by enabling the integration of growing deployments of distributed energy resources such as renewables like solar. In addition, the use of local sources of energy to serve local loads helps reduce energy losses in transmission and distribution, further increasing efficiency of the electric delivery system."
2. The second-best alternative, which could be done in conjunction with the above: Build an underground direct current (DC) line along the railroad right of way, or the interstate (with EV charging stations). Unlike the B2H, this is both secure and forward-thinking, plus avoids further environmental damage and land condemnation.
3. The third-best alternative: Use the Central Oregon Right of Way (ROW) that goes N-S from Boardman area - to the [368 corridors](#) (aka West-Wide Corridor) - going E-W directly to Hemingway. This was the federal corridor that was supposed to minimize issues like we are facing today with this CPCN. **This should be utilized, if capacity is really needed.**

4. A part of any and all alternatives should be: underground install the B2H for 1.7 miles in front of the National Historic Oregon Trail Interpretive Center in Baker County. The Interpretive Center is positioned for a sweeping dramatic view of the sagebrush sea as much like it was as settler's first viewed it along the Oregon trail. This is not compatible with aboveground mega transmission line. Further, sagebrush habitat is rapidly disappearing across the west, impacting an array of rare plants and animals.
Undergrounding the line is feasible and has been raised frequently, but as with the other better alternatives, it was not in the Applicant's ASC, so not considered by EFSC.
5. Finally, in Union County, even should the better alternatives listed above be ignored, clearly the **Agency preferred route** aka "Glass Hill alternative" several miles to the west of La Grande is the least harmful of the alternatives presented in the BLM and USFS Environmental Impact Statements (EISs dated 2017 and 2018) and it is the route **selected** in both agency Records of Decision (RODs).

The Agency-preferred route is superior to the Morgan Lake alternative in several ways: it avoids the popular Morgan Lake City Park, it avoids the fragile and unique Twin Lake (aka Little Morgan) wetlands including sandhill cranes and bald eagle nesting sites, it avoids Glass Hill State Natural Area including special plant communities and a series of wet meadows that encompass the largest population of rare Douglas clover (Federal Species of Concern) in the state, and it avoids known habitat for a newly discovered unnamed rare species of *Pyrrcoma* (goldenweed). The agency preferred route is on dry upland ridges, vs. the series of wet and moist habitat areas of the Morgan Lake alternative, which are more critical to wildlife. Thus, the **Agency-preferred route is less environmentally impactful** than the Morgan Lake Alternative.

Furthermore, the **Agency-preferred route impacts fewer people** as well. Being several miles west of town, the Agency -preferred route avoids numerous rural homes facing corona noise intrusions that are predicated to exceed the state's noise control standards. The number of people visiting and enjoying the outdoors is exponentially fewer on the privately held, rarely visited dry ridges of the Agency-preferred route compared to recreation at Morgan Lake Park, and non-motorized recreation and numerous nature viewers who visit Twin Lake wetlands and Glass Hill State Natural Area.

The remainder of my comments are on the December 8 workshop notes and how Idaho Power came to select Morgan Lake as their intended route, even though it is the most vulnerable to environmental damage. I will also explain how the laws of the state of Oregon, as interpreted by Idaho Power and the EFSC, have thus far failed to protect sensitive species and habitat.

I have reviewed Idaho Power Company Powerpoint and "Supplemental Notes to December 8, 2022 Workshop Presentation Docket No. PCN 5". Below is an excerpt from page 4, followed by my comment.

Staff Topic 8 (Slides 29 and 30)

Explain the difference between the BLM route and EFSC B2H route for which IPC is seeking the CPCN certificate in terms of physical differences, cost differences, utilization/benefits differences and differences in impacts on private vs. public lands and other environmental attributes including wildlife, vegetation, noise levels for impacted residents, project timeline and any other factors that were considered in comparing these two routes.

Most of this discussion was captured under the routing constraints that were presented under the previous topic.

The BLM route and the EFSC B2H route are very similar with a few key differences.

Idaho Power has worked to develop an acceptable route through Union County for over a decade. Early on, Idaho Power considered the Glass Hill Route, along with at least one other route in the vicinity of Morgan Lake. However, the Glass Hill Route was confronted with substantial backlash from the affected landowners and other interested parties, some of which formed the Glass Hill Coalition specifically to challenge that route. The Confederated Tribes of the Umatilla Indian Reservation also expressed disfavor for the Glass Hill Route due to impacts to cultural resources. The Morgan Lake Alternative was developed in response to those concerns, as well as in response to a request made by one of the affected landowners during the federal NEPA process to locate the route closer to the border of their property rather than bisecting it. The Mill Creek Route was also developed during the NEPA process, in response to the Union County's request to site the project in parallel with the existing 230-kv line.

Based on feedback received from the community, Idaho Power has elected to pursue the Morgan Lake Alternative. This route is out of the viewshed of the Grand Ronde Valley and more rural in nature. The two areas are both Private land and do not impact public vs private land.

Analysis for the Morgan Lake Alternative, as compared to others, was cursory. It is found in 2017 Supplemental Siting study of Idaho Power's ASC. The Idaho Power Company (IPC) statement that the BLM route and EFSC B2H route are "similar with a few key differences" is very far from the truth. Please refer to Petitioner Mike McAllister's comparative analysis for his proposed Contested Case with the EFSC which fully details large differences in impacts to soil site productivity, forest and Range vegetation communities, fish habitat, wildlife habitat, recreational resources, scenic resources, and wildfire fuel risk. This is in addition to the environmental impacts to species and habitats in Glass Hill State Natural Area and Morgan Lake Park that I mention in the preceding paragraphs.

IPC's statement "Glass Hill Route was confronted with substantial backlash from the affected landowners and other interested parties, some of which formed the Glass Hill Coalition specifically to challenge that route. " is also misleading. Mike McAllister, who was present, states "To make any inference that people with the Glass Hill endorsed the Morgan Lake Route is fraudulent. Members of the Glass Hill Coalition were against IPC's original proposed route down "Cowboy Ridge." The Morgan Lake Route is an even worse variation of the Cowboy Ridge Route". Indeed, I have not been able to locate any of our neighbors who endorse the Morgan Lake Route, save Brad Allen, who is no longer a landowner there.

Another IPC statement "Based on feedback received from the community, Idaho Power has elected to pursue the Morgan Lake Alternative," is also extremely misleading. Idaho Power included only the Morgan Lake alternative and the Mill Creek alternative in it's Application to the State. The Mill Creek alternative is partly in town and affects the largest number of fulltime dwellings and very unstable hillslopes; in fact it runs through the edge of town. It is an extremely poor choice, and only one other alternative was offered: the Morgan Lake alternative. With such a choice, it is no wonder that "based on feedback from the community, Idaho Power has elected to pursue the Morgan Lake Alternative". It really was no choice at all. In fact it seems that Mill Creek was meant as a decoy, to defuse the fallout from proposing Morgan Lake route.

Public costs of the Morgan Lake alternative far outweigh the benefits. Oregon's botanical treasures and special native plant communities should be preserved now and for future generations, particularly when they occur in natural areas and parks. The PUC should deny Idaho Power's application.

Sincerely,

Susan Geer

906 Penn Ave.

La Grande OR 97850

Susan Geer's Opening Testimony PCN 5

Exhibit 104

Protect this Place: Twin Lake Wetlands

by Karen Antell

January 10, 2022

Protect This Place: Oregon's Twin Lake

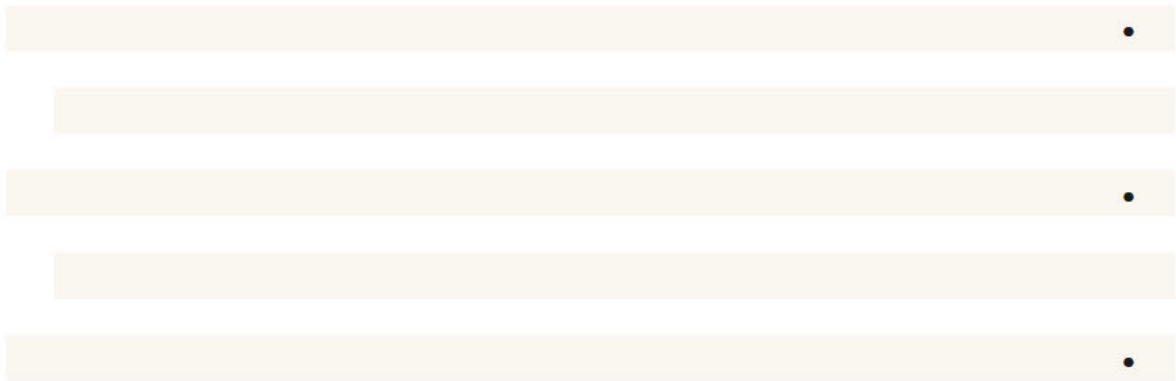
A proposed high-voltage power line threatens a mountain lake and its surrounding wetlands.

Voices

January 9, 2023 - by Karen Antell

The Revelator

Wild, Incisive, Fearless.



- News

- Extinction Countdown
- Investigations
- Wildlife
- Climate Change
- Oceans & Clean Water

- [Pollution & Toxins](#)
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The Place:

Atop a ridge in the Blue Mountains, just west of the small town of La Grande in northeast Oregon, hides a beautiful small lake and associated wetland. What we now call Twin Lake or Little Morgan Lake — its Indigenous name is unknown to me — offers the promise of secluded summer breeding habitat for aquatic species, as well as food and respite for many birds following ancient migration routes. Clean, perennial water supports a complex community of aquatic plants, invertebrates and amphibians.

Why it matters:

Twin Lake hides behind its larger sister, Morgan Lake, on Glass Hill. Construction of a small dam in the early 1900s increased the size and depth of Morgan Lake, creating a reservoir for irrigation and, soon thereafter, electrical power. Water released from the dam tumbled down 1,000 feet, passing through turbines to generate electricity for the growing town below. Twin Lake, however, escaped development and remains a place of peaceful natural beauty.



By the 1960s local power no longer depended on the dam, and Morgan Lake reservoir appeared to be doomed to become an exclusive, gated development of waterfront homes. Against long odds, a dedicated group of local conservationists affiliated with the Isaak Walton League helped to forestall this plan. The lakes and remaining wetlands were deeded to the city of La Grande in 1967, providing some measure of protection for native vegetation, wildlife, and recreation.

Today the city of La Grande owns and manages the property as Morgan Lake Park. Stocked with fish each summer, Morgan Lake attracts boaters, fishers and picnickers. Twin Lake, though part of the park, has largely escaped public attention. Somewhat hidden to the west, it remains in near pristine condition, where it provides refuge for an extraordinary diversity of emergent aquatic plants, invertebrates, reptiles, amphibians, and countless seasonal nesting birds and annual migrants.

These ridgetop wetlands harbor secrets of some ancient geologic magic. No inlet stream enters either lake, yet both Twin and Morgan lakes remain wet year-round. Subterranean springs pump water upward from an active aquifer hidden somewhere below. Snowmelt also contributes moisture to the system.

Twin Lake comprises a broad, shallow pond filled with emergent plants that exhibit surprising botanical diversity. A lush growth of native great yellow pond-lilies (*Nuphar polysepala*) thrust their large flowers up through dense mats of floating leaves. Common bladderwort (*Utricularia vulgaris*) catches and digests tiny insects and crustaceans in trapdoor bladders hidden among their leaves submerged beneath the water. An unusual plant known as bogbean (*Menyanthes trifoliata*), found nowhere else along Glass Hill, flourishes in Twin Lake.

The threat:

Idaho Power Company has applied for a permit to construct a 500-kilovolt power line that would run through the property directly adjacent to Twin and Morgan Lakes. Following official condemnation of the surrounding private lands, deep blasting will commence in order to set the footings prior to construction of immense towers. In addition to a higher wildfire threat from the high-voltage lines, construction and operation of the power line will introduce invasive plant species and possibly alter the area's hydrology irreparably.

The underlying geology of Glass Hill is complicated and not well understood. No one knows exactly how the flow of subterranean water to Twin and Morgan Lakes might be altered by tower construction. Without life-sustaining spring water, Twin Lake may dry up quickly, leaving behind only a dry, fire- and weed-prone field of little ecological value.

My place in this place:

The origin story of Glass Hill includes explosive volcanic eruptions, lava flows from ancient fissures in the underlying rock, and faults thrusting layers of basalt upward in seismic events buried in long, geologic time. Next, layers of fine volcanic ash spewing from the great eruptions of Mt. Mazama 7,700 years ago added layers of fertile soil throughout the forests of northeast Oregon. Indigenous people walked this ridge for many thousands of years, creating their stories and life histories in harmony with the land. People from the Cayuse, Umatilla, Walla Walla and Nez Perce Tribes arrived to harvest abundant camas bulbs and fish in the Grande Ronde Valley below.

Eventually wagon trains following the Oregon Trail westward from Missouri brought many new people to this place, including some of my own ancestors. Changes to the landscape were profound, as farming, mining and railroads replaced sustainable hunting and gathering. As a botanist, I grieve the many losses and acknowledge that what remains is precious.



Plants emerge from Twin Lake. Photo: Karen Antell

Innumerable stories could be told about the complex web of interactions of any native ecosystem. These stories inform the collective wisdom and experiences of the communities they embrace. Our lives, like those of Indigenous people before us, become impoverished when these connections disappear from living memory. I feel protective of this place and have sought to keep knowledge of the natural ecosystems alive through public education. The unique wetlands springing to life along this obscure ridge top might continue to fill us with wonder and inspiration for many more generations, if we can only keep it whole.

Who's protecting it now:

Twin Lake has no official protection beyond its inclusion within Morgan Lake Park. A grassroots organization, the [Stop B2H Coalition](#), has formed in opposition to the transmission line, which will run 305 miles and require 1,200 towers.

What this place needs:

Strong environmental protection ultimately requires time, money, political savvy, and sustained community involvement. The economic forces driving big energy projects like this one quickly overwhelm small communities. Twin Lake needs the legal protections that a strong conservation easement might provide. Legal documents require attorneys. Attorneys require fees. Fundraising requires dedicated volunteers, donors, and an engaged community.

Lessons from the fight:

We must practice constant vigilance. Concerned residents and the Isaak Walton League helped save this area once before from commercial development. We became complacent, assuming that this special, peaceful place would always be here for morning birdwatching, afternoon walks, and summer star-gazing. No one ever imagined that the day would come in which the very existence of this important wetland would be threatened by construction of high-voltage electrical power lines. Special places require special protections, and once the threat appears, it may be too late.

Susan Geer's Opening Testimony PCN 5

Exhibit 105

Why Scientists Are Rallying To Save Ponds

From The Revelator 2022

Text from online article

Why Scientists Are Rallying to Save Ponds

Humble ponds have a key role to play in fighting climate change and aiding conservation — but only if we protect them.

Oceans & Clean Water

November 7, 2022 - by Jack McGovan

Thomas Mehner's research team has spent the past few years wading through ponds in Brandenburg — the state surrounding Germany's capital city, Berlin. It wasn't the increasingly hot summers that forced them into the cool water. They were collecting samples for analysis — something not many other people are doing.

"Northeast Germany is blessed with lakes, so if you talk with people about ponds, they say, 'Are they so important?'" says Mehner, a researcher at the Leibniz-Institute of Freshwater Ecology and Inland Fisheries in Friedrichshagen, Berlin.

The answer, it turns out, is yes.

Ponds take so many forms across the world that the word "pond" can be quite difficult to define. Typically, however, they're smaller and shallower than lakes. As to their importance, research suggests that ponds are better for biodiversity than many larger bodies of water. They've been found to support more plants and animals overall, including many endangered species.

That's part of what guides Mehner's research on ponds. His team gathers information on insect larvae and environmental DNA to detect the presence of fish and amphibians. They also collect traces of greenhouse gases like methane and carbon dioxide to examine the link between the biodiversity of water bodies and its impact on emissions in the environment.

Their work is part of a larger effort.

Mehner is the German partner for POND Ecosystems for Resilient Future Landscapes in a changing climate — PONDERFUL, for short. The international project examines hundreds of ponds across Europe — and beyond — to see how they can help provide climate change solutions and boost conservation.

But for these often-ignored water bodies to help us and support wildlife, researchers say ponds also need protections.

Establishing Safeguards

Ponds can be just as diverse as the ecosystems they support. In Germany, for example, ponds were typically carved out by glaciers during the last ice age, says Mehner. In the United Kingdom, they were largely excavated by farmers for rearing cattle. Some ponds are a permanent fixture of the landscape, while others only exist during certain periods of the year.

Regardless of their origins, ponds have helped provide refuge for wild animals and plants. Unfortunately, despite decades of research showing ponds' importance to biodiversity, they're often overlooked by policymakers and the public.

The current policy that covers standing waters in the U.K. and European Union — the EU Water Framework Directive — largely excludes bodies of less than 50 hectares.

As a result, ponds are essentially ignored, which means they're not monitored by authorities and are allowed to languish, blocking potential climate and biodiversity benefits.

PONDERFUL hopes to change this. One of its major goals is to gather data that can be shared with policymakers to highlight the importance of ponds so they're given more attention.

Pond with vegetation on the banks

A PONDERFUL project in Switzerland. Photo: Julie Fahy (CC-BY-NC-ND)

Disappearing Ponds

Time is of the essence.

Some of the ponds that Mehner studies are located in the small municipality of Schöneiche, on the border of Berlin and Brandenburg, where ponds are disappearing.

“This is really a reflection of climate change,” he says. The lack of rain in recent years has depleted the ponds, which also suffer from urban pressures. Berlin consumes a lot of groundwater from surrounding areas, further pushing the groundwater-fed ponds to the breaking point.

This isn't an isolated problem.

Research from the Swiss Federal Institute of Aquatic Science and Technology found that 90% of ponds in Switzerland have been lost over the last two centuries. The U.K. had an estimated 800,000 ponds at the start of the 20th century; today less than a quarter of those remain. In Austria, researchers found that 70% of temporary saline ponds were lost over a 60-year period.

Unlike in Brandenburg, in these countries the loss of ponds has been linked to agricultural intensification, with farms either filling in the ponds, ploughing over them or draining them.

Global Action

Whatever the reason for their perilous states, researchers hope that better data can help guide government policy.

There's evidence elsewhere that it can.

Elias Bizuru, director of research and innovation at the University of Rwanda, helped to build the Rwanda Biodiversity Information System. Starting in 2018, researchers collected data from wetlands and other freshwater habitats and made it all available on one system.

“The information related to biodiversity in Rwanda was scattered across institutions, and getting that information was a very, very big challenge,” says Bizuru. Without the information at hand, researchers like himself found it difficult to make suggestions on the kind of actions decisionmakers should take to protect wetlands.

When they do have easily accessible data, Bizuru says, the Rwandan government can be quite successful in its interventions. The Nyandungu Eco-Tourism Park, for example, was a degraded wetland six years ago. Now, after a restoration project, it's host to a wide range of native species, including dragonflies, snakes, amphibians, birds and a range of plants.

Another restoration project in Switzerland created hundreds of new ponds and managed to increase the regional populations of eight endangered frogs, toads and newts, especially helping the European tree frog. The effort helped boost those regional populations by 52%.

In the U.K., the Norfolk Pond Project has conducted similar work. Carl Sayer and Helen Greaves, colleagues in the geography department at University College London, have together helped to restore more than 200 ponds originally dug for agricultural purposes.

To restore them, Sayer and Greaves would simply clear up mud and remove trees from the area, letting nature do the rest. A study published by the pair in 2020 highlighted significant increases in aquatic plants, invertebrates and amphibians after their interventions.

frog in shallow clear water

A European tree frog. Photo: Nicholas Turland (CC BY-NC-ND 2.0)

“You’re almost reinstating natural processes, really, because in a natural state ponds are disturbed,” Sayer says.

Cascading Effects

Ponds don’t only exist in rural areas.

Zsófia Horváth, a community ecologist at the Institute of Aquatic Ecology in Budapest, runs a citizen science campaign for ponds in urban areas across Hungary. Her research team has collected biodiversity data from 386 ponds and surveyed more than 800 pond owners to find out which interventions people can take to make their ponds more biodiverse.

During a previous research project in Austria, she found that if one pond disappears, others suffer.

She tells me that ponds function for the species they host the same way islands might for humans at sea. The more islands are lost, the more precarious it becomes for a seafarer to access the resources they need to survive.

“You’re taking out these important members of the network,” she says. Their research looked into zooplankton populations — crustaceans and rotifers — since the 1950s and found that species loss correlated with a reduction in the number of ponds in the area.

The idea that it’s important to create networks of ponds is also shared by Sayer, and it’s a long-term goal of the Norfolk Pond Project.

“I’d love to see whole areas joined, where we restore ponds in one landscape and another, and then we link it all up,” he says.

Ensuring such networks become a reality, however, requires more data, Horváth says.

“It’s so easy to ignore a habitat if you don’t know what kind of service it can offer humanity,” she says. “It’s kind of a very profane, human-oriented point of view — but this is how policymakers and the general public work.”

Susan Geer's Opening Testimony PCN 5

Exhibit 106

McAllister letter to Spence 2017

Stu Spence <sspence@cityoflagrande.org>

In response to your call for information (Date: Fri, Aug 11, 2017 at 11:16 AM - Subject: B2H Morgan Lake) – “The City of La Grande is currently providing input to Idaho Power for their Boardman to Hemingway Transmission Line Project. Their current proposed route crosses the boundary of Morgan Lake along the West and Southwest and I have some major concerns about the environmental impacts on Little Morgan Lake. That’s where I need your help.”

I encourage you to emphasize to Idaho Power that - the first stated goal in the Morgan Lake Park Recreational Use and Development Plan (Section 1, Page 2) - *A goal of minimum development of Morgan Lake Park should be maintained to preserve the maximum of natural setting and to encourage solitude, isolation, and limited visibility of users while at the same time providing safe and sanitary condition for users.*

Morgan Lake Park encompasses two separate Lakes; Morgan Lake is 70 acres in size and is developed with road access and camping. Lower Morgan Lake is 27 acres in size, undeveloped, and with no road access or camping. Here it is important that we make one important clarification that (although little known) Little Morgan Lake is officially recognized by both the State of Oregon, and by Federal Agencies as Twin Lake (See USGS – Hilgard Quadrangle Topographic Map). This is especially confusing because the City of La Grande’s Morgan Lake Park Plan recognizes Twin Lake as “Lower Morgan Lake.” Semantics yes, but here is the reason that Twin Lake be recognized for this discussion. Twin Lake has been identified by both Federal and State efforts to conserve, restore, and protect wetlands. Oregon has developed a Wetland Conservation Strategy (Oregon Division of Lands, 1993). This Strategy is implemented through the Oregon Wetlands Inventory and Wetlands Conservation Plans (See Webpage). This planning process allows local governments to balance wetlands protection with other land-use needs. Twin Lake was recognized as an important – persistent emergent wetlands that includes both submersed and floating plants.

Between 1979 and 1987, I lived on Sheep Creek – within ¼ mile of Twin Lake. Most days I walked the south shore of the lake on my way to Eastern Oregon University where I was a student. In 1985, I received a B.S. degree from the University of Idaho in Wildlife Resources. Since graduation I have worked as independent contractor specializing in wildlife and vegetation inventory. My very first contract was with the Nature Conservancy – Baseline Inventory of Wildlife and Vegetation for the Downey Lake Preserve in Wallowa County. There I mapped all vegetation communities, emergent to upland. Like Downey Lake, Twin Lake is recognized in the Oregon Wetlands Inventory. Both are distinct wetlands anomalies in the Blue Mountain Ecoregion

Although I have not mapped the wildlife and vegetation communities of Twin Lake, I am empirically familiar with them for the past 38 years. This pristine wetland, and the surrounding uplands, have been uniquely preserved over time. The native integrity of Twin Lake is virtually

unchanged. In fact, both the Osprey and the Bald Eagle have established nesting since I moved here.

Twin Lake, at 4,100 feet elevation, supports one of the most unique waterfowl nesting communities in the Blue Mountains. Most unusual is the nesting by: Ring-necked Ducks, Red Head, Rudy Duck, Blue-winged Teal and Pied-billed Grebe. Other nesting waterfowl include: Shoveler, Green-winged Teal, Mallard, and Canada Geese.

Rush Sedge and Marsh Birds.

Increasing the species diversity surrounding this wetlands anomaly, the lake is created by natural basalt rim rocks along the south and west edge. Here the vegetation is a diverse mixture of native shrubs, Aspen, Black Cottonwood, and Ponderosa Pine. These surrounding shrub and tree communities support as rich an assortment of both migratory and nesting passerine birds as can be recognized across the Blue Mountain Ecoregion.

And with this species richness, so come the Raptors – both nesting and migratory.

Clearly, I understand why you have major concerns about the environmental impacts that a 500 kv Transmission Line would have towering along the south and west sides of Twin Lake. I assume that it was impacts on resources like Twin Lake that resulted in the Bureau of Land Management (BLM) identifying the Glass Hill Alternate as having the Least Environmental Impact – Hilgard to Ladd Canyon Reach.

I hope that the City also expresses concerns about the visual impacts that this Transmission Line would have on one of La Grande's and Union Counties premier viewsheds. Every visitor to Morgan Lake, at the top of the Blue Mountains, would have to first confront a visual assault from Idaho Power.

I encourage you and the City of La Grande to advise Idaho Power to Amend their Application for Site Certificate to include the Glass Hill Alternate Route - the BLM's "Least Environmental Impact Route." This will give the State of Oregon the opportunity to evaluate what Idaho Power has clearly disregarded.

Respectfully

Michael McAllister, wildlandmm@netscape.net

Susan Geer's Opening Testimony PCN 5

Exhibit 107

Deed of Conservation Easement

from Joel Rice to RMEF 2001

20015945

After Recording, Return to:
 Rocky Mountain Elk Foundation
 Attn: Legal Department
 P.O. Box 8249
 Missoula, MT 59807-8249

Mill Creek, Oregon

Deed of Conservation Easement

THIS DEED OF CONSERVATION EASEMENT ("Easement"), dated this 28th day of December, 2001, is made by Joel D. Rice whose address is 59878 Glass Hill Road La Grande, Oregon 97850 (the "Grantor"), and the ROCKY MOUNTAIN ELK FOUNDATION, INC., a Montana non-profit corporation whose address is 2291 West Broadway, P.O. 8249, Missoula, Montana 59807-8249 (the "RMEF");

RECITALS:

WHEREAS the purpose of this Easement is to protect forever the relatively natural wildlife habitat, open space forest land and other natural and open space values of the real property described below, assuring its availability for forest, recreational and open space use, and protecting natural resources through private conservation efforts, which are recognized in the Oregon Conservation and Highway Scenic Preservation Easements Act, ORS (Oregon Revised Statutes) §§ 271.715 to 271.795, inclusive, (1999); and

WHEREAS the Grantor is the sole owner in fee simple of certain real property in Union-County, Oregon, described in the attached Exhibit A (the "Property") and approximately located on the map attached as Exhibit B, and owns the rights to identify, to conserve and protect in perpetuity, and to enhance by restoration the Conservation Values of the Property; and

WHEREAS the Property has significant relatively natural habitat for native wildlife and open space forest land and assuring its availability for forest, recreational and open space use, and protecting natural resources as recognized in the Oregon Conservation and Highway Scenic Preservation Easements Act, ORS §§ 271.715 to 271.795, inclusive, (1999); and the Grantor intends to convey this Easement under ORS §§ 271.715 to 271.795, inclusive, (1999), and other applicable provisions of Oregon statutory and common law; and

WHEREAS the Property constitutes a valuable element of the natural habitat of the Grande Ronde watershed and ecosystem and the ecosystem's natural values, including flora, fauna, and soils; the Property provides significant habitat for elk and provides habitat for deer, bear, mountain lion, and other regional Oregon wildlife, and the maintenance of such natural habitat helps support wildlife populations in the Blue Mountain ecosystem. In particular, the Property serves as a migration corridor for wildlife moving from the Blue Mountains into Ladd Marsh, the largest protected wetland in the Grande Ronde Watershed. These natural and wildlife values, (collectively, the "Conservation Values") are of great importance to the Grantor and to the people of the State of Oregon, and are worthy of conservation; and

Return to: *Joel Rice*
 59878 Glass Hill Rd. La Grande

WHEREAS the Grantor desires and intends that the Conservation Values of the Property be conserved and maintained by the continuation, initiation, or introduction of activities on the Property that will not interfere with or substantially disrupt the Conservation Values, including the Permitted Uses identified in Section III; and

WHEREAS the RMEF is organized to conserve and protect natural areas and significant wildlife habitat for ecological, scientific, charitable, and educational purposes; and the RMEF is a qualified private organization and conservation easement holder under the terms of Oregon Conservation and Highway Scenic Preservation Easements Act, ORS §§ 271.715 to 271.795, inclusive, (1999); and the RMEF is a qualified organization under §170(h)(3) of the Internal Revenue Code to receive and hold conservation easements and meets the conditions of the Internal Revenue Code as a 501(c)(3) exempt organization; and

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and pursuant to Oregon Conservation and Highway Scenic Preservation Easements Act, ORS §§ 271.715 to 271.795, inclusive, (1999), and other applicable provisions of Oregon statutory and common law, the Grantor hereby grants, conveys and warrants to the RMEF this perpetual Easement over the Property. The scope of this Easement is set forth in this Deed of Conservation Easement.

Section I: Rights of RMEF

The rights conveyed by the Grantor to the RMEF to perpetually maintain the Conservation Values of the Property in this Easement include the following:

A. **Identification and Protection:** The RMEF has the right to identify, to conserve and protect in perpetuity, and to enhance by mutual agreement the Conservation Values on the Property in the manner set forth in this Easement, subject, however, to the Grantor's reserved rights in this Easement.

B. **Access:** The general public is not granted access to the Property under this Easement. The RMEF shall have the right of immediate entry upon the Property if, in the RMEF's sole judgment, such entry is necessary to prevent immediate damage to or the immediate destruction of the Conservation Values of this Easement. The parties acknowledge that Grantor does not currently have recorded access to that portion of the Property in Section 5, T4S, R38E. However, Grantor is currently seeking such legal access, potentially through the purchase or exchange of lands. In the event Grantor obtains legal recorded access to Section 5 of the Property, he shall provide RMEF such legal recorded access.

The RMEF has the right to enter upon the Property to inspect, monitor, and enforce compliance with this Easement once a year and at other reasonable times with advance notice to and permission from the Grantor or Grantor's agent, said permission not to be unreasonably withheld. The RMEF also has the right to enter upon the Property with advance notice to and permission from the Grantor or Grantor's agent to undertake observations or ecological studies of natural resources protected by this Easement in a manner that will not unreasonably interfere with the use of the Property by the Grantor.

C. **Conservation, Enforcement, Injunction, and Restoration:** The RMEF has the right to prevent any activity on, or use of, the Property, which is inconsistent with this Easement. The RMEF is entitled to take any legal or equitable action to prevent such activity, including, but not limited to, obtaining an injunction in a court of competent jurisdiction. The RMEF also has the right to enforce the restoration of such areas or features of the Property as may be damaged or impaired by any activities or failure to take action to prevent such activities which are inconsistent with this Easement.

D. **Signs:** The RMEF has the right to place signs on the Property which identify the Property as being protected by this Easement. The number and location of the signs are subject to the Grantor's approval, which approval will not be unreasonably withheld.

Section II: General Effect of Easement

A. **Perpetual Restrictions:** This Easement shall run with and encumber the title to the Property in perpetuity and shall bind the Grantor and all future owners, tenants, licensees, occupants and users of the Property.

B. **Permitted Uses in General:** This Easement shall confine the use of the Property to activities such as the Permitted Uses, discussed in Section III below, consistent with the purposes and terms of this Easement. Any activity on or use of the Property inconsistent with the purposes or terms of this Easement or detrimental to the Conservation Values is expressly prohibited.

C. **Dedication of Property:** Pursuant to the terms of Oregon Conservation and Highway Scenic Preservation Easements Act, ORS §§ 271.715 to 271.795, inclusive, (1999), the Property conserved by this Easement is declared to be natural, and wildlife habitat, and may not be converted or directed to any uses other than those provided in this Easement.

Section III: Permitted Uses and Practices

The following uses and practices, while not an exhaustive recital of permitted uses and practices, are consistent with this Easement. These uses and practices may not be precluded or prevented by this Easement, except when this Easement requires prior approval of an activity by the RMEF as provided in Section IV of this Easement or when such use or practice is conducted or allowed to take place in a manner which violates the terms of this Easement, poses a serious threat of material damage to the Conservation Values protected by this Easement, or constitutes a prohibited use or practice as set forth in Section V of this Easement.

A. **Recreational Facilities:** Cabin at Winn Meadow. The Grantor may maintain, repair and replace one existing cabin on the Property, located in Winn Meadow and approximately located on the map at Exhibit B. The replacement cabin will not exceed 1,000 square feet in size, and will be located on the same or similar site. One outbuilding may be constructed, maintained, repaired associated with and located within 100 feet of the cabin. Neither the cabin nor outbuilding may be used for long-term (greater than two weeks) habitation.

B. **Recreational Uses:** Unless otherwise restricted herein, any recreational use that does not impact the Conservation Values, in particular wildlife and wildlife habitat, is permitted.

The following recreational uses are expressly agreed to by the parties:

1. **Hunting and Fishing:** Hunting, fishing and trapping, in a manner consistent with state and federal laws and regulations, are permitted on the Property. The intent of this provision is to permit levels of hunting, fishing and/or trapping which are not detrimental to the elk, wildlife, and fish populations. The parties agree and acknowledge that controlled hunting may be desirable to balance wildlife numbers with the condition of range and habitat.
2. **Winter Recreational Activities:** Any recreational use which does not significantly impact the Conservation Values, in particular the value of the property as winter range for wildlife including elk.

C. **Fences:** The Grantor may construct, maintain, replace and repair fences along the border of the Property without prior approval of RMEF. Localized fences may be constructed as necessary to control drifting snow without prior approval of RMEF. No big game proof fences will be constructed on the Property.

D. **Utilities:** The Grantor may construct or install utility structures and/or systems, which are necessary for the permitted ranching activities and/or existing or permitted structures. The Grantor may not grant a major utility corridor right-of-way across the Property. However, in the circumstance where eminent domain statutes apply and clear public necessity has been demonstrated to the parties, such a right-of-way may be granted by the mutual agreement of the parties.

E. **Roads:** The Grantor may maintain existing roads, and, with prior approval of the RMEF may construct new roads as necessary for the permitted uses of the Property under the terms of this Conservation Easement. Any road shall be sited, constructed, and maintained to minimize adverse effect on the Conservation Values of the Property. Any road constructed for temporary use must be stabilized and protected from erosion and weed invasion within six (6) months after discontinued use. The Grantor may only grant right-of-way easements across the Property with the prior approval of the RMEF.

F. **Range Management and Ranching Activities:** The Grantor may use the Property for common or typical ranching and farming activities, including grazing, feeding, breeding, raising, and managing livestock, provided these activities do not materially jeopardize the Conservation Values. The term "livestock" includes livestock that are considered "traditional" at the time of the execution of this Easement and within the local area surrounding the Property. Traditional livestock shall not include any of the game farm animals discussed in Section V, Subsection C of this Easement.

Good range stewardship and proper management of any domestic livestock are integral to the protection of the wildlife habitat and other Conservation Values protected by this Easement. As such, all activities affecting range health will be conducted in a manner that fosters and/or

maintains the ecological function of the land and water processes including the water cycling, mineral cycling, energy flow and plant community succession. Livestock grazing shall not exceed a degree of use described as moderate by the United States Department of Agriculture - Natural Resource Conservation Service, as identified in Exhibit C, attached hereto, and shall not materially degrade or deteriorate the range and wildlife and riparian habitat. If the RMEF, in its sole discretion, decides that the grazing on the Property exceeds a moderate degree of use at any time or range management is detrimental to the Conservation Values, the Grantor will prepare or have prepared a Grazing Management Plan ("GMP") to govern grazing activity on the Property. The GMP shall be prepared by a qualified natural resource specialist and reviewed and approved by the RMEF, as provided in Section IV. The RMEF reserves the right to have consultants, including range scientists, fisheries biologists, hydrologists, ecologists, and wildlife biologists, review the GMP and make on-site evaluations to provide recommendations to the RMEF and the Grantor.

If a GMP is required, the GMP shall be prior to any grazing activity and shall be paid for by the Grantor. The GMP will consider the long-term health of the range resource and wildlife habitat. The GMP will describe appropriate use levels, seasons of use, kinds of livestock that will be grazing and necessary management practices. The GMP must meet all applicable state and federal laws, policies, guidelines, and regulations. Once a GMP is required, all livestock grazing taking place on the Property must comply with the GMP.

G. Water Resources: In accordance with applicable laws and regulations, the Grantor may maintain, enhance and develop water resources on the Property for permitted agricultural and ranching activities, domestic needs, fish and wildlife uses and private recreation. The Grantor may not sever any water rights from the Property except to legally designate those water use rights for in-stream flows. The Grantor will make reasonable efforts to ensure continuation of instream flows.

The Grantor may also carry out activities that will restore and enhance the aquatic, terrestrial, and wetland habitat for fish and wildlife use and production after prior notice and approval of RMEF. Such activities may include stream bank stabilization, improvement to the quality and quantity of water available, and development of watering facilities and ponds, provided such activities are conducted in a manner consistent with state and federal laws and regulations and do not conflict with the intent of this Easement.

H. Agrichemicals and Biological Controls: The Grantor may use agrichemicals and biological controls, including but not limited to insects, fertilizers, biocides, herbicides, pesticides, insecticides and rodenticides, but only in accordance with all applicable laws and in those amounts and with that frequency of application constituting the minimum necessary to accomplish reasonable ranching and grazing objectives. The use of such agents shall be conducted in such a manner as to minimize any adverse effect upon the natural values of the Property and to avoid any impairment of the natural ecosystems and their processes.

I. Predators: In accordance with all applicable laws, the Grantor may control predators that have caused or threaten to cause damage to persons, livestock, or property. Whenever possible, control of predators shall be limited to the specific animals that caused or threaten to cause the damage.

J. **Forest Management:** Maintenance of a healthy forest and tree cover is integral to wildlife, wildlife habitat, and water quality. As such, all activities affecting the forest and tree cover will be conducted in a manner that maintains healthy forest conditions over time and sustains and perpetuates the mix of naturally occurring species in representative ages and group sizes, in accordance with good and sound silvicultural practices and with best management practices for the benefit of wildlife.

The Grantor may: (i) cut trees for posts and poles for use on the Property; (ii) cut and gather dead, dying and down trees for firewood for personal use; (iii) cut or prune trees and brush, which constitute a hazard to persons, property, or road; (iv) harvest windthrow; and (v) cut and remove diseased trees in a revenue neutral, pre-commercial thinning. Provided that any additional roads required for pre-commercial thinning receive approval from RMEF prior to construction. Conservation and wildlife values being of primary concern, these additional roads shall be reviewed to assure that their construction and use will not adversely affect stream quality or watershed function.

All other proposed tree cutting, including the cutting and removal of trees to abate disease or infestation, to perpetuate a healthy forest, or to provide or enhance diverse habitat for elk and other wildlife, and any commercial timber harvesting, will be conducted in accordance with an approved Timber Management ("TMP") prepared by a qualified natural resource manager or professional forester. The TMP must be approved by the RMEF, as provided in Section IV, prior to any tree cutting activity other than that listed in parts i-v in the immediately preceding paragraph. The RMEF reserves, at the cost of RMEF, the right to have consultants such as professional fisheries biologists, hydrologists, ecologists, wildlife biologists, etc. review the TMP and make on-site evaluations to provide recommendations to the RMEF and the Grantor. The TMP will encompass the long-term management of the forestland to provide diverse habitat for elk and other wildlife, to perpetuate a healthy forest, to maintain scenic quality, and to abate erosion. Timber harvest activity will be undertaken at times and by methods that will have the most reasonably minimum impact on the use of the Property by wildlife. All applicable state and federal forestry laws, plans, practices, guidelines and regulations must be met. The TMP may incorporate requirements from Forest Practices Acts of other states or jurisdictions as enforceable contractual provisions between the parties.

K. **Non-native Species:** The Grantor may not introduce any undesirable non-native plant species, as defined or listed under state or federal law. The Grantor may reseed areas disturbed by timber practices, as permitted in Section III, Subsection J, with high quality, certified weed-free seed that is commonly used in timber harvest restoration in Oregon and that is acceptable to the natural resource agencies in Oregon.

L. **Residual Rights:** Except as limited by this Easement, the Grantor may exercise and enjoy all rights as owner of the Property, including the right to use the Property for any purpose consistent with this Easement.

Section IV: Prior Approval of Actions by RMEF

If any provision of this Easement requires the Grantor to obtain the prior approval of the RMEF before performing any act or undertaking any enterprise, or if any act or enterprise is contemplated but not addressed in Section III or Section V of this Easement, then the Grantor shall not perform that act or undertake that enterprise until it has satisfied the notice and approval provisions of this Section. Nothing in this Section shall prohibit or limit in any manner the ability of the RMEF to obtain writs or injunctive relief relating to any violation of this Easement.

A. **Grantor's Written Notice:** Prior to the commencement of any activity, use or enterprise which requires the RMEF's approval, the Grantor will notify the RMEF in writing of the activity, use or enterprise which the Grantor intends to undertake. This notice must inform the RMEF of all material aspects of such proposed activity, use or enterprise. The Grantor will send such notices to the RMEF by registered or certified mail, return receipt requested, addressed to the RMEF at P.O. Box 8249, Missoula, Montana 59807-8249, Attention: Lands Department, or to such other address as the RMEF may designate in writing.

B. **RMEF's Response:** The RMEF shall have forty five (45) days from the date that it receives such notice, as indicated by the registered or certified return receipt, to review the proposed activity, use, or enterprise, and to notify the Grantor of any objections that it may have to the activity, use, or enterprise. The objections, if any, shall be based upon the RMEF's opinion that the proposed activity, use or enterprise may cause material damage to the Conservation Values and is therefore inconsistent with the purpose and/or provisions of this Easement. If in RMEF's sole opinion, the notice does not inform RMEF of all material aspects of such proposed activity, use or enterprise, the RMEF's response may be a temporary objection, specifically requesting additional material information. RMEF shall then have forty five (45) days from the date it receives additional requested information, as indicated by the registered or certified return receipt, to review the proposed activity, use, or enterprise, and to notify the Grantor of any objections that it may have to the activity, use, or enterprise. If, in the RMEF's judgment, the proposal set forth by the Grantor can be modified to avoid material damage to the Conservation Values and therefore conform with the purpose and provisions of this Easement, then the response shall inform the Grantor of the manner in which the proposed activity, use or enterprise can be modified to be consistent with this Easement. Except as provided in Subsection C of this Section, the Grantor may commence or conduct the proposed activity, use, or enterprise only if it receives the RMEF's express written approval, and only in the manner explicitly proposed by the Grantor and approved by the RMEF. The RMEF will send such response to the Grantor by registered or certified mail, return receipt requested, addressed to the Grantor at 59878 Glass Hill Road La Grande, Oregon 97850, or to such other address as the Grantor may designate in writing.

C. **RMEF's Failure to Respond:** If the RMEF fails to post its response to a proposal sent to it by the Grantor within forty five (45) days after it receives the proposal, then the proposed activity, use or enterprise shall automatically be deemed consistent with the terms of this Easement, and the RMEF will have no further right to object to the activity, use or enterprise described in the proposal.

D. **Force Majeure:** The Grantor will not be obligated to send any prior notice to the RMEF, and the RMEF will not be entitled to bring any action against the Grantor, with respect to any prudent activity undertaken by the Grantor immediately before, during, or following such event in a good faith effort to prevent, abate, or mitigate injury to the Property from fire, flood, storm, earth movement, acts of war, and similar causes beyond the control of the Grantor. The Grantor will promptly inform the RMEF of injury to the Property caused by such events or actions.

Section V: Prohibited Uses and Practices

Any activity on or use of the Property inconsistent with the purposes of this Conservation Easement or which is likely to cause material damage to the Conservation Values is expressly prohibited. The Grantor states and agrees that the following uses and practices, though not an exhaustive recital of inconsistent uses and practices, are deemed to be inconsistent with the purposes of this Easement, and shall be prohibited.

A. **Residential Facilities:** Notwithstanding the recreational cabin for temporary use expressly allowed in Section III, subsection A, residential facilities are prohibited on the Property.

B. **Commercial Facilities and Activities:** Any commercial activities that significantly damage or interfere with wildlife or wildlife habitat are prohibited. Prohibited commercial uses include, but are not limited to, any restaurant, night club, campground, trailer park, bed and breakfast, motel, hotel, guest ranch, commercial swimming pool, snowmobiling, gas station, equestrian park, ski area, retail outlet or facility for the manufacture or distribution of any product.

C. **Game Farming or Game Farm Animals:** The Grantor will not construct, conduct, or operate a game farm, or raise or hold game farm animals on the Property. Game farm animals include game farm animals regulated or prohibited by the Oregon legislature or the Oregon Fish and Wildlife Commission under ORS § 496.012 and Administrative rules 635-049-0000 through -0350, or successor statutes and regulations, and also include penned, enclosed or privately-owned caribou, black bear, grizzly bear, mountain lion, white-tailed deer, mule deer, black-tailed deer, coues deer, elk, moose, antelope, mountain sheep, mountain goat, red deer, and any other cloven-hoofed ungulate which is indigenous to Oregon or which could interbreed with or spread disease to any cloven-hoofed ungulate indigenous to Oregon.

D. **Wildlife Disturbance or Harassment:** Harassment of elk or other wildlife by people, vehicles or domestic animals is prohibited. Lawful hunting is not wildlife disturbance or harassment.

E. **Alteration of Watercourses and Topography:** The Grantor will not change, disturb, alter, excavate, or impair any watercourse or wetland on the Property, except as expressly permitted by Section III, of this Easement. The Grantor will not change the topography of the surface of the Property except as incidental and necessary to expressly permitted activities.

F. **Non-native Species:** The Grantor will not introduce into of the Property any non-native plant or animal species, except as provided for in Section III, Subsection K of this Easement.

G. **Subdivision:** Notwithstanding that the Property includes two geographically separated parcels, the Grantor does not have the right to divide, subdivide the Property, place any parcels under separate ownership, or take any action which creates an actual or *de facto* division or subdivision of the Property.

H. **Construction:** The Grantor will not construct any structures or facilities except as specifically provided for in Section III, Subsection A and G.

I. **Roads:** The Grantor will not construct any new roads except as specifically provided for in Section III, Subsection E.

J. **Off-Road Vehicles:** The Grantor shall not use vehicles off of existing roads and travelways in a manner that may result in significant erosion or compaction of the soil, impact on the natural appearance of the Property, damage or destruction to vegetation, or interference with use of the natural habitats by the wildlife species occurring on the Property. The parties recognize, however, that the use of off-road vehicles may be necessary in property management and retrieval of harvested big game animals, and such limited use is therefore expressly permitted, provided that all reasonable efforts are made to minimize any adverse impact of the use, consistent with the terms and intent of this Easement. Any off-road vehicle use must be consistent with the first sentence of this Subsection and with Section V, Subsection D.

K. **Commercial Feed Lot:** The Grantor will not establish or maintain any commercial feedlot. For the purposes of this Easement, a commercial feed lot shall be defined as a permanently constructed, confined area or facility within which the land is not grazed or cropped annually, for purposes of engaging in the business of the reception and feeding of livestock. Nothing in this subsection shall prevent Grantor from seasonally confining the Grantor's livestock into an area for feeding consistent with historical practices.

L. **Dumping and Deposit of Hazardous Waste:** No trash, debris, ashes, sawdust, and other non-compostable refuse may be dumped or otherwise disposed of on the Property, except that waste generated by the uses permitted in this Easement, and permitted by applicable state and federal laws. If the Grantor becomes aware of any accidental, illegal, or other placement or spilling of hazardous waste or toxic materials on the Property, the Grantor shall notify the RMEF on a timely basis.

M. **Utilities:** Other than those permitted in Section III, Subsection D, additional, non-residential and non-agricultural utility structures and systems are prohibited.

N. **Mineral Activities:** All surface or open pit exploration for extraction or removal of oil, gas, and other minerals, rock, gravel, or sand found in, on, or under the Property is prohibited. No sub-surface or other exploration or extraction of oil, gas, rock, gravel, sand, or other minerals, including the lease, sale, or other disposition of the rights to such materials, may impair or result in the destruction of the Conservation Values.

O. **Timber Harvesting:** The Grantor does not have the right to harvest timber on the Property except as specifically allowed in Section III, Subsection J.

P. **Raptor Nests:** The Grantor will not cut or disturb any trees or other vegetation within 300 feet of any known or readily identifiable active raptor nest during the nesting season, or remove any crown trees or overstory vegetation within 300 feet of any known or readily identifiable active raptor nest at any time. However, as specifically allowed in Section III, Subsection J, diseased trees may be cut down and removed during the non-nesting season to abate infestations, when consistent with applicable state and federal laws.

Q. **Billboards:** The Grantor will not construct, maintain, or erect any commercial signs or billboards on the Property. Small signage may, however, be displayed to state the name of the owner and the Property and that the Property is protected by this Easement, to prohibit any unauthorized entry or use, or to advertise for the sale of the Property.

R. **Aircraft Facilities:** The Grantor will not construct or erect any aircraft facilities or aircraft landing facilities on the Property.

S. **Cultivation or Farming:** Conversion of native vegetation to exotic cover species or the introduction of non-native plant or animal species; farming, plowing or any type of cultivation outside of existing cultivated areas is prohibited.

T. **Game Proof Fences:** Construction of Game Proof Fences is prohibited.

Section VI: Breach, Restoration, and Remedies

A. **Breach and Restoration:** If a violation or potential violation of any prohibition contained in Section V of this Easement or damage or potential damage to the Conservation Values associated with the Property, whether by the Grantor or by a third party, comes to the attention of the RMEF, the RMEF may notify Grantor in writing of such violation, potential violation, damage or potential damages. Upon receipt of such notice by the Grantor, the Grantor agrees to immediately cease and desist from any actions that may in any manner, potentially, possibly, or actually violate the terms or intent of this Easement and/or the prohibitions contained in Section V.

The Grantor shall have thirty (30) days after receipt of such notice to undertake actions, including initiation of restoration of the Property, that are reasonably calculated to swiftly correct the conditions caused by such violation. If the Grantor fails to take such corrective action, the RMEF may at its discretion undertake such actions, including appropriate legal proceedings, as are reasonably necessary to effect such corrections. The cost of such corrections, including the RMEF's expenses, court costs, and legal fees, shall be paid by the Grantor. However, in the event the Grantor, the Grantor's family, any shareholder or partner in the Property, any agent, guest or employee of the Grantor, or other persons permitted or allowed on the Property by the Grantor is determined to not be in violation of this Easement, then the Grantor's legal fees shall be paid by the RMEF. Provided, however, and notwithstanding any provision of this Easement to the contrary, the Grantor expressly agrees that if any activities are taking place on the Property which may potentially, possibly or actually violate the terms or intent of this Easement and/or the restrictions contained in Section V, the RMEF is entitled, at any time, to seek and obtain any

injunctive relief or writs from a court of competent jurisdiction so as to conserve and protect the Property until there is final resolution of any dispute.

B. Injunctive and Other Relief: The Grantor and the RMEF further intend that should the Grantor undertake or cause to be undertaken any activity which requires the prior approval of the RMEF without obtaining the prior approval of the RMEF in the manner required by Section IV of this Easement, or undertake or cause to be undertaken any activity in violation or potential violation of the terms of this Easement, then the RMEF, at the RMEF's sole election, shall have the right to obtain injunctive relief or writs from courts of competent jurisdiction to stop any unauthorized activities and/or force the restoration of that portion of the Property affected by such activity to a condition similar or equivalent to the condition that existed prior to the undertaking of such unauthorized activity. Such restoration may include, but is not limited to, restoring soils, replanting suitable domestic vegetation, and/or taking such other action as the RMEF deems necessary to achieve restoration. In such case, the costs of such restoration shall be borne by the Grantor or those of its successors or assigns against whom a judgment is entered, or, in the event that the RMEF secures redress without a completed judicial proceeding, by the Grantor or those of its successors or assigns who are otherwise determined to be responsible for the unauthorized activity.

C. Actual or Threatened Non-Compliance: The Grantor acknowledges that actual or threatened events of non-compliance under this Easement constitute immediate and irreparable harm. The RMEF is entitled to invoke the equitable jurisdiction of any court to enforce this Easement.

D. Cumulative Remedies: The remedies of the RMEF set forth in this Easement are cumulative. Any, or all, of the remedies may be invoked by the RMEF if there is an actual or threatened violation of this Easement.

E. Delay in Enforcement: Enforcement of the terms and provisions of this Easement shall be at the discretion of the RMEF. Any forbearance on behalf of the RMEF to exercise its rights hereunder in the event of any breach by Grantors or their respective heirs, personal representatives, or assigns shall not be deemed or construed to be a waiver of the RMEF's rights hereunder in the event of any subsequent breach.

Section VII: Costs and Taxes

The Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep and maintenance of the Property, including responsibility for the control of noxious weeds in accordance with Oregon laws. The Grantor shall pay any and all lawful taxes, assessments, fees, and charges levied by competent authority on the Property.

Section VIII: Indemnity

Grantor shall hold harmless, indemnify, and defend the RMEF and the RMEF's members, directors, officers, employees, agents, and contractors and the heirs, personal representatives, successors, and assigns of each of them from and against all liabilities, penalties, costs, losses, damages, expenses, causes of action, claims, demands, or judgments, including, without

limitation, reasonable attorney's fees, arising from or in any way connected with the presence or release of any hazardous material or substance of any kind on Grantor's Property. This paragraph shall not apply in the case of any hazardous material or substance in any manner placed on Grantor's Property by the RMEF or the RMEF's representatives or agents.

Section IX: Assignment of Easement

The RMEF may not transfer or assign its interest in the Property created by this Easement except to a "qualified organization" (within the meaning of §170(h) (3) of the Internal Revenue Code) which is organized or operated primarily or substantially for one or more of the conservation purposes specified in §170(h)(4)(a) of said Code. Any such qualified organization shall agree to enforce the conservation purposes of this Easement.

Section X: Baseline Data

The parties acknowledge that preliminary baseline data relating to the Property has been compiled and agree that a final baseline inventory will be completed by competent professionals familiar with the Property early in 2002, and furnished by the Grantor to the RMEF. Copies of this inventory of baseline data shall be kept on file in the RMEF's offices in Missoula, Montana and with the Grantor. The parties acknowledge that this preliminary collection of baseline data contains an accurate representation of the condition of the Property subject to this Easement and natural resources associated with the Property as of the date of the execution of the Easement and that the final Baseline Inventory shall provide further such information, all in accordance with Treasury Regulation §1.170A-14(g)(5)(i).

Notwithstanding the foregoing, in the event of a controversy arising with respect to the nature of the biological and/or physical condition of the Property, the parties shall not be foreclosed from using any and all other relevant or material documents, surveys, reports and other information to assist in the resolution of that controversy.

If range or habitat conditions significantly improve on the Property, the parties may agree to prepare an updated inventory of baseline data to document the improved conditions. The updated inventory of baseline data must be approved in writing by the parties. Upon approval by the parties, the updated inventory of baseline data will be used as the baseline for future monitoring.

Section XI: Extinguishment of Development Rights

The Grantor hereby acknowledges the extinguishment of all development rights except as specifically reserved herein that are now, or hereafter may be, allocated, implied, reserved or inherent to the Property. The Grantor agrees that all of the Grantor's rights or interest in such development rights are terminated and extinguished, and may not be used on or transferred to any portion of the Property as it now or hereafter may be bounded or described, or to any other property adjacent or otherwise, nor used for the purpose of calculating permissible lot yield or density of the Property or any other property with regard to any land use or zoning which affects or may affect the Property.

Section XII: Subsequent Sale, Exchange or Involuntary Conversion

The Grantor and the RMEF agree that the conveyance of this Easement gives rise to a property right, immediately vested in the RMEF. The RMEF's property right in this Easement shall be based on the condition and improvements on the Property at the time that the Easement is established, and this condition shall be documented as referred to in Section X, above. For purposes of this Section, the RMEF's property right shall be deemed to have a fair market value at least equal to the proportionate value that this Easement bears to the entire value of the Property as a whole at the time of its creation. That proportionate value of the RMEF's property rights shall remain constant. Should a change in conditions give rise to the extinguishment of this Easement, as provided in Treasury Regulation §1.170A-14(g)(6)(i), or extinguishment of a portion of the RMEF's rights under this Easement due to an exercise of eminent domain, a condemnation action, or an involuntary conversion of the Property or a portion of the Property, the RMEF shall be entitled to a portion of the proceeds at least equal to such proportionate value of this Easement as established at the time of its creation, unless otherwise provided by Oregon law. All interpretations of the RMEF's property rights shall follow Treasury Regulation §1.170A. Whenever all or part of the Property is taken in exercise of eminent domain, or under claim of rights of eminent domain, by public, corporate, or other authority, by condemnation action or an involuntary conversion, so as to abrogate the restrictions imposed by this Easement, the Grantor shall and the RMEF may join in appropriate actions to recover the full value of the Property taken and all incidental or direct damages resulting from such taking. All reasonable expenses incurred by the Grantor and the RMEF in any such action shall first be reimbursed out of the recovered proceeds; the remainder of such proceeds shall be divided between the Grantor and the RMEF in proportion to their interest in the Property, as provided in the first paragraph of this Section. If the recovered proceeds are not sufficient to reimburse all reasonable expenses incurred by the Grantor and the RMEF, the recovered proceeds shall be divided between the Grantor and the RMEF in proportion to their reasonable expenses.

The Grantor agrees that reference to this Easement will be made in any subsequent deed, or other legal instrument, by means of which any interest in the Property (including any leasehold interest) is conveyed, and that a copy of this Easement will be attached thereto. The Grantor will notify the RMEF in writing of any conveyance of interest by sending written notice to the RMEF as provided in Section IV, Subsection A. The Grantor agrees to provide notice of this Easement to successor owners of interest, and to any potential purchasers or subsequent owners. In the event the Grantor elects to sell the Property, the Grantor agrees to provide notice of this Easement in any sale or solicitation materials or information. Any failure to comply with the terms of this paragraph shall in no manner render this Easement or any provisions of this Easement unenforceable.

Section XIII: Miscellaneous Provisions

A. **Partial Invalidity:** If any provision of this Easement, or the application of this Easement, or the application of this Easement to any person or circumstance is found to be invalid, the remainder of the provisions of this Easement, and the application of such provisions to persons or circumstances other than those to which it is found to be invalid, shall not be affected thereby.

B. **Enforcement:** The Grantor intends that enforcement of the terms and provisions of this Easement shall be at the discretion of the RMEF, and that the RMEF's failure to exercise its rights under this Easement, in the event of any breach of this Easement by the Grantor, shall not be deemed or construed to be a waiver of the RMEF's rights under this Easement in the event of any subsequent breach.

C. **"Grantor" and "RMEF":** The term "Grantor," as used in this Easement, and any pronouns used in place thereof shall mean and include the above-named Grantor, and his heirs, personal representatives, executors, successors and assigns. The term "RMEF," as used in this Easement, and any pronouns used in place thereof shall mean the Rocky Mountain Elk Foundation, Inc., and its successors and assigns.

D. **Titles:** Section and Subsection titles and subtitles are for convenience only and shall not be deemed to have legal effect.

E. **Subsequent Conveyance:** If the Grantor desires, this Easement may be amended to further restrict the uses of the Property, or the Grantor may grant a new easement, consistent with the terms of this Easement.

F. **Liberal Construction:** This Easement shall be liberally construed in favor of maintaining the Conservation Values of the Property, and in accordance with Oregon Conservation and Highway Scenic Preservation Easements Act, ORS §§ 271.715 to 271.795, inclusive, (1999).

G. **Perpetuity of Easement:** This Easement shall run with and burden the title to the Property in perpetuity and is binding upon, and will inure to the benefit of the Grantor's and the RMEF's successors in interest and assigns. All subsequent owners of the Property are bound to all provisions of this Easement to the same extent as the Grantor.

H. **Governing Law:** This Easement will be construed in accordance with appropriate Oregon laws.

I. **Entire Agreement:** This Easement sets forth the entire agreement of the parties. It is intended to supersede all prior discussions or understandings.

J. **Compliance With Law:** All uses and practices permitted by this Easement, including the Permitted Uses, will not exceed or violate but will be in full compliance with all applicable state and federal laws.

K. **Attorney's Fees and Enforcement Costs of Suit:** If the RMEF incurs attorney's fees or other reasonable costs in enforcing the terms of this Easement, those expenses shall be borne by the Grantor or those of its successors or assigns against whom a judgment is entered. In the event that the RMEF secures redress without a completed judicial proceeding, those expenses shall be borne by the Grantor or those of its successors or assigns who are otherwise determined to be responsible for the unauthorized activity. However, if a judgment is entered against the RMEF in an effort to seek injunctive relief or restoration, and the Grantor, the Grantor's family, any shareholder or partner in the Property, any agent, guest or employee of the Grantor, or other

persons permitted or allowed on the Property by the Grantor are held not to be in violation of this Easement, then the RMEF shall pay the Grantor's reasonable costs of suit, including reasonable attorney's fees.

L. **Amendment:** If an amendment to or modification of this Easement is made, the amendment or modification must be in compliance with the terms of this Easement, must strengthen the protection of the Conservation Values protected by this Easement and may not affect its perpetual duration. Any amendment must be in writing, signed by both the parties, and recorded in the official records of Union County, Oregon. The Grantor or, in the event of the Grantor's death, the personal representative of the Grantor may amend this Easement to be more restrictive regarding commercial recreational activities, in order to comply with the *de minimis* standard set forth in 26 U.S.C. §2031(c).

M. **Effective Date:** This Easement shall be effective when signed by all parties, and it is the intent of the parties that this Easement shall be effective in the year 2001.

IN WITNESS WHEREOF, the Grantor and the RMEF execute this Easement.

GRANTOR:

By Joel D. Rice

RMEF:

By Rich Lane, President and CEO

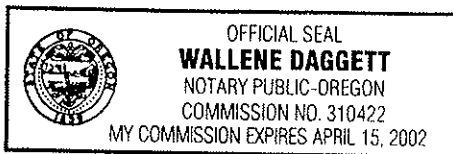
STATE OF OREGON)
) ss.
County of Union)

The foregoing instrument was acknowledged before me this 28th day of December, 2001, by Joel D. Rice.

Witness my hand and official seal.

(SEAL)

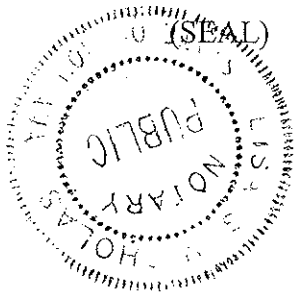
Notary Public Wallene Daggett
Residing at La Grande, OR 97850
My commission expires 4-15-2002



STATE OF MONTANA)
 : ss.
County of Missoula)

This instrument was acknowledged before me on December 21st, 2001, Rich Lane, who is known to me to be the President and CEO of the Rocky Mountain Elk Foundation, Inc. for which the instrument was executed.

IN WITNESS WHEREOF, I hereunto set my hand and affix my notarial seal on the date above written.



Notary Public Lisa G. Nicholas
Residing at Alberton, MT
My commission expires 10-15-05

List Of Exhibits

Exhibit A - Legal Description

Exhibit B - Property Map

Exhibit C - NRCS Degree of Use

Exhibit A

Legal Description

T3S, R38E Willamette Meridian

Section 29, NW $\frac{1}{4}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$:

Also, All that portion of the NE quarter of NW quarter of said Section 29 lying Southwesterly of a rocky ridge, being the land in said subdivision on the slope Southwesterly from said natural divide toward the old road commonly called "Glass Hill Road", containing 16 acres, more or less,

Also described as:

Commencing at a point on the rocky ridge approximately 100 feet South of the NW corner of said NE quarter of the NW quarter of Section 29; running thence South approximately 1220 feet to the SW corner of the NE quarter of NW quarter said section; thence East on the South line of said subdivision 850 feet, more or less, to the rocky ridge; thence Northwesterly following said rocky ridge, to the point of beginning.

Section 30: E $\frac{1}{2}$ NE $\frac{1}{4}$ EXCEPTING that portion of the SE quarter of NE quarter thereof lying South and West of the county road;

Section 32: NE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$, E $\frac{1}{2}$ SE $\frac{1}{4}$

Section 33: SW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$

T4S, R38E Willamette Meridian

Section 5, SE $\frac{1}{4}$

All in Union County, Oregon

Exhibit B

Map of Conservation Easement Property

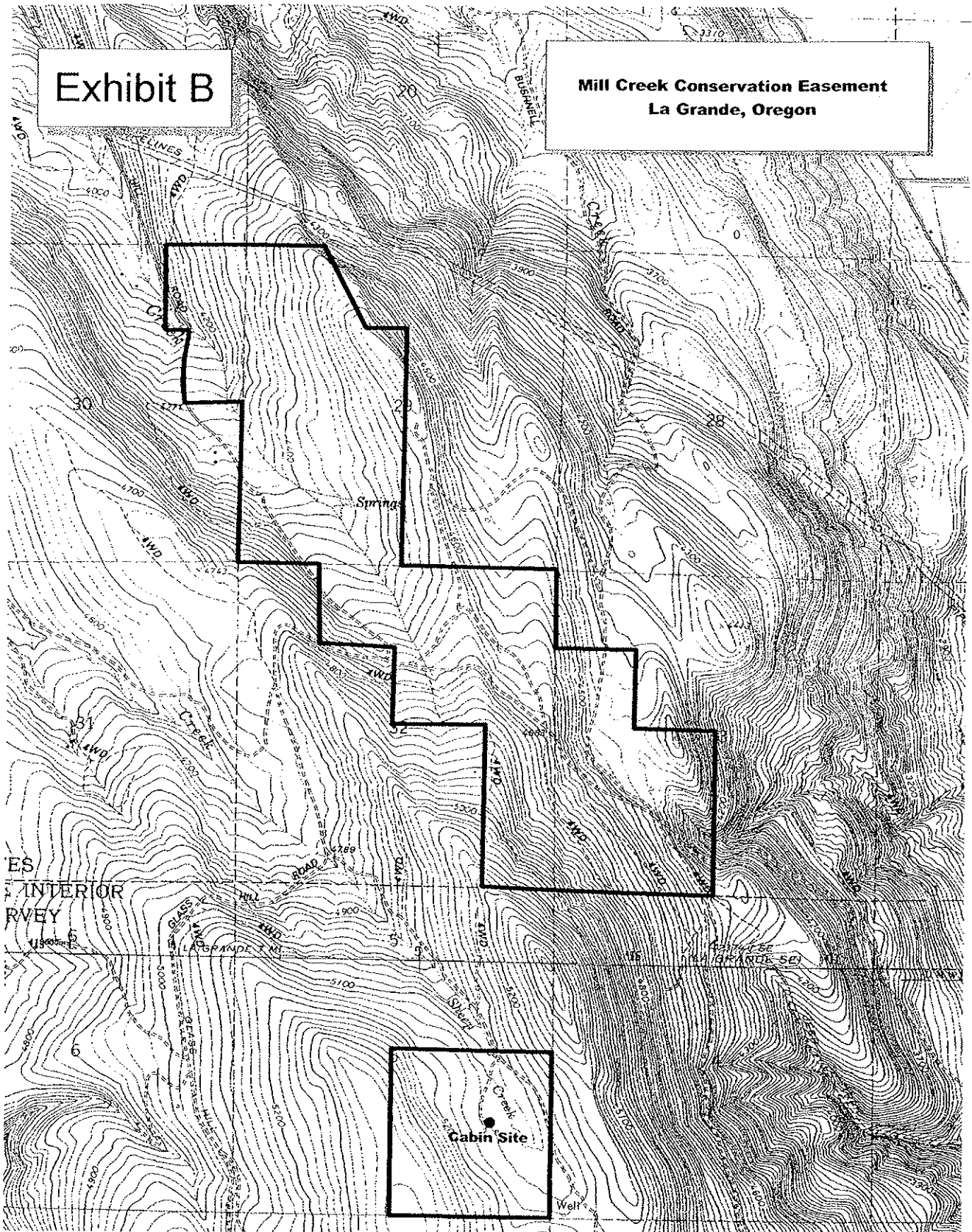


Exhibit C

NRCS Degree of Use

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service

MT-JS-WS-502
RANGE (Rev. July 1986)

Guide to Degree of Use

<i>Degree of Use</i>	<i>Description</i>
Unused 0 percent	No livestock use.
Slight 1-20 percent	Practically undisturbed. Only choice areas and Choice forage grazed.
Moderate 21-40 percent	Most of the accessible range shows grazing. Little or no use of poor forage. Little trailing to grazing.
Full (<i>This or less Use is Proper Use</i>) 41-50 percent	All fully accessible areas are grazed. Major sites have key forage species properly utilized. Overused areas less than 10 percent of pasture area.
Close 51-60 percent	All accessible range plainly shows use and major sections are closely cropped. Livestock forced to use much poorer forage.
Severe 61-80 percent	Key forage species almost completely used. Low-value forage carrying grazing load. Trampling damage is wide-spread in accessible area.
Extreme 81-100 percent	Range appears stripped of vegetation. Key forage species are weak from continual grazing of regrowth. Poor quality forage closely grazed.

1. Determine the degree of use at or near the end of the grazing period.
2. Proper use determination is based on key species on major sites, not total vegetation.
3. When properly grazed, the vegetation left will supply adequate cover for soil protection and will maintain or improve the quantity and quality of desirable vegetation.

Proper use of Annual Growth Depends on SEASON OF USE:

Spring Use	(Moderate)
Summer and Early Fall Use	(Full)
Late Fall and Winter Use	Dormant season (Close)

Remarks:

STATE OF OREGON

County of Union

}

SS

I certify that this instrument was received and recorded in the book of records of said county.

R. NELLIE BOGUE HIBBERT,
Union County Clerk

by: *R. Nelson* Deputy.

DOC#: 20015945
RCPT: 45090 122.00
12/28/2001 1:00 PM
REFUND: .00

Susan Geer's Opening Testimony PCN 5

Exhibit 108

Rice comment on EFSC rulemaking

July 2022

To: Energy Facility Siting Council

Re: Formal Comment on Protected Areas Rulemaking

Date: July 19, 2022

I am a land conservationist. I grew up in rural North Carolina exploring the native hardwood forests and knowing almost every species of tree, shrub, forb, grass, mammal and bird. This early connection with nature had a tremendous positive influence on me; so that as an adult I vowed to protect 2000 acres of land from any form of development for the public good and future generations. After discovering my love for the landscape of northeast Oregon, I was able to begin implementing my dream in 1999 in partnership with ODFW and Rocky Mountain Elk Foundation. In 2001 we created a continuous wildlife corridor adjacent to Ladd Marsh comprised of ODFW land, private with conservation easement, and EOU's Rebarrow Research Forest. More recently I am working with Blue Mountain Land Trust to protect parcels acquired later, and I have joined the State Natural Areas Program in recognition of the special status plants, animals, and plant communities on the land. Of note are a series of moist meadows, including the best preserved mid-montane meadow in all eastern Oregon.

With that in mind, I sincerely hope this rulemaking will recognize the value of private landowners working with nonprofits and local, state, and federal governments to manage land in perpetuity for ecosystems and the public good.

It saddens me to read this antiquated rule (OAR 345-022-0040). The rule only includes protected areas on a list dated May 11, 2007. Now, years later, a developer may override my intentions, actions, and investments. Fifteen years is a long time to give a developer a head start! It's taken decades for me to purchase the parcels to create a continuous block of habitat, make the agency connections, and research the programs available to protect the special status plants, animals, and communities. Would not my intentions on my property be equal to or greater than a developer?

When I heard that rulemaking was occurring to update confusing and outdated language I had to comment. The rules come up short by declaring that the date an application is declared "complete" will be the new starting date and any areas protected after that, will not matter – even if an application is in progress. [ORS 469.401\(2\)](#), states that the starting date is when the site certificate is issued. The site certificate date is later in the process. This gives the developer enough time to review county records to determine if any lands they wish to develop are under conservation easement or designated Protected and plenty of time to contact the owner(s) to discuss.

Conservation easements should qualify as Protected Areas, even beyond the State Natural Areas program. Alternatively, since the Natural Areas program is not well known, they should reach out to private landowners who have special status plants, animals, and communities under conservation easement-- to educate them about program. Conservation easements are known as the best way for private landowners with significant high quality native habitat and rare species occurrences to protect their land. Information from Oregon Coalition of Land Trusts: <https://oregonlandtrusts.org/wp-content/uploads/2020/08/Conservation-Easements.pdf>

On behalf of landowners throughout the state that have land in conservation easements and/or in the Natural Areas program, I applaud you for seeking us out in the initial noticing of any energy project. It is easy to contact the county to get landowner information and is done already within ODOE's formal noticing process per Exhibit F.

In closing I suggest the following:

1. Please notice all landowners (public, private and nonprofit) that own and/or manage lands subject to conservation easements or other protective status. Invite us to be a "reviewing agency" since we know our lands the best.
2. Be sure to add these conservation lands in your list of categories (the definition) of protected areas.
3. Eliminate any specific dates for execution or designation.
4. Do not exempt any pending applications; maintain the current law per ORS 469.401 (2).
5. All developers must comply with protections to areas designated at the time of their site certificate.

Thank you for taking public comment, especially from a landowner with a designated protected area. I would like to be informed of your decision and future development issues.

Joel Rice
59878 Glass Hill Road
La Grande OR 97850

Susan Geer's Opening Testimony PCN 5

Exhibit 109

Vegetation of Winn Meadow

By Karen Antell

2011

Vegetation of Winn Meadow Glass Hill, Union Co., Oregon

Dr. Karen Antell

16 August 2011



Winn Meadow

CONTENTS

Introduction 3

Species list (alphabetical by family) 9

Grass identification guide 19

Sedge identification guide 34

Rush identification guide 42

References 45

INTRODUCTION

Winn Meadow is located at 5,100 ft. elevation on Glass Hill, T 4 S, R 38 E, SE ¼ Sec. 5 (Fig. 1). The meadow comprises 27 acres of native montane wet meadow. Winn Meadow was purchased by Joel Rice at the same time as the Rocky Mountain Elk Foundation purchase of 900 acres of land to the east. That parcel was subsequently acquired by ODFW, and is managed as part of the Ladd Marsh Wildlife Management Area. Winn Meadow is situated in between the ODFW Ladd Marsh property on the east and Eastern Oregon University's 360-acre Rebarrow Research Forest on the west. The Rebarrow Forest was gifted to the university in 1990. Active restoration projects over the past twenty years have restored the forest to good health, and elk utilization of the area is highly apparent. Moose, bear, and other wildlife also have been seen on the forest. Because of its unique location, Winn Meadow provides critically important habitat for Rocky Mountain Elk and other wildlife, as they move between the lower elevations of Ladd Marsh in the Grande Ronde Valley up to higher elevations on Glass Hill. The habitat corridor between the valley and the upper ridge on the Rebarrow property is continuous and currently is uninterrupted by development, except for a few, seldom-used old road beds.

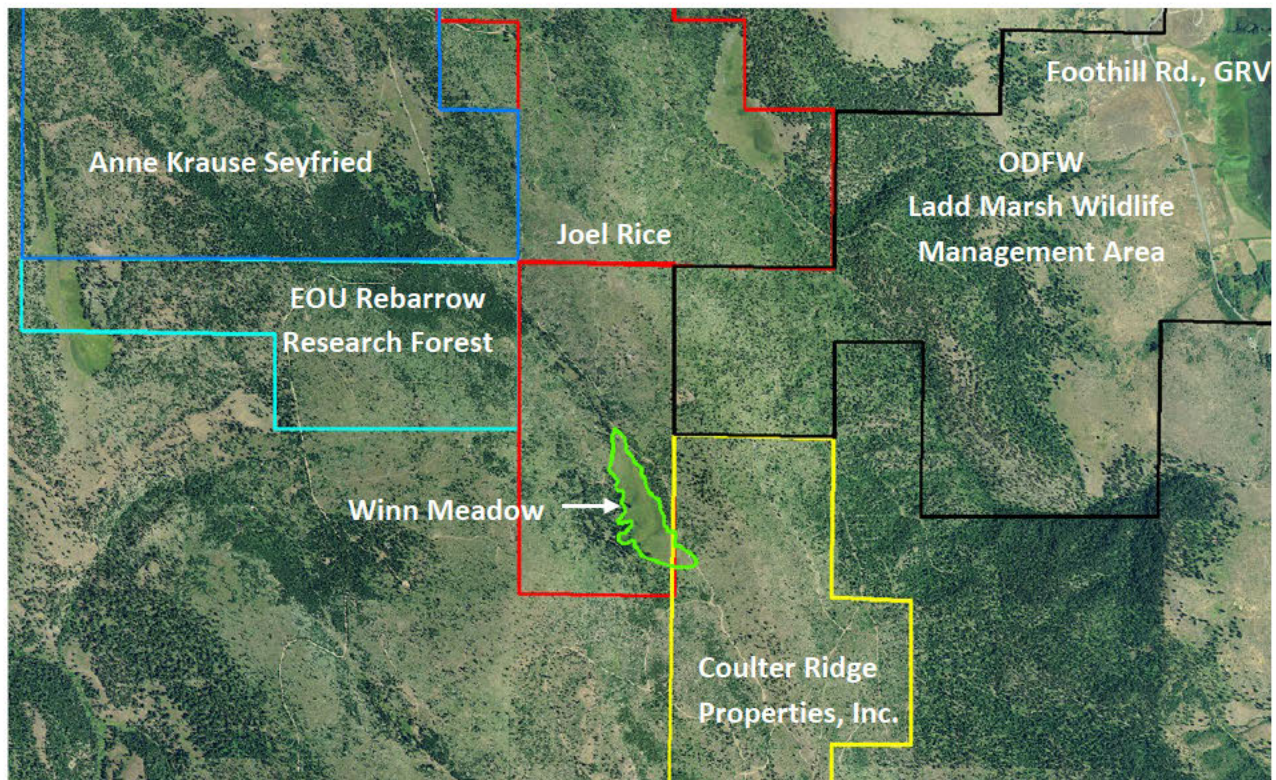


Figure 1. Location of Winn Meadow and surrounding property.

Winn Meadow contains several perennial springs that constitute the headwaters of Sheep Creek (Figs. 2, 3). Sheep Creek flows northwest and transects the northeast corner of the Rebarrow property before draining northward to the upper Grande Ronde River.

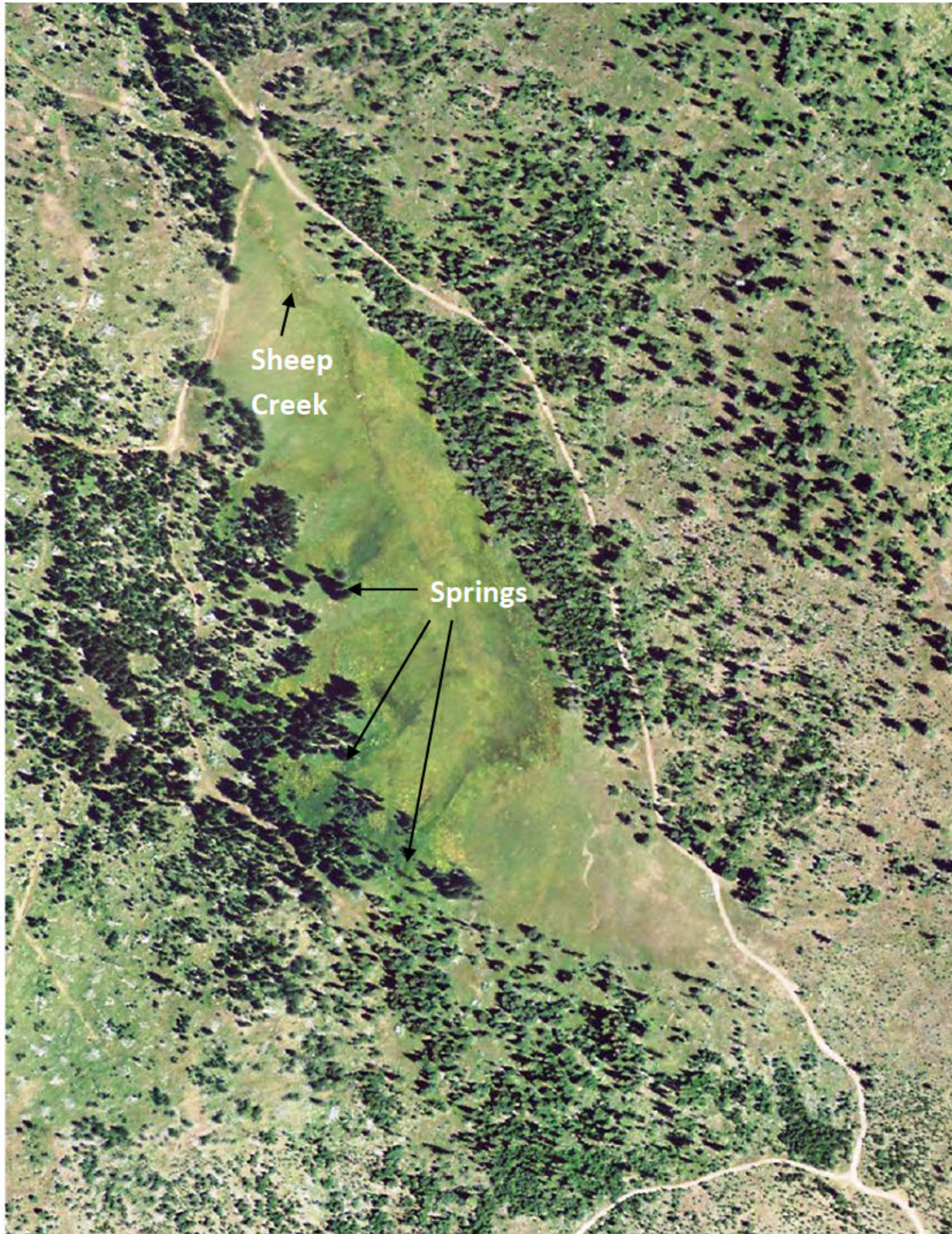


Figure 2. Map of Winn Meadow



Figure 3. Spring on west side of Winn Meadow

We conducted a complete vegetation survey of the meadow in August 2011¹. At the time that we conducted this survey, the meadow was beginning to dry out for the season. Some early spring-flowering plants were still present in fruiting condition, but some spring-flowering species likely were not detected in our survey. All plants that were not easily identified in the field were taken to the botany lab at Eastern Oregon University for microscopic examination and confirmation of identification.

Winn Meadow represents a superb example of a mid-elevation wet montane meadow with a diverse assemblage of native wetland grasses and forbs. Its value is especially significant because of the very limited presence of introduced species. We noted the presence of 101 species of vascular plants. Of these, only ten species found within the meadow are introduced; 91 are native species. The introduced species that do occur in the meadow are present in low numbers and none of them appear to constitute a serious invasive threat to the meadow at this time.

1. Karen Antell, PhD, Botanist and Michael McInnis, PhD, Rangeland Ecologist, Eastern Oregon University

Dominant species in the meadow are both native species, *Deschampsia caespitosa* (Tufted hairgrass) and *Senecio foetidus* (Sweet-marsh butterweed) (Figs. 4, 5). Moister areas within the meadow host patches of *Veratrum californicum* (False hellebore) and the wettest areas contain *Eleocharis palustris* (common spikerush) and several species of *Carex* (Sedge) and *Juncus* (Rush).

Perennial springs along the southwest side of the meadow support a variety of native, moisture-requiring wetland plants, including *Glyceria grandis* (American mannagrass), *Cicuta douglasii* (Western water hemlock), *Habenaria unalascensis* (Alaska rein-orchid), *Pedicularis groenlandica* (Pink elephant's head) and *Mimulus guttatus* (Yellow monkey-flower).



Figure 4. Winn Meadow with *Senecio foetidus*



Figure 5. *Deschampsia caespitosa* and *Veratrum californicum*

The primary plant association throughout the main meadow is Tufted Hairgrass (Crowe and Clausnitzer 1997). Within the Blue Mountains province, Tufted hairgrass typically occupies wet or moist basins, stream terraces and floodplains, between 4,070 and 7,230 ft. elevation. Many lower-elevation potential Tufted hairgrass sites have been impacted by agriculture or other development, or by invasion by Meadow foxtail (*Alopecurus pratensis*), Reed canarygrass (*Phalaris arundinaceae*), or other invasive plants. At mid-montane elevations, grazing may have a significant impact. According to Crowe and Clausnitzer (1997), “overgrazing of tufted hairgrass meadows will kill tufted hairgrass, and it will be replaced by forbs and Kentucky bluegrass.”

Winn Meadow represents a large area of intact, Tufted hairgrass community that is virtually non-impacted by presence of invasive species. It is within close proximity to the Grande Ronde Valley and situated along an important wildlife migration corridor through ODFW managed lands. The springs along the western perimeter of the meadow also harbor a wide variety of native associated wet-meadow or spring-dependent plants.

Other interesting plants within in the meadow include a small, localized population of *Cirsium scariosum* Nutt., the native Meadow thistle, and several scattered patches of *Trifolium douglasii* (Douglas’ clover). Meadow thistle is a beautiful, native plant; however, it is often mistaken for an invasive plant and is commonly eradicated, and consequently, is not commonly seen. Douglas’ clover is listed on the Oregon Natural Heritage Rank as G2, S1. It is listed as a federal “Species of Concern”, and on the ORBIC list 1 in the state of Oregon. List 1 contains species that are “endangered or threatened throughout their range or which are presumed extinct” (Kagan et al. 2010).

Another noteworthy species in the meadow is *Sidalcea malviflora* (Dwarf checkermallow). The presence of this plant represents a significant range extension for the species. It is known only from western Oregon and has not been documented anywhere in eastern Oregon. Three plants were encountered on our survey, but the meadow should be examined for other plants in future.

The surrounding forest is a mixed elevation assemblage of coniferous trees, including *Pinus ponderosa* (Ponderosa pine), *Larix occidentalis* (Western larch), *Pseudotsuga menziesii* (Douglas fir), *Abies grandis* (Grand fir), *Abies concolor* (White fir), *Pinus contorta* (Lodgepole pine) and, notably, several large specimens of *Picea engelmannii* (Engelmann’s spruce).

Table 1 lists the indicator codes for wetland plants used by the USDA Plants Database. The wetland status for region 9 (Pacific Northwest) was recorded for each of the plants found in Winn Meadow. Many of the plants encountered are designated either obligate or facultative wetland plants.

Table 1. Wetland indicator categories, USDA Plants Database

Indicator Code	Wetland Type	Comment
OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).
UPL	Obligate Upland	Occurs in wetlands in another region, but occurs almost always (estimated probability 99%) under natural conditions in non-wetlands in the regions specified. If a species does not occur in wetlands in any region, it is n

This report contains a list of the species observed specifically within Winn Meadow in August 2011. We did not include understory vegetation from the surrounding wooded areas unless the woodland plants were directly associated with wetland plants along the margin of the meadow. Inclusion of surrounding vegetation would expand the species list considerably. Photographs of a few of the plants are included. Following the species list are photographs of all of the grasses, sedges and rushes found within the meadow, along with some diagnostic identification information.

In conclusion, Winn Meadow represents a mid-montane, wet meadow in the Blue Mountains with extremely high habitat value for many wildlife species. Frequent utilization of the meadow by Rocky Mountain Elk was apparent from the many tracks, droppings, and occasionally browsed plants observed. In addition to wildlife value, the meadow represents an outstanding example of a Tufted hairgrass plant association with associated spring-dependent species. The meadow also harbors at least one species of plant listed as threatened or endangered within Oregon.

Vascular Plants in Winn Meadow

Taxon	Common Name	N/I	Wetland Status
APIACEAE			
<i>Cicuta douglasii</i> (DC.) Coult. & Rose	Western water hemlock	N	OBL
<i>Heracleum maximum</i> Bartram	Cow-parsnip	N	FAC+
<i>Osmorhiza berteroi</i> DC.	Mountain Sweet-cicely	N	NA
<i>Perideridia gairdneri</i> (H. & A.) Math.	Gairdner's yampah	N	FAC*



Cicuta douglasii



Perideridea gairdneri

ASTERACEAE

<i>Achillea millefolium</i> L.	Yarrow	N	FACU
<i>Agoseris glauca</i> (Pursh) Raf.	Short-beaked agoseris	N	FAC-
<i>Antennaria dimorpha</i> (Nutt.) T. & H.	Low pussy-toes	N	NA
<i>Antennaria microphylla</i> Rydb.	Rosy pussy-toes	N	NA
<i>Cirsium arvense</i> (L.) Scop.	Canada thistle	I	FACU+
<i>Cirsium scariosum</i> Nutt.	Meadow thistle	N	OBL
<i>Erigeron speciosus</i> (Lindl.) DC.	Showy fleabane	N	NA
<i>Gnathium palustre</i> Nutt.	Low cudweed	N	FAC+
<i>Madia gracilis</i> (J.E. Smith) Keck	Common tarweed	N	NA
<i>Senecio foetidus</i> var. <i>hydrophiloides</i> (Rydb.) T.M. Barkley	Sweet-marsh butterweed	N	FACW-

Cirsium scariosum – Meadow thistle



Senecio foetidus – Sweet-marsh butterweed

Erigeron speciosus – Showy fleabane

BORAGINACEAE

Cynoglossum officinale L.

Common hound's tongue

I

FACU*

BRASSICACEAE

Rorippa curvisiliqua (Hook.) Bessey

Western yellowcress

N

OBL

CAPRIFOLIACEAE

Symphoricarpos albus (L.) Blake

Snowberry

N

FACU

CARYOPHYLLACEAE

Holosteum umbellatum L.	Jagged chickweed	I	NA
<i>Stellaria longipes</i> var. <i>altocaulis</i> (Hulten) Hitchc.	Longstalk starwort	N	FACW-

*Stellaria longipes* – Longstalk starwort**CYPERACEAE**

<i>Carex athrostachya</i> Olney	Long-bract sedge	N	FACW
<i>Carex bebbii</i> (L.H. Bailey) Olney ex Fernald	Bebb's sedge	N	OBL
<i>Carex hoodii</i> Boott in W.J. Hook	Hood's sedge	N	FAC
<i>Carex jonesii</i> L.H. Bailey	Jones' sedge	N	FACW+
<i>Carex multicosolata</i> Mack.	Many-ribbed sedge	N	NA
<i>Carex nebrascensis</i> Dewey	Nebraska sedge	N	OBL
<i>Carex pellita</i> Muhl. ex Willd.	Woolly sedge	N	OBL
<i>Eleocharis palustris</i> (L.) R. & S.	Common spike-rush	N	OBL

ERICACEAE

<i>Vaccinium scoparium</i> Leiberg	Grouse wortleberry	N	FACU-
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EQUISETACEAE

<i>Equisetum</i> spp.	Horsetail	N	
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FABACEAE

<i>Lupinus caudatus</i> Kell.	Spurred lupine	N	NA
<i>Thermopsis montana</i> Nutt.	Golden pea	N	NA
<i>Trifolium aureum</i> Pollich	Golden clover	I	NA
<i>Trifolium douglasii</i> House	Douglas' clover	N	FACW
<i>Trifolium eriocephalum</i> var. <i>cusickii</i> (Piper) Martin	Woolly-head clover	N	FAC-
<i>Trifolium repens</i> L.	White clover	I	FAC*



Trifolium aureum
Golden clover



Trifolium douglasii
Douglas' clover

GENTIANACEAE

Frasera speciosa Dougl.
Gentiana calycosa Griseb.

Giant frasera
Mountain bog gentian

N	UPL
N	FACW-



Frasera speciosa – Giant frasera
photo credit: Al Schneider



Gentiana calycosa
Mountain bog gentian

GROSSULARIACEAE

Ribes lacustre (Pers.) Poir.

Prickly-currant

N	FAC+
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JUNCACEAE

Juncus arcticus ssp. *littoralis* (Engelm.)
Hulten

Mountain rush

N	OBL
---	-----

Juncus hallii Engelm.

Hall's rush

N	FAC
---	-----

Juncus longistylis Torr.

Long-styled rush

N	FACW
---	------

LAMIACEAE

Prunella vulgaris L.

Self-heal

I	FACU+
---	-------

LILIACEAE*Calochortus eurycarpus* Wats.

Big-pod mariposa lily

N

NA

Veratrum californicum Durand

False hellebore

N

FACW+



Calochortus eurycarpus
Big-pod mariposa lily

MALVACEAE*Sidalcea malviflora* (DC.) A. Gray ex Benth.

Dwarf checkerbloom

N

NA

Sidalcea oregana (Nutt.) Gray

Oregon checkermallow

N

FACW-



Sidalcea malviflora
Dwarf checkerbloom



Sidalcea oregana
Oregon checkermallow

**ONAGRACEAE***Circaea alpina* L.

Enchanter's nightshade

I

FAC+

Epilobium minutum Lindel.

Small-flowered willow-herb

N

NA

Epilobium glaberrimum Barbey var.
glaberrimum

Glaucus willowherb

N

FACW

ORCHIDACEAE*Piperia unalascensis* (Spreng.) Wats.

Alaska rein-orchid

N

NA



Circaea alpina – Enchanter's nightshade

Piperia unalaascensis
Alaska rein-orchid



PINACEAE

<i>Abies concolor</i> (Gord. & Glend.) Lindl.	White fir	N	NA
<i>Abies grandis</i> (Douglas) Forbes	Grand fir	N	FACU-*
<i>Larix occidentalis</i> Nutt.	Western larch	N	FACU+
<i>Picea engelmannii</i> Parry	Engelmann's spruce	N	FAC
<i>Pinus contorta</i> Dougl.	Lodgepole pine	N	FAC
<i>Pinus ponderosa</i> Dougl.	Ponderosa pine	N	FACU-
<i>Pseudotsuga menziesii</i> (Mirbel) Franco.	Douglas fir	N	FACU*

POACEAE

<i>Achnatherum occidentale</i> ssp. <i>pubescens</i> (Vasey) Barkworth	Common western needlegrass	N	NA
<i>Agrostis stolonifera</i> L.	Creeping bent	I	FAC*
<i>Bromus carinatus</i> var. <i>marginatus</i> (Nees) Barkworth & Anderton	Mountain brome	N	NA
<i>Calamagrostis rubescens</i> Buckl.	Pinegrass	N	NA
<i>Daactylis glomerata</i> L.	Orchardgrass	I	FACU
<i>Danthonia californica</i> Bol.	California oatgrass	N	FACU*
<i>Danthonia intermedia</i> Vasey	Timber oatgrass	N	FACU+
<i>Danthonia unispicata</i> (Thurb.) Munro	Onespike oatgrass	N	NA
<i>Deschampsia caespitosa</i> (L.) Beauv.	Tufted hairgrass	N	FACW
<i>Deschampsia elongata</i> (Hook.) Munro	Slender hairgrass	N	FACW-
<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	Slender wheatgrass	N	FAC

(Link.) Gould

<i>Festuca rubra</i> ssp. <i>vallicola</i> (Rydb.) Pavlick	Mountain red fescue	N	FAC+
<i>Glyceria grandis</i> Wats.	American mannagrass	N	OBL
<i>Koeleria macrantha</i> (Ledeb.) Schult.	Prairie junegrass	N	NA
<i>Phleum alpinum</i> L.	Alpine timothy	N	FACW
<i>Poa palustris</i> L.	Fowl bluegrass	N	FAC
<i>Trisetum canescens</i> Buckley	Tall trisetum	N	FACU

POLYGONACEAE

<i>Polygonum majus</i> (Meisn.) Piper	Wiry knotweed	N	FACU
<i>Rumex acetosella</i> L.	Sourweed, Sorrel	I	FACU+
<i>Rumex salicifolius</i> ssp. <i>triangulivalvis</i> Danser	Willow dock	N	FACW

PRIMULACEAE

<i>Dodecatheon pulchellum</i> (Raf.) Merrill	Few-flowered shooting star	N	FACW
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RANUNCULACEAE

<i>Aquilegia formosa</i> Fisch.	Red columbine	N	FAC
<i>Clematis hirsutissima</i> Pursh	Sugarbowls	N	NA
<i>Delphinium nuttallianum</i> Pritz.	Nuttall's larkspur	N	FAC
<i>Delphinium occidentale</i> Wats.	Western larkspur	N	NA
<i>Ranunculus orthorhynchus</i> Hook.	Straightbeak buttercup	N	FACW-
<i>Ranunculus uncinatus</i> D. Don	Little buttercup	N	FAC-
<i>Thalictrum occidentale</i> Gray	Western meadowrue	N	FACU*



Ranunculus orthorhynchus
Straight-beak buttercup

ROSACEAE

<i>Fragaria vesca</i> L.	Woods strawberry	N	NA
<i>Fragaria virginiana</i> var. <i>platypetala</i> (Rydb.) Hall	Wild strawberry	N	FACU*
<i>Geum triflorum</i> Pursh	Purple avens	N	FACU
<i>Potentilla gracilis</i> var. <i>fastigiata</i> (Nutt.) S. Watson	Slender cinquefoil	N	FAC
<i>Rosa gymnocarpa</i> Nutt.	Bald-hip rose	N	FACU
<i>Sanguisorba occidentalis</i> Nutt.	Annual burnet	N	NA

Potentilla gracilis – Slender cinquefoil*Rosa gymnocarpa* – Bald-hip rose**SCROPHULARIACEAE**

<i>Besseyia rubra</i> (Dougl.) Rydb.	Red besseya	N	NA
<i>Castilleja cusickii</i> Greenm.	Cusick's paintbrush	N	NA
<i>Mimulus guttatus</i> DC.	Yellow monkeyflower	N	OBL
<i>Mimulus moschatus</i> var. <i>moschatus</i> Dougl.	Musk-flowered monkey-flower	N	FACW+
<i>Pedicularis groenlandica</i> Retz.	Pink elephant's head	N	OBL
<i>Penstemon procerus</i> var. <i>brachyanthus</i> (Pennell) Cronq.	Small-flowered penstemon	N	NA
<i>Verbascum thapsus</i> L.	Flannel mullein	I	NA
<i>Veronica peregrina</i> L.	Purslane speedwell	N	OBL
<i>Veronica serpyllifolia</i> L.	Thymeleaf speedweel	N	FAC

URTICACEAE

<i>Urtica dioica</i> L.	Stinging nettle	N	FAC+
-------------------------	-----------------	---	------

*Mimulus moschatus* – Musk-flowered monkey-flower*Mimulus guttatus* – Yellow monkey-flower



Castilleja cusickii
Cusick's paintbrush



Penstemon procerus
Small-flowered penstemon



Pedicularis groenlandica
Pink elephant's head

Illustrated identification guide to Winn Meadow species of:

Poaceae - Grasses

Cyperaceae – Sedges

Juncaceae - Rushes



Achnatherum occidentale* ssp. *pubescens

Common western needlegrass



Achnatherum is the new genus name for the genus *Stipa*. *Achnatherum occidentale* can be found in the drier area near the entrance to Winn Meadow. The spikelets have large glumes and each lemma has a long, twisted, pubescent awn extending from the tip. This grass is unique in Winn Meadow and could not be confused with any other species.



Agrostis stolonifera

Creeping bent

Agrostis stolonifera was formerly classified as *Agrostis alba*. Another common name associated with *Agrostis alba* was Redtop because the panicle is often, but not always purplish in color. This species is widespread in wet areas in North America. It is recognized by the following characteristics: the glumes are longer than the lemma, spikelets contain a single floret, and the palea is about half the length of the lemma.



Bromus carinatus* var. *marginatus

Mountain brome

Bromus carinatus is a native, perennial grass, found in montane meadows. It has typical, large, *Bromus* spikelets, with several florets and short awns. The heads are fairly compact, compared to other brome species.



Danthonia californica
California oatgrass

Three species of *Danthonia* are found in Winn Meadow. All three have spikelets with glumes longer than the lemmas, and all have geniculate (twisted) awns. *Danthonia californica* has longer pedicels on the lower inflorescence branches (the pedicels are usually longer than the spikelets) and the lemmas are mostly glabrous on the back. The upper leaves are strongly divergent or reflexed (pointing downwards). Plants are found sporadically throughout Winn Meadow.



Danthonia intermedia

Timber oatgrass

Danthonia intermedia has 5-10 spikelets, with 2 or 3 spikelets per panicle branch. The panicle branches are stiff and upward pointing. The pedicels are usually shorter than the spikelets.

Danthonia intermedia is mostly found at the northern entrance to Winn Meadow.



Danthonia unispicata

Onespike oatgrass

Danthonia unispicata usually has only a single spikelet per panicle branch. The leaf sheaths and blades are conspicuously hairy. It is found sparingly along the road just before entering Winn Meadow.



Deschampsia caespitosa

Tufted hairgrass

Tufted hairgrass is a tall grass with basal bright green leaves and large, diffuse panicles. Each spikelet has two florets, with short dorsal awns. This is the most common grass found throughout the meadow.



Deschampsia elongata

Slender hairgrass

Slender hairgrass is a smaller plant than Tufted hairgrass. The inflorescence is narrow, with the small spikelets closely appressed along the branches. Each spikelet contains two florets with dorsal awns. Slender hairgrass is not abundant within Winn Meadow.



Elymus trachycaulus* ssp. *trachycaulus

Slender wheatgrass

Slender wheatgrass could easily be confused with Quackgrass. However, unlike Quackgrass (*Elymus repens*), *Elymus trachycaulus* is not rhizomatous. The glumes are acute to sharp-pointed and the lemmas have short awns.



Festuca rubra* ssp. *vallicola

Mountain red fescue



Festuca rubra represents a large, complicated complex of subspecies and varieties. Some are native in North America and others are introduced. Introduced varieties of Creeping Red Fescue are grown as turfgrasses. The Red fescue that occurs in Winn Meadow appears to be attributable to ssp. *vallicola*, which is a native perennial grass that occurs in moist meadows from British Columbia south to Wyoming. *Festuca rubra* has spikelets with several awn-tipped florets. Both glumes are always shorter than the lemmas, and the first glume is shorter than the second glume.

Glyceria grandis
American mannagrass



Mannagrass is a tall, native wetland plant that colonizes stream channels and wet banks. It is always found in standing water, and in Winn Meadow it is found around the spring seeps. It may appear similar to Tufted hairgrass, and grow intermixed with it. However, close inspection will show that the spikelets of Mannagrass always have more than two florets.

Koeleria macrantha
Prairie Junegrass



Koeleria macrantha was previously classified as *Koeleria cristata*. It has a compact inflorescence, and may appear similar to *Agrostis* species, such as *Agrostis exarata* (Spike bentgrass) or *Agrostis interrupta* (Interrupted bentgrass). *Agrostis* species always have only a single floret per spikelet, however.

Phleum alpinum

Alpine timothy



Although *Phleum pratense* (Common timothy) is commonly planted as a forage grass, *Phleum alpinum* is a native species in montane meadows. The two species usually can be differentiated by the length of the inflorescence. *Phleum pratense* flowering heads are usually over 4 cm long. *Phleum alpinum* flowering heads are usually not more than 4 cm long.

Poa palustris
Fowl bluegrass



It is unclear whether *Poa palustris* populations in Oregon are native or introduced, or a combination of both. *Poa palustris* is common in wet meadows, and can be recognized by the small spikelets and the cobwebby tuft of hairs at the base of the lemmas.

Trisetum canescens

Tall trisetum



Trisetum may appear similar to Needlegrass (*Achnatherum*), however the spikelets have several florets with long, twisted awns arising from the back of the lemmas, and not from the tip.



Carex athrostachya
Long-bract sedge



Carex athrostachya can be identified by the elongate bract which is longer than the inflorescence, and the winged perigynia. The wings extend along the length of the perigynia, including the beak and there are several evident veins.



Carex bebbii

Bebb's sedge

Carex bebbii has small spikes, closely clustered, but in an inflorescence that is more elongate than globose. There is no elongated bract, as in *C. atherostachya*. The perigynia are small and winged with only feint veins.



Carex hoodii
Hood's sedge



Carex hoodii has evident bracts, but they are not as long as *C. atherostachya*. The perigynia are plump and shiny. They lack veins and typically are copper-brown in the center with green edges.



***Carex jonesii* L.H. Bailey**

Jones' sedge

Jones' sedge has uniquely-shaped perigynia, that are swollen at the base, taper gradually to the tip, and have prominent veins. The inflorescence is small, with no extended bract.



Carex multcostata
Many-ribbed sedge

Carex multcostata has small inflorescences without obvious bracts. It can be recognized by the obviously nerved (veined) surfaces of the perigynia.



Carex nebrascensis

Nebraska sedge

Nebraska sedge is common in the wettest parts of Winn Meadow, and is recognized by the presence of staminate spikes above the pistillate spikes. The foliage is gray-green and glaucous.



Carex pellita
Woolly sedge

Woolly sedge has obviously hairy perigynia that become quite hard at maturity.



Eleocharis palustris
Common spike-rush

Eleocharis palustris is found in the stream channels. It is rhizomatous and can be identified by the single spike at the end of each stem.



Juncus balticus

Baltic rush



Juncus balticus has terete (round) stems that extend upward above the inflorescence. The flowers are borne in a lateral panicle, with few flowers per inflorescence branch. It is rhizomatous and is found in the wetter areas.

Juncus hallii

Hall's rush

Hall's rush is smaller than the other *Juncus* species found in the meadow. The fruits have three lobes on top when mature.



Juncus longistylis

Long-styled rush

Juncus longistylis has round stems, and leaves that appear to be round, but are actually somewhat flattened. The top of the leaf sheath extends upward in two lobes.



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Photographs:

All photographs are by K. Antell, except for the one photograph of *Frasera speciosa*.

Susan Geer's Opening Testimony PCN 5

Exhibit 110

Protecting Miracle Mile

La Grande Observer

2001

https://www.lagrandeobserver.com/outdoors/protecting-the-miracle-mile/article_d57da6b5-eb93-5e28-b853-917b5823a3fa.html

PROTECTING THE MIRACLE MILE

Mar 16, 2001, Updated Oct 2, 2019

The Miracle Mile.

When Jim Ward of La Grande speaks of it he is not referring to Roger Banisters first sub-four-minute mile in 1954.

Ward instead is discussing one of Union County's wildlife gems a portion of land running south along Foothill Road from the Ladd Marsh Wildlife Area viewpoint to Oxen Springs.

Many refer to this as a miracle mile for wildlife viewing. It is often said that this stretch has a greater diversity of wildlife than any portion of Eastern Oregon, said Ward, a member of the Rocky Mountain Elk Foundation.

The future of the miracle mile has been brightened by the Rocky Mountain Elk Foundation. The RMEF has purchased about 900 acres of undeveloped land adjacent to the miracle mile stretch. The land rises up a hillside from the west side of Foothill Road south of La Grande.

The RMEFs purchase greatly reduces any chance the miracle mile will be hurt by nearby development. Prior to the purchase people had been expressing interest in buying the land for the purpose of developing it, Ward said.

The property was owned for many years by Richard and Martha Smutz. Their daughter, Geraldine Daggett, later acquired the land and accepted an RMEF offer to sell it. The significance of the sale cannot be underestimated.

This is the Rocky Mountain Elk Foundations most significant acquisition in the region in terms of its direct impact on elk and people, said Art Talsma of Boise, director of northwest field operations for the Rocky Mountain Elk Foundation.

He explained that the purchase also means that one of Oregon's most remarkable wildlife corridors will be preserved. Elk, deer, bears, and many other animals regularly move back and forth between the former Daggett property and Ladd Marsh.

Elk are a prime and vital example. Throughout the year elk, seeking security, spend their days on the hillside property under the cover of timber. At night the elk come down to the ODFWs Ladd Marsh Wildlife Area to feed.

Most of the time they return by daybreak but sometimes they remain at Ladd Marsh for several days.

Had the hillside property been developed with homes and ranchettes, a volatile situation would have developed. The elk might have felt so uncomfortable that they would have moved out and ventured on to agricultural land. Conflicts between ranchers and elk would have resulted, said La Grande U.S. Forest Service biologist Mark Penninger, a member of the RMEF

Penninger is also a strong supporter of the land purchase for other reasons. He said it helps guarantee that the area will continue to be a resource for people who want to enjoy and learn about wildlife in a special setting. He noted that it is unusual to have such a site so close to a community. The area is just three miles south of La Grande.

It is unique to see something like this so close to town, Penninger said. It provides many learning opportunities.

Penninger noted that at the Ladd Marsh viewpoint one can see elk, bear, white-tailed deer, mule deer, valley quail, waterfowl, shorebirds, ring-necked pheasants and more in close proximity to each other.

It is rare to have upland and marsh wildlife side by side, Penninger said.

Talsma echoes this sentiment.

You would be hard-pressed to go anywhere else in the state and see more wildlife, he said.

Those who have played key roles in the purchase include Ward, Penninger said. He noted that Ward first found out that the land might be available. He then started a letter writing campaign to the RMEF.

He is the one who brought the opportunity to everyone's attention, Penninger said.

The Rocky Mountain Elk Foundation land will eventually be managed by the Oregon Department of Fish and Wildlife. The RMEF and the ODFW are forming a management agreement. Once the agreement is reached the land will become part of the ODFW's Ladd Marsh Wildlife Area.

Erickson stressed that the land will remain accessible to the public. Steps to protect wildlife, such as road closures, may be taken though.

The Rocky Mountain Elk Foundation has started a fund-raising drive to replace the money used to purchase the Daggett property. A commemorative Ladd Marsh belt buckle is being sold as part of this drive.

Later a painting of the property will be commissioned by the RMEF. Prints will be sold at fund raisers.

The Rocky Mountain Elk Foundation will hold a celebration to commemorate the purchase on June 16 at Ladd Marsh. The celebration will be conducted the same day as the RMEF's annual banquet in La Grande.

The June 16 celebration is more than warranted, La Grande ODFW biologist Mark Henjum said.

Every once in a while during a career you see something happen which will have a positive long-term effect on fish and wildlife. This is one of them, Henjum said.

Story by Dick Mason of The Observer

Susan Geer's Opening Testimony PCN 5

Exhibit 111

Exception SR-5

Susan Geer

2022

**BEFORE THE ENERGY FACILITIES SITING COUNCIL
for the
STATE OF OREGON**

IN THE MATTER OF:)	EXCEPTION TO
)	ADMINISTRATIVE LAW JUDGE
THE PROPOSED BOARDMAN TO HEMINGWAY TRANSSMISSION LINE)	WEBSTER’S RULINGS: SUMMARY
)	DETERMINATION AND
)	PROPOSED CONTESTED CASE
)	ORDER
)	
OAH Case No. 2019-ABC-02833)	BY PETITIONER SUSAN GEER
)	ISSUE SR-5
)	DATED JUNE 27, 2022

INTRODUCTION

Issue SR-5: Whether the Rice Glass Hill Natural Area should be evaluated as a Protected Area.

Petitioner Susan Geer (Ms. Geer) disagrees with many of the factual and legal conclusions and the characterizations of the evidence that are contained in the Motion for Summary Determination (MSD) granted to Idaho Power (IPC) and the Proposed Contested Case Order (PCCO). Ms. Geer presented evidence showing that many of the findings and conclusions stated in the MSD and PCCO are not accurate or legally appropriate.

Ms. Geer requests that Energy Facility Siting Council (EFSC) deny the site certificate and reverse the PCCO. In the alternative, Ms. Geer requests the EFSC deny the route that goes through the Rice Glass Hill Natural Area; or to re-route and amend the ASC to avoid the area.

Ms. Geer raises one specific exception to the ALJ Proposed Contested Case Order, as it relates to Issue SR-5. The exception is addressed below, demonstrating that the facts, or reasoning/analysis or conclusion by the ALJ is incorrect. The error is material to EFSC's decision.

EXCEPTION

- 1. Judge Webster (ALJ) erred in concluding that “Because the Rice Glass Hill Natural Area was not registered as a Natural Area as of May 11, 2007, Idaho Power was not required to evaluate the Rice Glass Hill Natural Area as a Protected Area in ASC Exhibit L.”¹¹**

Ms. Geer recognized the conservation value² of the Glass Hill property and was familiar with natural areas. Upon learning private lands are eligible as State Natural Areas, Ms. Geer recommended the program to Mr. Rice. “The natural area network is designed to include at

¹ Page 27 In the Matter of Boardman to Hemmingway, OAH Case No. 2019-ABC-02833 Proposed Contested Case Order

² During the 20 plus years Joel Rice has owned land on Glass Hill, there has been no development, timber harvest, or livestock grazing. The land has been managed solely for native plants and animals. The majority of acres in Rice Glass Hill Natural area have been protected under a conservation easement (with Rocky Mountain Elk Foundation) since 2001; the remaining acres were acquired after that date and Joel Rice is in the process of applying for an additional conservation easement (with Blue Mountain Land Trust) to cover those acres. The Glass Hill property meets the criteria for a conservation easement under the Universal Conservation Easement Act (UCEA) of 1982, adopted by the state of Oregon. UCEA Section 1(1) authorizes the creation of a non-possessory interest in real property that imposes limitations or affirmative obligations on the owner of the property for the purpose of “retaining or protecting [the property’s] natural, scenic, or open space values,” “assuring its availability for agricultural, forest, recreational or open-space use,” “protecting natural resources,” “maintaining or enhancing air or water quality,” or “preserving the historical, architectural, archaeological or cultural aspects of [the] property.” The history of conservation easements dictates that they must serve the public good in some way.

least one good example of each ecosystem type, geologic formation and at-risk species is represented in each ecoregion in which they naturally occur. Natural Areas protect many high-quality native ecosystems and rare plant and animal species.These areas are to be used for scientific research, education and nature interpretation.”³ The Glass Hill property contains several special species and priority plant associations⁴, so the Rice application was accepted to the program in 2019⁵.

Energy Facility Siting Council (EFSC) Rule OAR 345-022-0040 Protected Areas says, “References in this rule to protected areas designated under federal or state statutes or regulations are to the designations in effect as of May 11, 2007.”

The Rule goes on to list various designations of protected areas and among them is this one:

(i) State natural heritage areas listed in the Oregon Register of Natural Heritage Areas pursuant to ORS 273.581 (Natural areas register); The Rule wording has a 2007 date and a list of specific Protected Areas in existence at that time, but *categories* of protected areas are listed too. The categories listed as of May 11, 2007, are protected. i.e., the date refers to the **categories** as well as to those individual areas which are listed. Natural areas is a category of area that is protected.

³ Page 2 Oregon Natural Areas Program. 2020. Oregon Natural Areas Plan. Oregon Parks and Recreation Department and the Oregon Biodiversity Information Center, Institute for Natural Resources – Portland, Portland State University, Portland, OR. 189 pp.

⁴ Dedication Agreement for Glass Hill as a State Natural Area, including Oregon Register of Natural Resources Summary Form for the site, a statement of management objectives, and a map delineating the boundary of the site. Dated November 8, 2020

⁵ Letter from Noel Bachellor, OPRD to Joel Rice confirming Registration in the Natural Areas Program at Sept.18, 2019 committee meeting. Dated October 17,2019.

EFSC should apply OAR 345-022-0040 to protect the categories of areas that are listed in the rule. EFSC recognizes the Protected Areas rule (345-022-0040) is outdated and unclear. There is no doubt the intent is to protect areas deemed worthy by state or federal agencies. Rice Glass Hill State Natural Area is worthy of protection and was designated by Oregon Parks and Recreation Department (OPRD). Also, it seems obvious that the 2007 date, the original date of the rule, is relictual in the sense that the rules were intended to be updated every 5 years, but the schedule has been neglected.

As Ms. Geer said in reply to the ex parte communication dated May 23, 2021, “the EFSC rule-making process initiated in November 2020 is clearly due to their recognition that the, ”goalposts” ARE unclear in OAR 345-022-0040 as it stands, they are not only ambiguous but many years out of date, given that goal was to update them every 5 years.” Seven groups or individuals responded to said ex parte communication⁶ (Exhibit 1, attached for convenience); a review of the responses provides insight into just how ambiguous and unclear the rule is. Furthermore, the ambiguity and lack of clarity are severe enough to have caused the rulemaking process to become protracted.

EFSC is on record as agreeing. In the agenda from the October EFSC rulemaking⁷

“Issue 4 – Lists of Protected Areas, Affected rules: OAR 345-022-0040(1)

Issue description: The rule contains lists of *designations* and specific protected areas that may

⁶ P. 5 In the Matter of Boardman to Hemmingway, OAH Case No. 2019-ABC-02833
Proposed Contested Case Order

⁷ Attachment 1: “October 22-23 EFSC Meeting Agenda Item D: Protected Areas, Scenic Resources, and Recreation Rulemaking Project Attachment 1: Issues Analysis Document October 9, 2020

be incomplete or out of date.” (Emphasis added).

The EFSC rulemaking document continues with “Discussion: Because the lists in the rule are not intended to be exhaustive....” And “Staff notes that stakeholders are not likely to rely on the lists provided in rule because publicly available lists and geospatial data identifying protected areas are maintained by other sources.” Various lists of Protected Areas exist on the internet, including Natural Areas, and it is easy to request an up-to-date listing of Natural Areas from the State Natural Areas Program at any time.

CONCLUSION

Contrary to the ALJ’s statement, Idaho Power Company is required to evaluate the Rice Glass Hill Natural Area as a Protected Area in ASC Exhibit L. IPC has failed to demonstrate the Protected Areas standard OAR 345-022-0040 has been met for the Glass Hill Natural Area.

EFSC should recognize and state that the rule identifies all Oregon State Natural Areas that are identified pursuant to ORS 273.581 (Natural areas register), including the Rice Glass Hill Natural Area. Clearly the date applies to the category of Protected Areas specified at the time of that OAR’s writing 13 years ago, and it makes absolutely no sense to regard that category as static. The Natural Areas register provides an updated list of Protected Areas.

Ms. Geer requests that Energy Facility Siting Council (EFSC) deny the site certificate and reverse the PCCO. In the alternative, Ms. Geer requests the EFSC deny the route that goes through the Rice Glass Hill Natural Area; or to re-route and amend the ASC to avoid the area.

CERTIFICATE OF MAILING

On June 27, 2022, I certify that I filed the foregoing EXCEPTION TO THE PROPOSED CONTESTED CASE ORDER with the Hearings Coordinator via electronic mail, and with each party entitled to service, as noted below.

/s/ Susan M. Geer
Susan M. Geer

By: Arrangement for hand delivery or US Mail:

John C. Williams
PO Box 1384
La Grande, OR 97850

By: Electronic Mail:

David Stanish
Attorney at Law
Idaho Power Company
dstanish@idahopower.com

Lisa Rackner
Attorney at Law
Idaho Power Company
lisa@mrg-law.com

Jocelyn Pease
Idaho Power Company
Attorney at Law
jocelyn@mrg-law.com

Alisha Till
alisha@mrg-law.com

Joseph Stippel
Agency Representative
Idaho Power Company
jstippel@idahopower.com

Kellen Tardaewether
Agency Representative
Kellen.tardaewether@oregon.gov

Sarah Esterson
Oregon Department of Energy
Sarah.Esterson@oregon.gov

Patrick Rowe
Assistant Attorney General
Patrick.g.rowe@doj.state.or.us

Jesse Ratcliffe
Assistant Attorney General
jesse.d.ratcliffe@doj.state.or.us

Jeffery R. Seeley
jeff.seeley@doj.state.or.us

Mike Sargetakis
Attorney at Law
mike@sargetakis.com

Karl G. Anuta
Attorney at Law
Law Office of Karl G. Anuta
kg@integra.net

Stop B2H Coalition
fuji@stopb2h.org

Stop B2H Coalition
Jim Kreider
jkreider@campblackdog.org

Colin Andrew
candrew@eou.edu

Kathryn Andrew
lkathrynandrew@gmail.com

Lois Barry
loisbarry31@gmail.com

Peter Barry
petebarry99@yahoo.com

Gail Carbiener
mcccarb@bendbroadband.com

Matt Cooper
mcooperpiano@gmail.com

Whit Deschner
deschnerwhit@yahoo.com

Jim and Kaye Foss
onthehoof1@gmail.com

Suzanne Fouty
suzannefouty2004@gmail.com

Susan Geer
susanmgeer@gmail.com

Irene Gilbert
ott.irene@frontier.com

Charles H. Gillis
charlie@gillis-law.com

Dianne B. Gray
diannebgray@gmail.com

Joe Horst and Ann Cavinato
joehorst@eoni.com

Virginia and Dale Mammen
dmammen@eoni.com

Anne March
amarch@eoni.com

Kevin March
amarch@eoni.com

JoAnn Marlette
garymarlette@yahoo.com

Michael McAllister
wildlandmm@netscape.net

Sam Myers
sam.myers84@gmail.com

John Winters

wintersnd@gmail.com

Charles A Lyons

marvinroadman@gmail.com

Svetlana Gulevkin

Svetlana.m.gulevkin@doj.state.or.us

Susan Geer's Opening Testimony PCN 5

Exhibit 112

Letter of Registration

Glass Hill Natural Area

2019



Oregon

Kate Brown, Governor

Parks and Recreation Department
725 Summer Street NE, Suite C
Salem, OR 97301-1266
(503) 986-0980
FAX (503) 986-0792
www.oregonstateparks.org



Joel Price
59878 Glass Hill Road
La Grande, OR 97850

October 17, 2019

Dear Mr. Price

The Oregon Parks and Recreation Commission approved your petition to include your Glass Hill property on the Oregon Register of Natural Areas at the Commission meeting on September 18. The property is now fully registered and will be included in the agency's mapping of State Natural Areas.

As long as the property is registered, management objectives should be for preservation and/or enhancement of the ecosystem elements for which the property was registered (as detailed on the registration petition's summary form). If the ecosystem elements are lost or significantly damaged due to disturbance, fire, disease or other cause, please contact me or the Oregon Parks and Recreation Department (OPRD) Stewardship Section to discuss options and details related to the registration. We are also available to discuss any topics related to management recommendations, strategies, or other aspects of the natural area, if you are interested in our feedback.

As you know, registration is entirely voluntary. Should you choose to remove the property from the Register, a letter to the Oregon Parks and Recreation Stewardship Section at the letterhead address above is all that is necessary to withdraw.

Sincerely,

Noel Bacheller
Botanist/Natural Resource Coordinator
Oregon Parks and Recreation Department

CC: Susan Geer

Susan Geer's Opening Testimony PCN 5

Exhibit 113

Dedication Agreement

Glass Hill Natural Area

2020

**DEDICATION AGREEMENT FOR GLASS HILL AS A
STATE NATURAL AREA**

The Oregon Parks and Recreation Commission and Dr. Joel Rice hereby agree to the following provisions as they pertain to Glass Hill, located in Union County, approximately 1 mile south of La Grande, in Township 3S Range 38 E and 4S 38 E. By virtue of this agreement, the above-described site is dedicated as a State Natural Area as provided for in the Oregon Natural Areas Program rules and statutes, as amended.

This agreement is entered into for the purpose of promoting natural diversity of native species and ecosystems in Oregon, and specifically to protect the designated area as the primary representative site for the natural elements listed in the Oregon Register of Natural Heritage Resources Summary Form (Attachment 1) as identified in the Oregon Natural Areas Plan of 2015.

This agreement includes as additional instruments of dedication the appended documents as follows:

- (1) Oregon Register of Natural Heritage Resources Summary Form for the site;
- (2) A statement of management objectives for the site.
- (3) A map delineating the boundary of the site.

Either party to this agreement may terminate it in accordance with the provisions of the Oregon Natural Areas program rules and statutes upon 60 days written notice, including specific reasons for termination.

Approved and signed on the 8th day of November, 2020.



Cal Mukumoto, Chair



Dr. Joel Rice, Glass Hill Natural Area Landowner

Appendix 1

OREGON PARKS AND RECREATION DEPARTMENT
OREGON REGISTER OF NATURAL HERITAGE RESOURCES
SUMMARY FORM

1. NATURAL AREA NAME: Glass Hill
2. LOCATION: Union County, Township 3S Range 38 E and 4S 38 E
3. SIZE: 1230 acres
4. OWNERSHIP: Joel Rice (4 parcels, 1230 acres total).
5. CONSENT OF OWNER (PRIVATE), DATE: 4/20/2019
6. REGISTER CATEGORY: Registered State Natural Area
7. PRINCIPAL NATURAL HERITAGE RESOURCES: Blue Mountains Ecoregion: 14. Ponderosa pine/bluebunch wheatgrass, 15. Ponderosa pine/Idaho fescue, 27. Douglas fir/oceanspray, 138. Mountain alder-snowberry riparian, and 40. Western larch – mixed conifer forest.
8. SPECIAL SPECIES: Douglas' clover (*Trifolium douglasii*), Blue mountain penstemon (*Penstemon pennellianus*), white-headed woodpecker (*Picoides albolarvatus*) – List 2 and ODFW conservation status species.
9. EVALUATION OF CRITERIA FOR REGISTRATION
 - A. PRIORITY IN PLAN: The listed ecosystem types present include BM 14, 15 and 40, all high priority, unfilled needs. Also present but in very small amounts are medium priority unrepresented types, BM 27 and 138.
 - B. ADEQUATE REPRESENTATION: The population of Douglas' clover is small (about 100 plants), but typical of the species, and likely adequate. The two Ponderosa pine forest associations are smaller and younger than optimal, although they are not currently represented on public lands. The other types are probably too small for adequate representation.
 - C. DEGREE OF DISTURBANCE: This site has been logged and grazed in the past but the majority has not been disturbed in over 20 years. There are definitely some weed issues, especially on the most recently disturbed parcel. The most troublesome weeds are Sulphur cinquefoil, ox-eye daisy and sweet-briar rose. Despite disturbance, all the components of the native plant associations are present. It is almost unheard of to find a piece of mid-elevation productive land with no livestock grazing in Eastern Oregon.
 - D. VIABILITY: The owner allows hunting, thinning for fire protection, and non-motorized vehicles but no livestock, logging, or development. The land is managed for the protection of natural values, and the native plants and animals present.
 - E. UNIQUE GEOLOGICAL VALUES: No geological values are known from the site.
 - F. PRIORITY FOR SPECIAL SPECIES: Douglas clover is a List 1 species with no protected sites. The white-headed woodpecker is a List 2 and SOC species.

- G. SPECIAL SPECIES PROTECTION CAPABILITY: A weed management plan and funding is needed to protect Douglas clover from ox-eye daisy encroachment. The white-headed woodpecker population is small, but probably secure.
10. SPECIAL REMARKS OR COMMENTS: The property goes from about 4500 to 5300 ft. elevation and is a mix of woodlands, grasslands, and moist to wet meadows. It includes the headwaters of Mill Creek and Sheep Creek. The property is privately owned, and will stay that way, and there are no clear benefits to the landowner for registration, outside of recognition of current management.
11. DATE OF ORBIC STAFF APPROVAL: June 4, 2019.
12. SOURCES OF ADDITIONAL INFORMATION: ODFW Jon Paustian, Access and Habitat Program Co-ordinator 541-786-4694 re: the program. ODF Jamie Knight 541-962-0195 re: thinning for fuels reduction on private lands. Karen Antell 541-962-3610 re: invertebrates, plants, and meadow habitat. Susan Geer 541-519-5815 re: native plants and weeds. Dave Komlosi 541-963-0477 re: recent thinning. Dave Trochlell 541-962-7819 re: birds and moths. Mike McAllister 541-786-1507 re: geology and wildlife.
13. VALUE OF NATURAL AREA IN LAY TERMS: The Glass Hill area south of La Grande has good representations of upland forested and wet meadow plant associations of the northern Blue Mountains. Glass Hill overlooks Grande Ronde Valley and Ladd Marsh. Ponderosa pine stands are intermixed with swaths of bunchgrass on ridgetops and drier areas while north and east facing slopes and upper elevations support many grand fir and Douglas fir associations. Bushnell meadows and headwaters of Mill Creek and Sheep Creek display various moist meadow and wetlands.

Appendix 2

MANAGEMENT OBJECTIVES FOR GLASS HILL DEDICATED STATE NATURAL AREA

Purpose and Goals

Dedicated State Natural Areas (DSNA) are established (1) to protect examples of terrestrial and aquatic ecosystems, and important geologic features; (2) to serve as gene pool reserves; (3) to serve as benchmarks against which the influences of modern human activities may be compared; (4) to serve as outdoor laboratories for research, education, and nature interpretation.

In general, the goals for DSNA management are to allow natural ecological and geological processes to predominate and continue at a pre-Euro-American settlement rate, with a minimum of human interference. Among the natural processes are fire, wind, floods, earth movements, natural aging and mortality, decay, evolution, and plant succession. In some cases, exceptions to preferred management must be made to prevent loss of life or property, or due to a confining landscape setting. Management manipulations (such as planting, cutting, thinning, enhancement, re-introduction) are not compatible in a NHCA unless necessary to reverse or prevent further human-induced change (such as control of non-native weeds or exotic animals, revegetation of surface damage, recovery from livestock grazing, reduction of excessive fuel loading from past fire exclusion, and in some cases carefully prescribed fire).

Exceptions may also be required to retain a plant community, animal or plant population if it is a primary feature for which the area was established. Controlled low-impact human visitor access is generally compatible with a NHCA when kept from overuse levels which degrade the natural values of the area.

Management needs for Glass Hill DSNA present no undue special demands beyond current management practices for this area. A management plan is currently in place to implement restoration and weed management actions, and an update to that plan is expected in the near future. This document highlights topical areas included in the management plan or appropriate for future revisions to the management. The DSNA boundary consists of the full registered Glass Hill Natural Area boundary.

Access

Access by existing, maintained roads and trails is compatible with the DSNA. Corrective maintenance should be continued to protect the access in steep, wet, or unstable areas as needed to prevent erosion and reduce resource damage.

Fire and Windthrow

As a result of past wildfire suppression, forest density is excessive in some areas and needs intervention to maintain the historically open and fire adapted forest and woodland structure natural to the site. Prescribed fire is an appropriate tool to both restore natural woodland and herbaceous structure, as well as to maintain habitat conditions once recovery to appropriate conditions is achieved

A more detailed fire management/suppression plan should be prepared for the special needs of the DSNA, using the above discussion as a topical skeleton, and utilizing natural fire breaks such as roads, rock outcrops, and water bodies. A brief investigation and summary of fire history at the site is recommended as a component of the fire plan.

Forest windthrow is part of natural ecosystem function at the site and should remain in place, with the exception of the need to cut passages through downed material for normal road and trail clearing and maintenance.

Weed Control

Regular surveillance and control of exotic non-native plant species within the DSNA is necessary to protect native plants communities and is encouraged as needed. However, weed control techniques will be used (for example spot versus broadcast treatment) which minimize impacts to the surrounding native plant cover. Special precaution will be needed in and around rare plant populations. Currently, there are minor weed problems known at Glass Hill DSNA.

Monitoring

Basic biological monitoring of the special plant species, habitat types is encouraged in order to document the ongoing status of these features. Monitoring of the other terrestrial ecosystem and geological values of the site are not required, but a basic record of condition would be useful to monitor long-term changes (such as erosion) and provide a baseline against natural or artificial catastrophic events such as fire, windthrow, or landslides.

Resource Protection

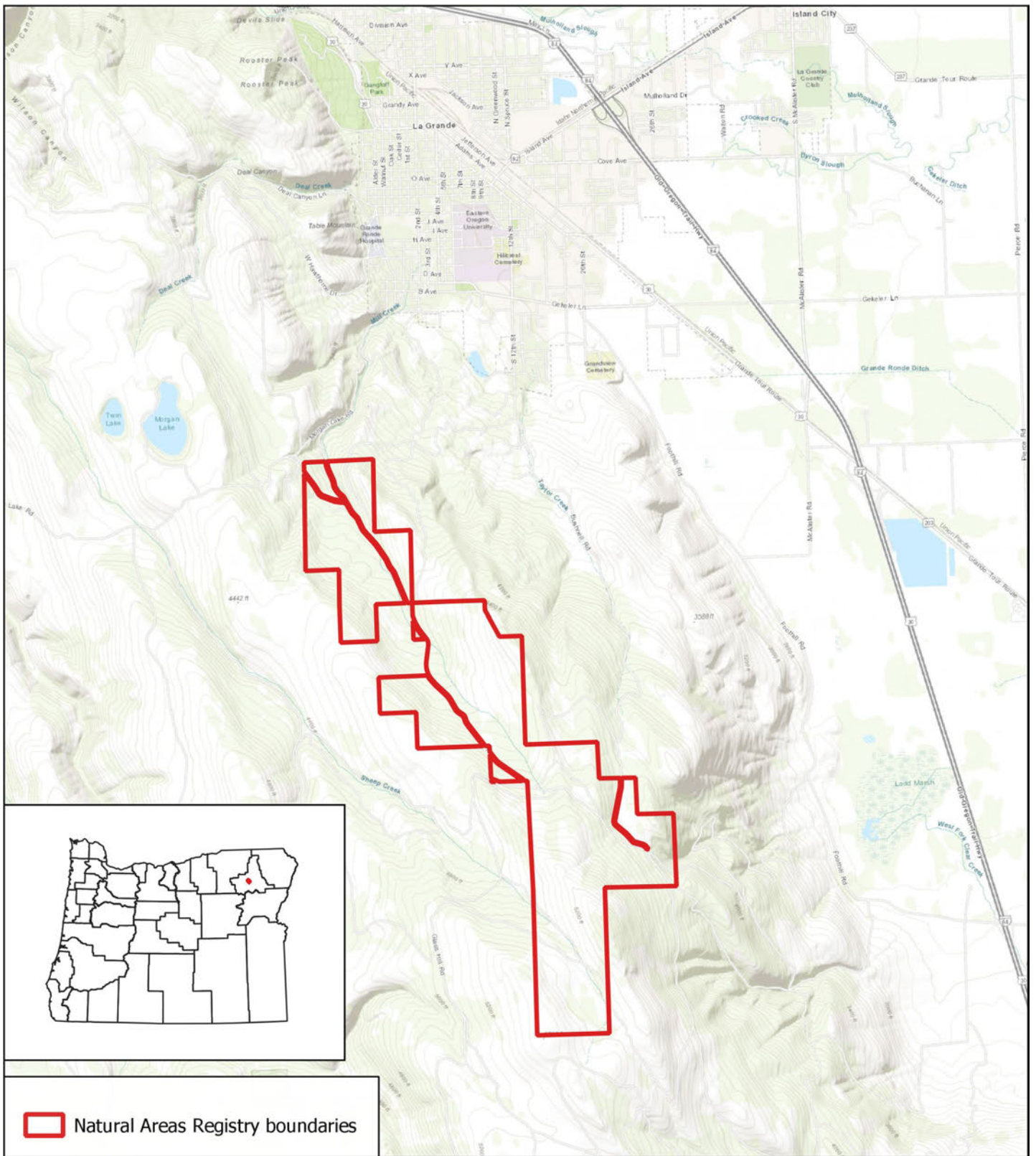
Under currently planned levels of use, no special resource protection is required beyond the road/trail maintenance, continuing to exclude livestock grazing, thoughtful use of fire, weed control, and monitoring mentioned above. The taking of any plants or animals will be discouraged pursuant to the rules governing NHAC's. Should visitor traffic and impacts become too great, it may be necessary at some time in future to manage visitor use. Permission to conduct research or educational uses should be obtained in writing through the landowner and any other agency as appropriate, including but not limited to the Oregon Department of Fish and Wildlife.

Other Management Needs

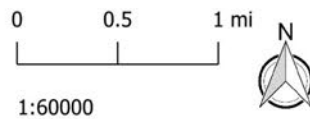
The Oregon Parks and Recreation Department Stewardship Section and the Oregon Biodiversity Information center is available for advice and consultation regarding any additional or unforeseen management needs which may arise.

Glass Hill State Natural Area

Oregon Parks and Recreation Dept.
725 Summer St. NE, Suite C
Salem OR, 97301



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Oregon Natural Areas Plan



2020



Nature
HISTORY
Discovery

Oregon Parks and Recreation Department

Oregon Parks and Recreation Department

Lisa Sumption, OPRD Director

This is the third Oregon Natural Areas Plan. It is based on the 2015 Natural Areas Plan, and previous Oregon Natural Heritage Plans.

This Plan was written by the staff of the Oregon Biodiversity Information Center:

Jimmy Kagan – Emeritus Director/Ecologist
Eleanor Gaines - Director
Lindsey Koepke Wise – Biodiversity Data Manager
Sue Vrilakas – Botanist and Data Manager
Rachel Brunner – Ecologist



and by Noel Bacheller, Natural Area Program Coordinator Oregon Parks and Recreation Department

Chapters 4-7 from the 2009 *Interagency Strategy for the Pacific Northwest Natural Areas Network*, by Todd M. Wilson, Reid Schuller, Russ Holmes, Curt Pavola, Robert A. Fimbel, Cynthia N. McCain, John G. Gamon, Pene Speaks, Joan I. Seevers, Thomas E. DeMeo, and Steve Gibbons.

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Oregon Parks and Recreation Department
725 Summer Street NE, Suite C
Salem, Oregon 97310

2020



TABLE OF CONTENTS

Table of Contents	i
Chapter 1. Introduction.....	1
Chapter 2. Designing A Natural Area Network.....	4
Ecoregional Approach.....	4
Ecosystems, Geologic Formations and Species in Natural Areas	5
Ecosystems and Plant Associations.....	5
Terrestrial Ecosystem Types	6
Marine and Estuarine Ecosystems.....	7
Geologic Formations or Features	8
Special Species.....	9
Chapter 3. Natural Area Conservation	10
Oregon State Agency Natural Area Establishment and Designation	10
Federal Agency Natural Area Establishment and Designation	11
Natural Area Protection on Private Lands in Oregon.....	11
Natural Area Designations	12
Chapter 4. Management and Stewardship	19
Management Goals and Objectives.....	19
Chapter 5. Monitoring and Data Management	20
Monitoring Goals and Objectives	20
Chapter 6. Research.....	22
Research Goals and Objectives	22
Chapter 7. Education and Communication.....	24
Education and Communication Goals and Objectives	24
Chapter 8. Ecoregional Lists and Definitions.....	26
Chapter 9. Marine and Estuarine Ecoregion.....	31
Chapter 10. Coast Range Ecoregion.....	41
Chapter 11. Willamette Valley Ecoregion.....	59
Chapter 12. Klamath Mountains Ecoregion	70
Chapter 13. West Cascades Ecoregion	86
Chapter 14. East Cascades Ecoregion	104
Chapter 15. Columbia Basin Ecoregion	120
Chapter 16. Blue Mountains Ecoregion	128
Chapter 17. Northern Basin & Range Ecoregion	147
Acknowledgments	164
References	165
Appendix 1. Forms and Procedures used in the Natural Area Program.....	168
Comparative Analysis Format for Natural Area Designation.....	168
Model Dedication Agreement Form for State Natural Areas.....	168
Model Procedures for State Agency Dedication of Natural Areas.....	169
Summary Form for Sites included in the Register of Natural Heritage Resources.....	170
Appendix 2. Oregon State Register of Natural Heritage Resources as of 30 June 2015.....	171
Appendix 2a. Oregon's Natural Areas	173
Appendix 2b. Other Designated Areas Conserving Natural Area Plan Species or Ecosystems ..	Error! Bookmark not defined.

CHAPTER 1. INTRODUCTION

The rich diversity of ecosystems and native plants and animals found in Oregon is one of the state's most distinct and valued qualities. Oregon has rain forests, pine savannas, oak woodlands, alpine meadows, prairies, deserts, marshes, estuaries, dunes, rocky headlands, lakes and streams.

There are many reasons it is so diverse. There are climate extremes, with rainfall ranging from over 200 inches a year along Oregon's north coast, to less than 7 inches a year in the Alvord Desert, and temperatures from the very mild banana belt along the coast near the California border to the extremes of the high alpine areas of the Willowa Mountains. Oregon is exceptionally diverse geographically and geologically, having ancient serpentine landscapes in the Siskiyou and Blue Mountains, recent volcanics in the Cascades and the deepest gorge in North America at Hells Canyon. And lastly, Oregon is a floristic crossroads, with arctic boreal species finding their southern limit, Rocky Mountain species common in northeastern Oregon, Great Basin species in southeastern Oregon and California coastal and Sierra species in the southwest, all mixing with native northwestern taxa to create a wide array of habitats.

Natural Areas

Natural Areas protect many high-quality native ecosystems and rare plant and animal species. Valued for teaching and scientific research, Natural Areas provide a relatively undisturbed setting in which to study native ecosystems and species. Research projects on these sites provide important answers to statewide land management questions. Native forests, grasslands, tide pools, bogs, and sagebrush steppe are a few of the diverse ecosystem types protected in Oregon's Natural Areas, as are many of Oregon's rarest plants and animals.

The Oregon Natural Areas Program is a member of the Natural Areas Association, a non-profit which supports state natural area programs and the community of natural area professionals across the country. The Oregon Natural Areas Program is also a member of and partner with the Pacific Northwest Interagency Research Natural Areas Committee.

Oregon Natural Areas Program History

The Oregon Natural Areas Program was established by the 1979 Legislature in the Natural Heritage Act (ORS 273.561-.591 [SB 448]), to help protect natural areas in Oregon. The law was based on a tradition of natural area inventory and conservation. In 1973 the Legislature passed the Natural Area Preserves Act, which was the first attempt to conserve state natural areas. In 1972 scientists and conservationists led by Jerry Franklin of the U.S. Forest Service's PNW Research Station developed the first *Research Natural Area Needs in the Pacific Northwest* (Franklin et al. 1972). This publication served to guide the establishment of federal natural areas in Oregon until the publication of the first Oregon Natural Heritage Plan in 1981.

After 1979, the Oregon Natural Heritage Program (now the Oregon Biodiversity Information Center or ORBIC) staff, along with the Natural Heritage Advisory Council, guided the establishment of natural areas in Oregon with very limited state resources. For the first 14 years of the program all of the work to establish natural areas was done cooperatively with the Interagency Research Natural Areas committee, an Oregon – Washington partnership staffed by the PNW Research Station. The natural areas program grew and flourished on federal lands. During this time, no natural areas were established on any state lands in Oregon. After 1993, the Oregon Parks and Recreation Department (OPRD) became the first and only state agency to establish new natural areas. OPRD has since established 8 state park natural areas, and is continually evaluating and acquiring new sites.

The 25-year review of the Oregon Natural Heritage Act and Natural Heritage Program affirmed that natural areas continue to provide important places for public education and baseline research and that it remains important for Oregon to maintain a natural areas program. The review resulted in the Oregon Legislature updating the [law](#) by moving management of the program to the Oregon Parks and Recreation Department in 2012. A description of the new program, [rules](#) updated again in 2019, goals and responsibilities are outlined in this plan.

Goals of the Natural Areas Program

There are three primary goals and three additional principles directing the activities of the Natural Areas Program. The goals are to:

1. Create a discrete and limited system of natural areas representing the full range of Oregon's natural resources. These areas are to be used for scientific research, education and nature interpretation.
2. Establish a method for public and private sector voluntary cooperation in the development of a system of natural areas.
3. Provide advice to managers of natural areas on the management and conservation of natural resources within Oregon.

The program's activities are based on the following principles:

1. The Program shall be complementary to and consistent with the Federal Research Natural Area program.
2. All conservation shall be voluntary on the part of the landowner or public land manager.
3. Wherever feasible, natural area establishment should not conflict with economic uses or development.

Natural Areas Plan

The Natural Areas Plan guides the selection of natural areas in Oregon. As a first step, the Plan defines the full range of components of Oregon's biological resources – the terrestrial, marine, wetland, and aquatic ecosystems that define Oregon's living landscape. Unique geologic formations are included because of their special scientific and educational interest.

In addition to these natural resources, the Plan calls out “special species”, including vascular plants, non-vascular plants, vertebrates, and invertebrate animals that are currently considered to need attention so as not to disappear from Oregon.

Since so many lands in Oregon have natural values which may be important for conservation, criteria are needed to identify those areas with the highest or most natural values. The Plan provides landowners and public land managers with tools to voluntarily designate and protect priority areas, and assistance on how to manage these lands. Guidelines for the management of these conservation areas are consistent with those developed for the Research Natural Area program on federal lands.

There is no requirement to update the Oregon Natural Areas Plan under law or administrative rule. However, it is anticipated that the plan will be updated every five years to include new scientific concepts related to natural areas, to remain useful to state and federal land management planning, and to evaluate the effectiveness of the program.

Interagency Strategy for the Pacific Northwest Natural Areas Network

In 2009, the Interagency Research Natural Areas committee published a strategic plan for the Natural Areas Program in Oregon and Washington (Wilson et al. 2009). Much of this document is incorporated directly into the Plan, including the vision statements identified in each of the strategy chapters.

Key Terms and Definitions

The following terms are used in this Plan:

Aquatic and Wetland Ecosystems -- Distinct freshwater aquatic environments, equivalent to "Aquatic Types" as used in the Oregon Natural Heritage Act; and Wetlands and Deepwater habitats, as defined by the U.S. Fish and Wildlife Service (Cowardin et al. 1979). This category includes wetlands, streams, rivers and lakes. Marine and Estuarine aquatic ecosystems are treated separately.

Biodiversity -- The full range of variety and variability within and among living organisms and the ecological complexes in which they occur. This encompasses ecosystem processes, species diversity and genetic variation.

Ecoregion -- A geographic area with characteristic features such as climate, geology, geomorphology, soils, ecosystem processes, and natural assemblages of plants and animals.

Ecosystem -- An assemblage of organisms plus the local environment supporting them. These generally have consistent dominant species, food chains, and nutrient flows. Ecosystems in the Plan can vary in area from a 20-acre silver sagebrush dominated vernal pool community to a 20,000-acre wetland complex.

Geologic Formations -- The rocks and sediments deposited in distinct environments (formations) or the landforms formed by distinct biological, chemical, and/or physical processes (features). These features or formations are grouped into types that indicate when they were formed or deposited.

Invasive Species -- Also referred to as exotic species, these are plants or animals occurring in Oregon as a result of introduction or unnatural range expansion. These are species that disrupt natural ecosystem processes and did not occur in Oregon before statehood.

Native Species -- Any species known to occur in Oregon before statehood or that has moved into Oregon through natural range extension.

Natural Area -- An area of land or water managed for scientific research and education, containing important biological or geological attributes.

Natural Heritage Resources -- The Terrestrial Ecosystems, Aquatic and Wetland Ecosystems, Special Species and Geological Formations included in the Natural Areas Plan.

Oregon Register of Natural Heritage Resources -
- A registry maintained by the Natural Areas Program of significant natural areas, voluntarily managed in ways that protect one or more natural heritage resources.

Representation -- The inclusion of a species or ecosystem type in a natural area. The central goal of the Heritage Program is to assure that all species and ecosystems are adequately represented, but without unnecessary duplication.

Research Natural Area (RNA) – Natural areas established by federal agencies under the plan of the Pacific Northwest Research Natural Area Committee. The Oregon Natural Areas Program is, in effect, the state counterpart of the federal program.

Special Species -- Animal and plant species considered to be of conservation interest because of their rarity or vulnerability to extirpation or extinction, or because they are under-represented in the statewide system of protected natural areas.

Terrestrial Ecosystems and Plant Associations – Assemblages of land-based species in a given locale, usually with a consistent set of dominant species and a characteristic environment. These are largely equivalent to “Plant Associations” as defined in the National Vegetation Classification System (Jennings et al. 2008). They more accurately reflect all components of the ecosystem rather than merely the dominant plant species.



Zumwalt Prairie Preserve

CHAPTER 2. DESIGNING A NATURAL AREA NETWORK

Vision

A network of natural areas is designed to include the full diversity of ecosystems, species and geologic features in Oregon, which complements other natural areas in the Pacific Northwest, while recognizing that each site is a dynamic ecosystem that will change over time.

Ecoregional Approach

Ecoregions are areas with similar climate, vegetation, geology, geomorphology, soils, and ecosystem processes. Ecoregions generally have characteristic vegetation and species. Oregon has used ecoregions as a way to evaluate environmental health in the *State of the Environment Report* (2000) and to plan for conservation in the

Oregon Department of Fish and Wildlife's *Conservation Strategy* (2016). Also, the Oregon Watershed Enhancement Board uses these Ecoregions to identify conservation acquisition priorities. The Natural Areas Plan uses ecoregions (Figure 1) to define the different types of natural areas needed for research and education.

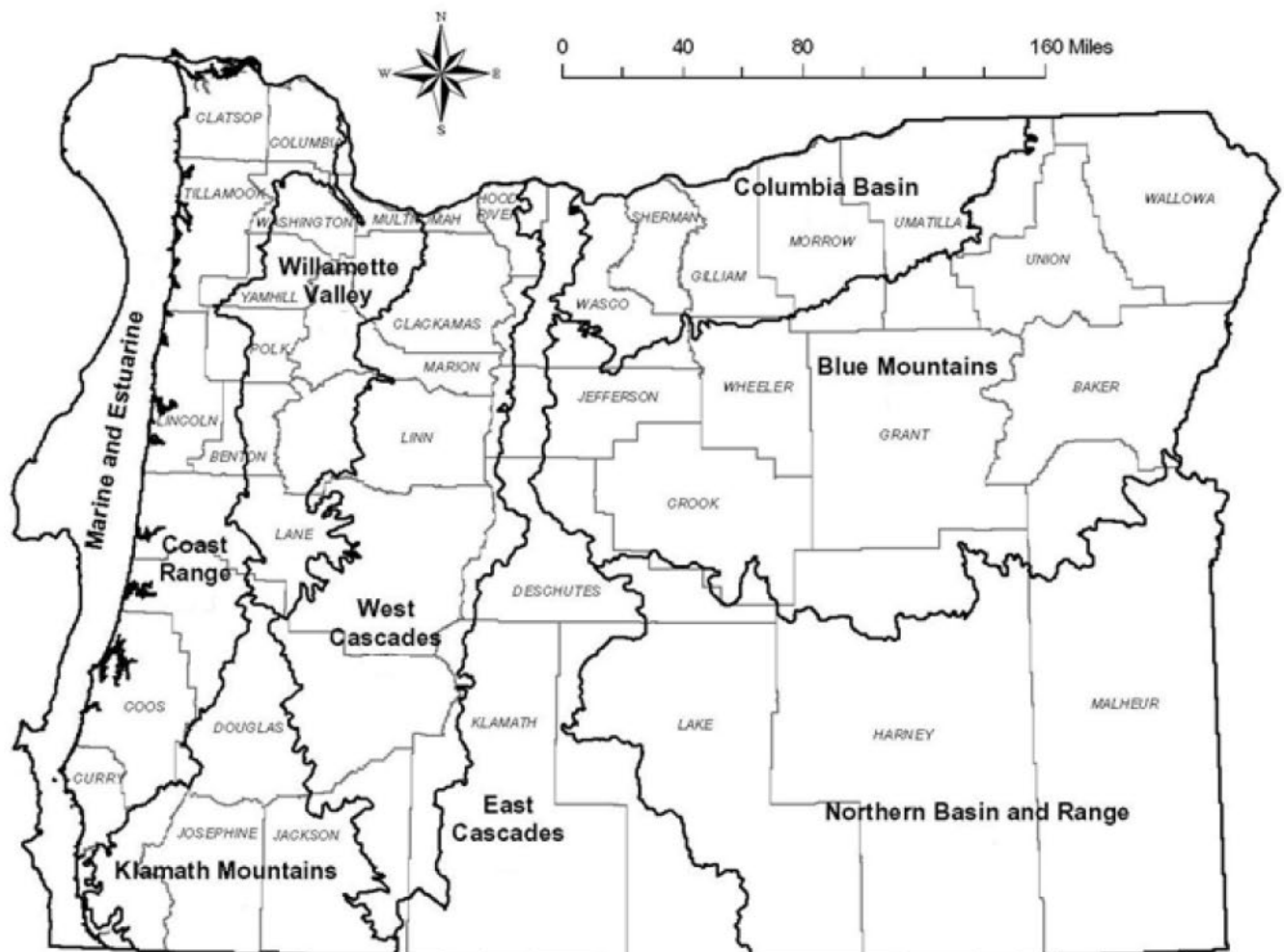


Figure 1. Ecoregions of Oregon used in this Natural Areas Plan.

Currently, Oregon recognizes eight terrestrial ecoregions in Oregon, based on the map developed by the EPA (Thorson *et al.* 2003), modified from the USFS ecoregions (Bailey 1995). The EPA map includes a small part of a ninth ecoregion in Oregon, the Snake River Plains which is combined with the Basin and Range Ecoregion for this Plan, since the area found in Oregon is so small. A Marine - Estuarine region covering the intertidal areas, coastal habitats and bays that is not in EPA's map is included as well. A brief description of each ecoregion's ecology, geology, and economy is included at the beginning of each ecoregion chapter.

Ecosystems, Geologic Formations and Species in Natural Areas

Oregon's natural diversity consists of thousands of plants and animals interacting with each other and with their physical environment. The natural area network is designed to include examples of all of these to assure at least one good example of each ecosystem type, geologic formation and at-risk species is represented in each ecoregion in which they naturally occur. How these ecosystems, formations and species are characterized and identified as needing representation is the basis of this chapter.

An ecosystem type is generally a plant association, such as a Douglas-fir forest, a big sagebrush / bunchgrass shrubland, prairie or a sphagnum bog. The comprehensive list of ecosystems from Oregon make up the major part of the natural area design. If a comprehensive list of all species which occur in the complete list Oregon's terrestrial and aquatic plant associations were compiled, the list would contain almost all of Oregon's native species.

However, some individual species (such as the Willamette Valley daisy or the pygmy rabbit) are rare or occur only locally. Because these species may not be protected using the ecosystem approach alone, the Natural Areas Program identifies them as special species and works to assure they are represented in the natural areas system.

Ecosystems and Plant Associations

Ecological units in the Natural Areas Plan are plant associations from the U.S. National Vegetation Classification System ([USNVC](#) - Jennings et al. 2009). The Oregon Biodiversity Information Center

was one of many programs that helped develop this classification, which is now on the NatureServe Explorer web site (<http://natureserve.org/explorer>). The IVCS defines a plant association as “*a vegetation classification unit defined on the basis of a characteristic range of species composition, diagnostic species occurrence, habitat conditions, and physiognomy.*” The Oregon Biodiversity Information Center maintains a complete list of plant associations known from Oregon, available at the INR website ([here](#)), along with information on their significance as well as on the publications from which they were derived. Descriptions of most of these associations are also available on NatureServe Explorer.

Only terrestrial, wetland and riparian vegetation types are included in the IVCS. For estuaries and marine ecosystems, the plan has adopted NOAA's Coastal and Marine Ecological Classification Standard (FGDC 2012). Oregon state agencies are implementing this, and it was used as the basis for as many of the types in our new Marine-Estuarine Ecoregion as was possible. Unfortunately, no classification has yet been adopted for freshwater aquatic ecosystems, so only a few of these types are included in the plan. This represents an area of research that should be addressed in the near future.

For simplicity, all ecosystem types – terrestrial, aquatic and marine – will be referred to as plant associations throughout the remainder of this plan. This does not alter the fact that only wetland, terrestrial and riparian vegetation types have defined plant associations to date.

Identifying Ecosystem Objectives

Oregon's plant associations or ecosystems are included in the Natural Areas Plan when:

1. They have been defined in the literature or proposed by scientists or managers and have historically occurred in Oregon.
2. They represent unique or local ecosystems which significantly contribute to the biodiversity of an ecoregion.

Because plant associations typically occur in clusters, several can often be found in a mosaic together. As a result, the number of natural areas needed to protect ecological resources is significantly smaller than the number of plant associations in an ecoregion.

Various scientific references were consulted to develop the resource lists in the plan. All major sources are included in the bibliography, which is based on an updated comprehensive collection of scientific literature maintained at the Oregon Biodiversity Information Center. In addition, experts from the region's universities and natural resource agencies as well as knowledgeable individuals were consulted.

Assigning Ecosystem Priorities

Plant associations are ranked in the ecoregion ecosystem lists as high (H), medium (M) or low (L) priority. The primary factor in determining an ecosystem priority is the difficulty of finding ecosystem representation for the type. Four factors help characterize this: 1) **rarity** of known, high quality examples; 2) **threat** to the occurrences of the type; 3) the **ecological fragility** or sensitivity to natural or artificial disturbances; and 4) the **adequacy and viability of protected occurrences**.

The Oregon Biodiversity Information Center uses these same criteria to rank all ecosystem types and species found in Oregon. This ranking system is used by Natural Heritage Programs across the U.S. and is maintained by NatureServe, and ranks species and ecosystems at a global and state basis.

The global ranks vary from G1 to G5, using the four criteria listed above. G1 ranked species are critically imperiled, while species ranked G5 are demonstrably secure. Plant associations and native species are also ranked based on their status within Oregon, using the same numbering system. State ranks range from S1 to S5, with S1 including types critically imperiled in Oregon and S5 applied to those demonstrably secure Oregon.

The priority ranking for plant associations in the Natural Areas Plan is determined by its NatureServe / Natural Heritage rank. The priority values are assigned as follows:

High Priority	=	G1, G2 or S1 ranked types
Moderate	=	G3, S2 or G4S3 ranked types
Low	=	Ranks lower than above

Currently plant associations are only ranked at the state and the global level, and there is no available data to rank them at the ecoregional scale. While ecoregional ranking would better inform the ecoregional priorities in this plan, data availability requires the state and global data be used.

Adequate Representation of Types

To allow for study and education of the full range of Oregon's diversity, the natural areas network must contain examples of each identified ecosystem type or plant association that are of sufficient size and quality. The natural area designation must also provide sufficient protection of the ecosystem types. Three basic criteria are used to decide if an example of an ecosystem type is adequately conserved within a natural area.

1. Management Intent - Sites are adequately protected if the existing management plan or agency management direction identifies the long-term survival of the ecosystem and its protection from human impacts as primary goals.
2. Quality - A determination should be made that the occurrence of the ecosystem or plant association is large enough and of sufficient quality for research and educational uses.
3. Size – Sometimes, ecosystems or species are so rare that the only occurrences that exist on a natural area are small. In these cases, having partial representation at more than one site is the only way for the public to see them or researchers to study them.

Terrestrial Ecosystem Types

Terrestrial ecosystem types are the most frequently observed plant associations. They are organized in the ecoregion lists by zone, with the zones generally representing the dominant plant species in the canopy. These forest zones were modified from the *Yellow Book* (Dyrness et al. 1975) which defined the first list of natural area needs for the Pacific Northwest. Adjacent zones containing only a few ecological communities have been combined in certain ecoregions to simplify the plan.

There are three types of aquatic and wetland ecosystems described in this plan: lakes and ponds (lacustrine); wetlands and bogs (palustrine) and rivers and stream (riverine).

Lacustrine includes lakes larger than 20 acres (8 hectares) and deeper than 6.6 feet (2 meters). Aquatic floating plants and lakeshore marshes are considered lacustrine types. The PSU Center for Lakes and Reservoirs has the best database of lakes

and aquatic weeds and has developed an on-line version of the *Atlas of Oregon Lakes* (Johnson 1985, <http://oregonlakesatlas.org/about> or <http://oregonlakesatlas.org/map>.)

Palustrine types are freshwater or alkaline wetlands dominated by emergent trees, shrubs, grasses, sedges, forbs, mosses or liverworts. The Oregon Department of State Lands manages the state wetland program to conserve these resources. They include small (non-lacustrine) lakes, ponds and springs, as well as intermittent lakes, vernal ponds and playas. Riparian areas associated with the immediate margins of rivers and streams are included here. Wetlands have been a major focus of classification and inventory in Oregon, included in the IVCS and linked to the U.S. Fish and Wildlife Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin *et al.* 1979), the standard for wetland mapping in the United States.

Riverine resources represent aquatic types associated with rivers and streams. In the 1981-1993 editions of the plan, riverine resources were identified as a third freshwater aquatic category. However, since there are no standard classifications available to adequately define riverine types, they are no longer included in the ecoregional lists. When new research by natural resource agencies, non-governmental organizations or universities leads to a somewhat comprehensive classification or map of aquatic ecosystems in Oregon, they will be included in the plan.

Marine and Estuarine Ecosystems

All marine and estuarine ecosystem types are found in the Marine and Estuarine Ecoregion. The classification employed is described in detail in the Marine and Estuarine chapter.

Marine resources include tidal and subtidal habitats with little or no freshwater dilution. They currently extend past the area that Oregon controls, three nautical miles seaward of the coastal baseline, to the edge of the continental shelf.

Development of policy for management and designation of marine reserves is overseen by the Ocean Policy Advisory Council (OPAC), and its *State of Oregon Territorial Sea Plan* (1994). The state and OPAC continue to work to establish

various marine reserve types. In 2019, OPAC adopted a [Rocky Habitat Management Strategy](#) as an adaptive management framework focused on the long term protection of ecological resources and coastal biodiversity in Oregon's rocky habitats. It includes information (see pages 25-29) on Oregon's Marine Gardens, Research Reserves, Habitat Refuges, Marine Reserves and Protected Areas, as well as many federal protections.

Estuarine resources are tidal and subtidal waters with occasional to regular freshwater dilution. They extend from the outer limits of open to temporarily enclosed embayments to a point upstream where the effects of ocean-derived salts are negligible. Estuarine resources are well catalogued in the *Oregon Estuary Plan Book*, developed cooperatively by the Oregon Department of Fish and Wildlife and the Oregon Department of Land Conservation and Development (1987).



Hunter Creek Bog RNA

Geologic Formations or Features

Oregon's geological heritage consists of rocks, sediments and associated features representing the richness of Oregon's natural heritage. For example, there are Jurassic shales with finely ornamented ammonites in the Blue Mountain and Klamath Mountain Ecoregions; spectacular Tertiary flood basalts that extend across the 300 mile-width of Oregon from the Columbia Basin Ecoregion to the Marine and Estuarine Ecoregion; explosive, volcanic deposits and features, such as Crater Lake of the Cascades Ecoregion; as well as the Quaternary deposits and features such as the striking, glacial erratics transported from the Rocky Mountains by icebergs during ice-age floods and deposited in the Willamette Valley.

The rocks, sediments, and features of Oregon's geology formed in distinct environments or the surface features were sculpted by distinct biological, chemical, and physical processes. These rocks, sediments and features can be defined as geological formations and features. **Formations** represent rocks found in the standard intervals of geologic time, usually on the order of millions to tens of millions of years.

In the Plan these intervals extend from the Devonian (the time interval from about 410 to 355 million years ago) that includes the oldest rocks yet found in Oregon, through the Quaternary, which includes the present time. **Features**, represent deposits or geomorphic forms whose character has developed over the past two million years (the Holocene time interval) and may be undergoing change today, such as the Netarts Spit.

These geological types are similar to the ecosystem types in that for the most part, they consist of distinctive assemblages. They differ in that they are organized by time interval. Furthermore, even though there are similar time intervals among the different ecoregions, the geological setting and processes that formed the deposits of rock and sediment of the intervals were usually different. For example, in one ecoregion Tertiary rocks may have formed on land whereas in another ecoregion, the Tertiary rocks may have formed in the sea. As a result, the geological features and formations are both distinct and characteristic in each ecoregions.

There are two main guidelines for including geological features and formations in the list of Geologic Types:

1. Certain geologic types, for instance fragile volcanic features and paleontological sites, are vulnerable to destruction and can be protected by effective natural area management.
2. Other geological types are a prominent component of our natural heritage and should be recognized for their educational and interpretive values. This could be accomplished through recognition of the finest features on the State Register of Natural Resources.

The Natural Areas Program functions to both formally recognize the geologic formations and features and to help protect them through natural area conservation. As is the case for species and ecosystems, priorities for protection or representation are based on the presence of a potential or actual threat to the formation or feature, as well as the rarity and/or the significance of the formation or feature. Geologic types are included in a list for an ecoregion if its occurrences are endemic to, representative of or particularly important in the ecoregion.

A geologic type may not require inclusion in a formally designated natural area for it to be considered protected. For instance, geological values are an important factor in the management of many areas designated for recreation, such as Wild and Scenic Rivers, Wilderness Areas, or State and National Parks. However, some geological features, such as fossil locales or ash flows, can be quite sensitive to disturbance. In these areas, the use of designations designed to represent ecosystems and species is desired.

Assigning Priorities to Geologic Features and Formations

Geological features and formations are prioritized in the ecoregional list of natural area needs as high (H), medium (M) or low (L) priority. The factors used for assessing geologic elements are somewhat different than the ecological types. The primary factors include the: 1) **rarity** of known, high quality occurrences of the geologic element; 2) **threat** to the occurrences of the type; and 3) **fragility** or sensitivity to natural or artificial disturbances.

Special Species

In addition to ecosystem and geologic types, the natural areas program strives to include all native plants and animals in the ecoregional network of natural areas. Since natural areas selected for ecosystems will likely contain examples of the common species, the plan identifies lists of rare and at-risk species, or “special species” that should be included either in a registered or designated natural area if possible.

The Natural Areas Program works with the Oregon Biodiversity Information Center, as well as the Oregon Department of Fish and Wildlife and the Oregon Department of Agriculture, to develop a comprehensive list of special species that need to be included in the Natural Areas Plan. The species included in ecoregional lists were selected using the most current information available on the distribution and abundance of plant and animal species native to Oregon. The list of taxa in the plan should assist public and private land managers and planners in determining which species are of special concern within their given management jurisdictions. They are also intended for use by amateur and professional botanists and zoologists to help focus their efforts on those taxa most in need of attention.

Species are listed within the ecoregions where they naturally occur, and in the protected areas that support them. Only those taxa which are considered to be threatened or endangered in Oregon or throughout their range have been included.

Special Species List Designations

List 1 contains taxa that are threatened with extinction or presumed to be extinct throughout their entire range.

List 2 contains taxa that are threatened with extirpation or presumed to be extirpated from the state of Oregon. These are often peripheral or disjunct species which are of concern when considering species diversity within Oregon's borders. They can be very significant when protecting the genetic diversity of a taxon. Extreme rarity is viewed as a significant threat and as such very rare Oregon taxa are all on this list.

The Oregon Biodiversity Information Center tracks all occurrences in Oregon for any species included on List 1 and List 2, and has a fairly comprehensive database of their locations.

The Oregon Biodiversity Information Center also maintains two other lists of at-risk species: List 3 and List 4. List 3 is the “Review List”, which includes taxa that could be threatened or endangered, but whose status is currently unclear. List 4 is the “Watch List” of taxa that are rare but apparently stable, or those that are declining but remain too abundant currently to be considered threatened. Taxa on Lists 3 and 4 have not been included in the Natural Areas Plan because they are at lower risk, and because their distributions may not be understood well enough to include them.

The comprehensive list of these taxa and the most up-to-date information on their distributions can be found in the most recent edition of *The Rare, Threatened and Endangered Species of Oregon* (ORBIC 2019), available at <http://orbic.pdx.edu/rte-species.html>.



Fenders Blue Butterfly

CHAPTER 3. NATURAL AREA CONSERVATION

Vision

Federal agencies, state agencies, local governments and conservation organizations working together to designate a network of natural areas representing the full diversity of ecosystems in Oregon.

Oregon's natural areas are conserved when landowners or land managers choose to establish a natural area on lands they own or manage. Natural areas can also be permanently protected if a conservation group, state or federal agency buys private land to conserve it. More commonly, it occurs when a state or federal agency designates a site as a natural area in an agency plan. The federal and state agencies rely on different mechanisms, depending on the laws and rules that guide their actions. Descriptions of the agency designations and natural area programs are included in this chapter. In addition, this chapter discusses different mechanisms for establishing natural areas and outlines various public and private land management designations which together create the statewide system of natural areas.

Natural areas can be conserved voluntarily on private lands, either on a short-term basis by an interested landowner, or through a conservation agreement or easement, which has a set time span. Efforts to make it easier for landowners to conserve habitats on their lands and to provide incentives for landowners to restore habitats on private lands have been increasing and are an important focus for the conservation efforts outlined in the Oregon Conservation Strategy. A comprehensive list of incentives for voluntary protection of private lands is in the 2015 update of the strategy, available at: <http://www.dfw.state.or.us/conservationstrategy/>. While these are important for conservation overall, the history of the natural area program in Oregon has shown that voluntary conservation by private landowners has not been an effective method for establishing natural areas.

In Oregon, the majority of natural areas have been established by the Bureau of Land Management and the U.S. Forest Service on federal lands. So, the primary partner in establishing and managing natural areas is the Pacific Northwest Interagency Natural Area Committee which works with the federal agencies to establish federal Research Natural Areas (RNAs) on public lands.

The Pacific Northwest Interagency Natural Areas Committee works with the Natural Area programs in Oregon and Washington to help implement the states' natural area plans and cooperatively create vision and momentum for the use of natural areas.

The process for establishing natural areas is different for federal, state and private lands in Oregon, and are described below. Regardless of the owner, for a site to be designated as a natural area in the state, three steps need to be taken:

1. Search databases and literature at the Oregon Biodiversity Information Center, university libraries, herbaria and other information sources, and contact experts in the scientific and professional community to determine if the site contains species or plant associations needing representation.
2. Visit the site to evaluate the size and quality of the ecosystem types present.
3. Make a recommendation to the appropriate oversight group that the area be designated.

Oregon State Agency Natural Area Establishment and Designation

Dedication is the primary way natural areas are protected on state lands. The Natural Areas Act states that "the Oregon Transportation Commission, the State Fish and Wildlife Commission, the State Board of Forestry, the State Board of Higher Education, the State Parks and Recreation Commission and the State Land Board shall, with the advice and assistance of the department, establish procedures for the dedication of state natural areas on land, the title of which is held by the State of Oregon, and which is under that agency's management and control." These established or dedicated sites would be called State Natural Areas.

State agencies can choose to conserve a natural area based on internal staff recommendations, or they can proceed from a recommendation from the Biodiversity Information Center or the Interagency RNA Committee. Model dedication procedures or guidelines for dedication are included as Appendix 1 to assist natural resource state agencies in establishing natural areas on their lands. Agencies may wish to further refine these guidelines.

In addition to dedication, state agencies can either receive gifts of private property or acquire private property to be managed as natural areas. The Natural Areas Act clearly states that whenever feasible, areas selected for protection "shall be located on lands which have been allocated primarily to special non-commodity uses." Only properties that have ecosystems, species or geologic features or formations included in this plan, and that are suitable for dedication should be dedicated as a state natural area.

While natural areas that are dedicated on state lands are assumed to be permanently protected, there are procedures that allow for the Natural Area designation to be removed, or "terminated". In order to terminate a dedication, the agency must first hold a public hearing. There must be adequate public notice and a finding from the hearing that either: (1) there is an "imperative or unavoidable necessity;" or (2) the dedication of the site is no longer needed according to the guidelines of the Natural Areas Plan. Reasons to remove dedication might be that the ecosystem types or species that were the basis for designation are no longer present, or another larger or better quality site has been found which better represents them. Or if compelling reasons exist to no longer manage the lesser site as a natural area. To date, no state dedicated natural areas have been terminated, although a portion of one BLM RNA was removed when a landslide from upstream mine tailings buried the riparian vegetation the site was designated to protect, and other properties changed hands, at which time the designation was dissolved.

Federal Agency Natural Area Establishment and Designation

Federal agencies have different protocols for establishing natural areas (Research Natural Areas or RNAs) on their lands. Generally federal agencies identify areas which contain unrepresented plant

associations, species or geologic types identified in the Oregon Natural Area Plan. These areas are evaluated by staff, boundaries are proposed, alternatives are examined, and a site and site boundaries are selected through the agency's planning process.

The U.S. Forest Service requires each RNA to be part of formal National Forest Management Plans, either through plan revisions or amendments to existing plans. In addition, Establishment Records are created for each RNA. These records include the justification for establishment, legal boundary descriptions, maps, distinguishing ecological features, environmental analyses, and management issues and guidelines. RNAs become officially established once an Establishment Record is completed and signed by the Region 6 Regional Forester with concurrence by the U.S. Forest Service Pacific Northwest Research Station Director, on behalf of the Chief of the U.S. Forest Service and Secretary of Agriculture.

In Oregon, the Bureau of Land Management (BLM) generally establishes RNAs during updates to their resource management plans (RMPs). The RNA is established when the RMP is approved by the Oregon/Washington BLM State Office. The U.S. Fish and Wildlife Service, the National Park Service, and the Army Corps of Engineers each follow similar protocols to establish RNAs on their lands.

Natural Area Protection on Private Lands in Oregon

The register is an official list of areas that contain significant natural heritage resources and/or special species. Private individuals or organizations may voluntarily designate all or part of their property as a natural area. To include a site on the register, the Parks Commission must determine that an area is predominantly natural, or has an example of an ecosystem type or species needing conservation.

For any privately-owned site to be included on the register, the Parks and Recreation Commission needs the written consent of the owner and a completed summary form (Appendix 1). After staff reviews the data on the form for accuracy, they recommend the site for inclusion on the register. The Commission then acts on this recommendation.

A private site can be removed from the register if OPRD receives a letter from the property owner indicating they no longer wish it registered or if the ecosystems or species for which it was registered are no longer present at the site.

As of June 30, 2015, the Register of Natural Heritage Resources included 113 sites found on both state and private lands. State agencies may choose to register sites, if they want recognition that their management plans are conserving identified ecosystems or species. The list of all sites on the register is found in Appendix 2. More information on these sites is available from the Oregon Biodiversity Information Center.

If a private landowner of a site on the Registry wishes to pursue dedication, the process follows the same outline for state agency dedications. Until 2009, to do so, the property needed to be first included on the Oregon Register of Natural Heritage Resources. This is no longer required. If a private parcel is dedicated by the Commission or was previously dedicated by the State Land Board, an Instrument of Dedication is provided to the landowner, and is recorded in the office of the clerk of the county in which the property exists. This Instrument may be highly variable in nature.

Private landowners may terminate the dedication at any time in accordance with the procedures outlined in the dedication agreement. Since participation in Natural Areas conservation is entirely voluntary for the private landowner, incentives for the dedication of lands have been established. Landowners who dedicate their property as a Natural Area can apply for and obtain property tax exemptions. If tax exemptions are obtained, back taxes become due if a dedication is terminated. However, aside from conservation organizations which acquire natural areas as part of their mission, no private landowners have yet chosen to dedicate their private property, indicating the incentives may not be sufficient.

Natural Area Designations

Designations are how most public and some private landowners determine how their lands will be managed. This section outlines the management designations, the level of protection they provide and the consistency of their management objectives with the goals of Oregon's Natural Areas Program.

There are many agencies and organizations not included in the ecoregional lists that play a role in the identification and conservation of natural areas even though they may not manage lands. The Oregon Watershed Enhancement Board provides funding for watershed groups, as well as for easements and acquisitions, both of which can lead to important protections for species and habitats. Federal agencies such as the U.S. Natural Resources Conservation Service and local Soil and Water Conservation Districts help protect lands and water and maintain close contact with the agricultural community. Together, these agencies have a very important role to play in conserving nature in Oregon.

In evaluating the level of protection that various agency management designations provide, Oregon has adopted criteria from a national effort to develop a protected areas database, called the PAD-US. The project recognizes three main areas which describe how well sites or designations work at protecting diversity. These standard definitions and the spatial database build using them in Oregon represent the most comprehensive criteria and data developed to date.

- 1. Management Intent:** What is the goal or objective of the designation as it relates to the conservation of biodiversity, and is it compatible if not identical with those for managing natural areas? Most sites are designated as 1- conservation focus, 2- conservation compatible, 3- conservation neutral and 4- unknown.
- 2. Permanence:** What is the length of time the designation is in place. These include permanent, long-term, temporary and unknown.
- 3. Effective Management Potential:** The ability of the land management entity to implement the intent of the designation. This has to do with agencies having the governance structure, the planning framework and the resources to manage the property as intended. This was created to address "paper parks" from Central and South America, but can be applied to some private, state and even federal natural areas. This criterion has not been applied to all natural areas in this plan, but will be completed soon.

State Agency Designations

State Natural Area (SNA)

Purpose: (1) To protect examples of terrestrial and aquatic ecosystems; (2) to serve as gene pool reserves; (3) to serve as benchmarks against which the influences of human activities may be compared; and (4) to provide outdoor laboratories for research and education.

Administering Agencies: State Parks and Recreation Department, Department of Forestry, Department of Fish and Wildlife, Oregon Military Department and Conservation Organizations.

Management Intent: Natural Area focused

Permanence: Permanent. While state natural areas can be terminated, none have been and they are not likely to be.

Comments: Ten sites have been dedicated on state lands to date and several others are currently under consideration.

National Estuarine Research Reserve (NERR)

Purpose: The NERR System is a national network of reserves established for long-term research, education and stewardship. This partnership program between the National Oceanic and Atmospheric Administration (NOAA) and the coastal states protects more than a million acres of estuarine land and water, providing essential habitat for fish and wildlife, offers educational opportunities for students, teachers and the public and serves as living laboratories for scientists.

Administering Agency: State Land Board via Department of State Lands, supported by NOAA.

Management Intent: Natural Area focused

Permanence: Permanent

Comments: Variable, some lands are adequately protected, others are not.

Marine Garden (MG)

Purpose: To provide intertidal areas for enjoyment of or learning about intertidal resources. Marine life in these areas will be protected by prohibiting the taking of shellfish and other marine invertebrates.

Administrative Structure: Marine Gardens are a management designation for rocky shores listed in Rocky Shore Management Strategy of the Oregon Territorial Sea Plan. The Oregon Fish and Wildlife Commission designates Marine Garden sites through regulation, which includes regulations for taking marine invertebrates, shellfish and finfish pursuant to designation. The most current ODFW designations are described in the 2011 Sport Fishing Regulations document (ODFW, 2010). OPRD could adopt complementary regulations to protect marine algae for rocky intertidal areas within the Ocean Shore State Recreation Area.

Designation: Secure for seven sites: Otter Rock, Haystack Rock, Cape Perpetua, Yaquina Head, Cape Kiwanda, Yachats and Harris Beach.

Protection: Fair, not because of regulations but rather because the regulations are not well known or enforced, and because clear rules are needed to prohibit taking of intertidal marine algae.

Marine Habitat Refuge (HR)

Purpose: To ensure that various representative areas of marine life in Oregon's rocky shores will be managed to protect natural habitat values and to maintain viable populations of marine plants and animals.

Administrative Structure: Marine Habitat Refuges are a management designation for rocky shores listed in Rocky Shore Management Strategy of the Oregon Territorial Sea Plan. The Oregon Fish and Wildlife Commission designates Marine Habitat Refuge sites through regulation of collecting or harvesting marine animal life. The Department of Fish and Wildlife administers regulations pursuant to designation. Oregon Parks and Recreation Department could adopt complementary regulations to protect marine algae for rocky intertidal areas within state park boundaries.

Designation: Secure for Whale Cove.

Protection: Variable, uncertain, due to lack of access control or on-site monitoring for compliance with regulations by either ODFW or OPRD.

Marine Priority Rock and Reef (PRR)

Purpose: To designate offshore rocks, islands, or reefs determined to need study or management action.

Administrative Structure: Ocean Policy Advisory Council of the Ocean Program of the Department of Land Conservation and Development (OPAC).

Management Intent: Natural Areas focused

Permanence: Permanent

Comments: These are inherently protected, there is no management category designated for these sites. However, fishing and collection can occur in these sites under existing laws.

Marine Research Reserve (RR)

Purpose: To protect and manage areas suitable or being used for scientific study or research including baseline study, monitoring, or applied research.

Administrative Structure: Marine Research Reserves are a management designation for rocky shores listed in Rocky Shore Management Strategy of the Oregon Territorial Sea Plan. The Oregon Fish and Wildlife Commission has designated some Marine Research Reserve sites (subtidal and intertidal) through regulation of collecting or harvesting marine animal life. The Department of Fish and Wildlife administers regulations pursuant to designation. Oregon Parks and Recreation Department could adopt complementary regulations to protect intertidal algae within the Ocean Shore State Recreation Area.

Designation: Secure for Boiler Bay Research Reserve, Pirate Cove Research Reserve, Neptune State Park Research Reserve, Gregory Point Subtidal Research Reserve, Cape Arago Research Reserve and Brookings Research Reserve.

Protection: Variable, uncertain, due to lack of access control or on-site monitoring for compliance with regulations by either ODFW or OPRD.

Marine Reserve (MR)

Purpose: To protect areas of Oregon's seas or adjacent rocky intertidal areas from all extractive activities except as necessary for monitoring and research

Administrative Structure: Marine Reserve sites are recommended by the Ocean Policy Advisory Council, approved by the state legislature and designated by state agencies, including ODFW and DSL.

Management Intent: Likely Natural Area compatible; takes an ecosystem approach to conserving marine resources, but still in development.

Designation: Pilot reserves have been established for Red Fish Rocks and Otter Rock.

Permanence: Objectives are to provide lasting protection, but as this is a new designation these details are yet to be worked out

Scenic Waterway (SW)

Purpose: To provide examples of wild and scenic rivers.

Administering Agency: Parks and Recreation Department and the Department of Water Resources.

Management Intent: Natural Area compatible, but variable, depending on landowner actions, commitment and land management goals.

Permanence: Short term only on private lands; the designation is permanent, but no protection implied on state lands.

Comments: State, federal, municipal, county or private landowners may register lands upon approval of the Natural Heritage Advisory Council. A few areas have been registered to date.

Federal Agency Designations

Area of Critical Environmental Concern (ACEC)

Purpose: An area within the Bureau of Land Management (BLM) public lands where special management attention is required to protect and to prevent irreparable damage to important historic, cultural or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.

Administering Agency: USDI Bureau of Land Management

Management Intent: Natural Area focused, in general. A few culturally focused ACECs might not be characterized as Natural Area compatible.

Permanence: Variable. Generally permanent on non-forested lands. Forested, O&C lands remain in question, due to uncertainty as to their long-term management.

Comments: Not all ecosystems and species contained within ACECs are considered adequately protected in this Plan. However, if an individual site has a management plan which protects natural area values, they can be evaluated separately under this designation. BLM RNA's represent a subcategory of an ACEC.

National Natural Landmark (NNL)

Purpose: To encourage the preservation of areas that illustrate the ecological and geological character of the United States; to enhance the educational and scientific values of the areas thus preserved; to strengthen cultural appreciation of natural history; and to foster a wider interest and concern in the conservation of the Natural Landmarks Program's natural heritage.

Administering Structure: The National Park Service is responsible for the NNL designation, although the management is dependent on the individual private or public land owner/manager.

Management Intent: Natural Area focused.

Permanence: Temporary. There is no long-term protection for any NNL, although publicly owned sites with this designation are likely to remain protected, given the recognition they receive.

Comments: Designation of a National Landmark carries with it no binding restrictions on management or use of the site. It is the equivalent of a national registry program, national recognition of the importance of the site.

National Parks (NP) and National Park Service National Monuments (NM)

Purpose: To preserve the outstanding natural, historical and recreational resources of the United States.

Administering Agency: USDI National Park Service

Management Intent: Natural Area focused.

Permanence: Permanent.

Comments: By and large, all species and ecosystem types within National Parks are considered adequately protected unless they are in an area developed for recreation.

U.S. Forest Service and Bureau of Land Management National Monuments (NM)

Purpose: To preserve the outstanding natural, historical and recreational resources of the U.S.

Administering Agency: USDI Bureau of Land Management and USDA Forest Service

Management Intent: Variable – either natural area focused or natural area compatible.

Permanence: Permanent.

Comments: Recreation, and occasionally livestock use occur in BLM or FS National Monuments. As a result, Research Natural Areas will likely be proposed to protect important plant associations present in them.

National Wildlife Refuges (NWR)

Purpose: To provide, preserve, restore, and manage a national network of lands and waters sufficient in size, diversity and location to meet society's needs for areas where the widest possible spectrum of benefits associated with wildlife and wild lands is enhanced and made available.

Administering Agency: USDI Fish and Wildlife Service

Management Intent: Variable. Some refuges, and parts of other refuges, are Natural Area focused. Others are Natural Area compatible, and still others are not compatible, with areas farmed or altered to support specific wildlife species.

Permanence: Permanent.

Comments: Establishment of Research Natural Areas with specific management plans within Refuges is considered adequate protection for species and ecosystems in this plan. There are large areas in wildlife refuges such as Hart Mountain NWR, where the management plan restricts disturbances enough to support long-term research and education, and therefore are effective natural areas.

Outstanding Natural Areas (ONA)

Purpose: An area of unusual natural characteristics where management of recreation activities is necessary to preserve those characteristics.

Administering Agency: USDI Bureau of Land Management

Management Intent: Natural Area compatible

Permanence: Long-term. These are established in local Resource Management Plans, and can be changed, but they rarely have been.

Comments: These are all designated as ACECs as well as ONAs. The designation in the list of ecosystems could read ONA/ACEC for these sites.

Research Natural Areas (RNA)

Purpose: (1) To preserve examples of all significant natural ecosystems for comparison with those influenced by man; (2) to provide educational and research areas for ecological and environmental studies; and (3) to preserve gene pools of typical and endangered plants and animals.

Administering Agencies: US Forest Service, Bureau of Land Management, Department of Defense (Navy and Army Corps of Engineers), National Park Service, and US Fish and Wildlife Service.

Management Intent: Natural Area focused

Permanence: Permanent

Comments: Federal agencies have different protocols for establishing Research Natural Areas (RNAs) on their lands. The Forest Service requires every RNA to be part of formal Forest Management Plans, either through plan revisions or amendments. In addition, an Establishment Record is created for each RNA, which include the justification for establishment, legal boundary descriptions, maps, distinguishing ecological features, environmental analyses and management issues and guidelines. RNAs become officially established once an Establishment Record is completed and signed by the Region 6 Regional Forester with concurrence by the Pacific Northwest Research Station Director, on behalf of the Chief of the Forest Service and Secretary of Agriculture.

In Oregon, the BLM generally establishes RNAs during updates to their resource management plans (RMPs). Sites are identified as containing plant associations or species identified in the Natural Areas Plan. These areas are evaluated by staff, boundaries are proposed, alternatives are examined and a recommended alternative is selected. The RNA is established when the RMP is approved by the Oregon/Washington BLM State Office. The National Park Service and the U.S. Fish and Wildlife Service follow similar protocols to establish RNAs on their lands.

Special Interest Areas (SIA)

Purpose: To protect, and where appropriate, foster public use and enjoyment of areas with scenic, historical, geological, botanical, zoological, paleontological or other special characteristics. To classify areas that possess unusual recreational and scientific values, so that these values are available for public study, use or enjoyment.

Administering Agency: USDA Forest Service.

Management Intent: Natural Area focused.

Permanence: Long-term, to potentially permanent. These are established in a Forest Plan, but can be changed in a Forest Plan update. The existing plans were to be updated each decade, but have been in place for 25 years.

Comments: These areas are managed for various uses substantially in natural condition, which varies protection of species or ecosystems. For example, salvage logging may be allowed in SIAs in certain instances. As a result, SIAs are not always considered optimal designations for a natural area.

Wild and Scenic Rivers (WSR)

Purpose: To protect the river's aesthetic, scenic, historic, archaeological and scientific features.

Administering Agencies: Several agencies, especially the U.S. Department of the Interior

Management Intent: Natural Area compatible.

Permanence: Permanent

Comments: Management plans result in varying degrees of protection of ecosystems or species based on the special attributes of the area. Salvage logging and grazing are not necessarily excluded from sites with this designation.

Wilderness Areas (WA)

Purpose: Wilderness Areas are devoted to the public purposes of recreational, scenic, scientific, educational, conservation and historical use.

Administering Agencies: USDA Forest Service, USDI Bureau of Land Management

Management Intent: Natural Area compatible or occasionally focused.

Permanence: Permanent

Comments: Certain activities not compatible with natural area uses may be permitted in Wilderness Areas, such as heavy recreation, domestic livestock grazing or mining. For this reason, the Natural Areas Program and the PNW Natural Area Committee continue to try to designate Research Natural Areas within established Wilderness Areas.

Wilderness Study Areas (WSAs) are areas under study for inclusion in the wilderness system. These are usually managed as Wilderness Areas. In Oregon, grazing or mining rarely occur in WSAs, so parts of these areas can represent an ecosystem or species, if recreation is not likely to impact the site, although these are not permanent.

Tribal Designations

Tribal Wildlife Conservation Lands

Purpose: To conserve for present and future use the diversity and integrity of biotic communities of plants and animals within natural ecosystems and to safeguard the genetic diversity of species on which their continuing evolution depends.

Administering Agency: Sovereign nations of the Burns-Piaute Tribe, Confederated Tribes of the Grand Ronde, Confederated Tribes Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs have lands identified in this plan.

Management Intent: Focused on conserving and restoring fish and wildlife habitats.

Permanence: Permanent

Comments: The sites included in this plan are properties that have been acquired by the the Tribes as part of the Bonneville Mitigation Program, to restore lost fish and wildlife habitat. The lands included have significant natural area value. The tribes have individual designations for these lands.

International Designations

Biosphere Reserves

Purpose: To conserve the diversity and integrity of biotic communities of plants and animals within natural ecosystems and to safeguard the genetic diversity of species.

Administering Agency: UNESCO, United Nations

Management Intent: Natural Area focused.

Permanence: Permanent

Local Designations

Metro Natural Areas (MNA)

Purpose: To protect and enhance habitat for fish, wildlife and water quality. The natural areas protect natural lands now in urban areas or in areas where development is likely to occur.

Administering Agency: Metro Regional Government, City of Portland, other Metro local governments

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These are generally in urban settings, which while adequately protected are often influenced by the significant human disturbances surrounding them. As a result, these urban natural areas are rarely used to protect plant associations or species in the plan.

Private Organizations

Columbia Land Trust (CLT)

Purpose: To conserve and care for important places in the lower Columbia River region.

Administering Agency: Columbia Land Trust.

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of State Natural Areas.

Blue Mountain Land Trust (BMT)

Purpose: To work cooperatively with landowners to conserve land for wildlife, scenic views and local communities.

Administering Agency: Deschutes Land Trust.

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of State Natural Areas.

Deschutes Land Trust (DLT)

Purpose: To work cooperatively with landowners to conserve land for wildlife, scenic views and local communities.

Administering Agency: Deschutes Land Trust.

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of State Natural Areas.

Greenbelt Land Trust (GLT)

Purpose: To protect in perpetuity native habitats, working lands, and lands of natural beauty, which provide a connection to the natural world for residents of the mid-Willamette Valley.

Administering Agency: Greenbelt Land Trust.

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of State Natural Areas.

McKenzie River Trust (MRT)

Purpose: To protect and care for lands in western Oregon and the rivers that flow through them.

Administering Agency: McKenzie River Trust.

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of State Natural Areas.

Southern Oregon Land Conservancy (SOC)

Purpose: Protecting and enhancing precious land in the Rogue River region to benefit our human and natural communities.

Administering Agency: Southern Oregon Land Conservancy

Management Intent: Natural Area and recreationally focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of Natural Areas.

The Nature Conservancy (TNC)

Purpose: To conserve the lands and waters on which all life depends.

Administering Agency: The Nature Conservancy

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of Natural Areas.

North Coast Land Conservancy (NCC)

Purpose: To conserve and connect the landscape of Oregon's coastal lands.

Administering Agency: North Coast Land Conservancy.

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of Natural Areas

The Wetlands Conservancy (TWC)

Purpose: To protect examples of high priority wetlands and aquatic ecosystems.

Administering Agency: The Wetlands Conservancy

Management Intent: Natural Area focused.

Permanence: Permanent

Comments: These areas are privately owned equivalents of Natural Areas.

Wild Rivers Land Trust (WRT)

Purpose: Working together to keep the irreplaceable lands and waters of the southern Oregon coast forever wild and abundant.

Administering Agency: Wild Rivers Land Trust

Management Intent: Natural Areas and Working Lands.

Permanence: Permanent

Comments: These areas are privately owned equivalents of Natural Area

CHAPTER 4. MANAGEMENT AND STEWARDSHIP

Vision

An adaptive, intentional, and science-based approach to management results in a natural areas network that is resilient to threats and environmental changes that will take place over time.

Management Goals and Objectives

The ecosystems represented in the natural areas network today are the result of cumulative effects of both natural and anthropogenic influences over millennia. They are not “pristine” in the sense that they have never been influenced by humans, yet they do represent some of the best examples of ecosystems whose present conditions have been primarily formed by non-human (“natural”) processes. They are also not static, in that these sites will continue to change over time due to both natural and human influences. Scientific knowledge and perceptions of the natural world will also continue to evolve, as will social trends, public needs and legislative and regulatory direction.

Thus, long-term management strategies will need to be both adaptable and intentional in responding to these ecological and social changes (Carey 2007). This includes understanding how these ecosystems will look and function over the long term (e.g., centuries), as well as consideration for the long-term consequences of management actions taken or not taken today. For some sites such as old-growth rainforests, this may mean leaving them to develop with little or no human intervention. For other sites, there is growing recognition that “hands-off” management can have unintended negative consequences (e.g., long-term fire suppression of dry, interior forest) and restoration activities like prescribed fire or thinning may be needed to shift these sites back onto more natural trajectories.

These restoration efforts should focus on restoring ecological processes, rather than a desired end-state or ecological stage. This is especially important given little precedent for understanding or managing for rapid environmental change (Callicott 2002).

At times, management will need to react to immediate threats like catastrophic human-induced fire or invasive species. Intentional, proactive planning for how best to respond for each site could help reduce some of the negative consequences and costs associated with making decisions on the spot,

or case by case. For example, lack of a well-communicated fire response plan may lead to suppression activities that result in unnecessary damage to soils, vegetation and aquatic systems. Likewise, lack of an early-detection plan for invasive species may lead to expensive control options that could have otherwise been avoided had the species been detected early.

Management will also need to address a growing number of environmental threats in the region (Gamon 2007). Of these, climate change may be the most pervasive management challenge. Even small changes in climate patterns could affect a wide range of ecological interactions and ecosystem processes and result in local extirpations of rare organisms (Joyce et al. 2008, Kappelle et al. 1999, Millar et al. 2007, Noss 2001). There is currently little scientific basis for how best to manage for climate change and it will be important to understand and ultimately manage for climate change at a hierarchy of spatial and temporal scales, from individual organisms to global ecosystems (Mustin et al. 2007). A number of different strategies may also be required (Millar 2008). Given its ecological depth and distribution, the natural areas network could serve as an important foundation for studying and developing regional or even global approaches to managing ecosystems under different climate regimes.

Future management strategies will also need to address appropriate uses of natural areas as human populations continue to increase. This includes better understanding of the impacts of human activities on natural areas. A number of concerns have already arisen over off-road vehicle use, horseback riding, livestock grazing, harvesting wildland products like mushrooms and floral greens, hunting, fishing and camping. Use is especially of concern for sites that have infrastructures such as trailheads, parking lots or established camp sites that encourage human use. Misuse of sites may, in part, be the result of lack of knowledge or appreciation for the importance of natural areas. Thus, there is potential to reduce human-use impacts through public outreach, education, and greater on-the-ground presence.

CHAPTER 5. MONITORING AND DATA MANAGEMENT

Vision

Monitoring data are ecologically driven, consistently collected to acceptable scientific standards across the network, stored and maintained properly and form an integral part of a feedback loop for making and evaluating management decisions.

Monitoring Goals and Objectives

Collecting baseline and monitoring data provides a number of useful benefits for the long-term management of natural areas, including: (1) site-specific data for making management decisions; (2) feedback on the effectiveness of mitigation, restoration, and offsite management activities; (3) inventory of the ecological characteristics of a site; (4) quantified assessment of natural and anthropogenic influences over time; (5) data for refining monitoring and management protocols; and (6) information for long-term scientific study of ecosystems and ecological processes.

A number of monitoring and data management issues will need to be resolved to strengthen the current monitoring program. First, ecological monitoring programs have been inconsistently established across the network (e.g., about 20% of federal sites, 50% of state sites, 75% of private conservation organization's sites). For those sites that are not monitored, information about the site is often limited to lists of plant and wildlife species expected to occur on these sites based on the initial designation information, rather than actual current inventories.

Second, where monitoring data have been collected, problems can range from different protocols used across sites, divergence of protocols over time, lack of connection between data collected and site management objectives, and irregular monitoring schedules once initial data has been collected. A long-term monitoring program with shared monitoring goals, diverse but consistent protocols to meet both site-specific and cross-site objectives, and regular monitoring schedules can increase sampling power, strengthen statistical inferences within and across sites, and ultimately provide empirical support for management actions both within and around natural areas.

Third, current monitoring data are primarily focused on vegetation and related composition. Opportunities exist for expanding monitoring programs to (1) capture a fuller gradient of multi-dimensional structural measures that evaluate broader ecological processes and (2) include a wider range of indicators that can measure ecological health and function over time due to environmental change, including microclimate assessments of key wildlife and invertebrate communities, nutrient cycling, soils and carbon flux.

This might include measures that can evaluate changes in ecological processes rather than simply changes in the spatial distribution or abundance of select species or taxonomic groups (e.g., McIntire and Fajardo 2009). It could also include measuring changes to trophic hierarchies over time, as we have little knowledge about where environmental change will have the greatest effects or where it will have the first effects (e.g., at the top or bottom of a food chain; Wagner and Adrian 2009).

Fourth, many of the strategies outlined here will result in increased use of natural areas. The risk in promoting use is that it could affect the environmental integrity of some sites, especially those that are sensitive to foot traffic or sites that have established infrastructures that might already promote heavy use (e.g., parking areas, trails). Therefore, some form of monitoring focused on human-use effects may be needed to help preempt any long-term negative consequences that promoting additional use may have for some sites.

Finally, a cursory inquiry into data management strategies across agencies suggest that data for natural areas are not always handled in ways that ensure their long-term protection and use. Many datasets reside in unsecured boxes, have never been entered into an electronic database or have no associated metadata to provide the necessary context

for the data. Long-term data management requires a program that extends beyond the employment of individual administrators. Having a long-term data management capacity allows for reconstruction of

historic data, provides access to data to the broader community, reduces time and effort spent searching for data and allows for data to be used to address broad scale questions (Michener and Brunt 2000).



Lost Prairie ACEC

CHAPTER 6. RESEARCH

Vision

The depth of research conducted throughout the natural areas network contributes to the understanding and resolution of important scientific, social and economic issues across a range of spatial and temporal scales.

Research Goals and Objectives

A primary purpose for natural areas is to allow study of ecological processes that can improve our understanding of the natural world. Many of the issues facing conservation, such as climate change and invasive species, will require refinement of ecological theory and better understanding of ecological processes. Research on natural areas may be one of the best ways to gain this knowledge, especially given that they represent some of the most intact ecosystems left on the landscape.

A number of important research findings have been based on data collected from natural areas in the past, including studies of old-growth forest that helped lead to the Northwest Forest Plan, the set of documents that has guided management activities on federal lands in the range of the northern spotted owl since 1994 (USDA and USDI 1994). However, many natural areas have received little research attention (Greene et al. 1986). Reasons are varied, including relative remoteness of sites from other research sites or centers of research, lack of site replication, some sites representing ecosystems not under current scientific scrutiny and recent establishment for a number of sites. The lack of use has also been the result of unfamiliarity of researchers with the benefits of using natural areas and misconceptions over the types of research allowed on natural areas.

Agencies have also differed in the degree to which they have actively encouraged or promoted research on natural areas. These reasons suggest there is opportunity to better promote natural areas for research, both internally (within the home agency or organization) and externally to research clients.

There are a number of characteristics unique to the natural areas that make them attractive as study sites, especially for understanding ecological processes and effects of climate change:

1. They are geographically well-distributed throughout the region, representing almost the entire gradient of natural biophysical environments found in the Pacific Northwest. This includes gradients in soils, moisture, temperature, elevations, latitudes and other biotic and abiotic conditions;
2. They contain sites representing environmental extremes, including rare ecosystems that might be the most sensitive to change over time;
3. The biological diversity contained within natural areas allows for study at all hierarchical levels, from genes to individual organisms to complete communities and systems;
4. As relatively pristine sites, natural areas can be used as controls for nearby field experiments as well as benchmarks for measuring the efficacy of management activities (Julius and West 2008, Joyce et al. 2008); and
5. Most natural areas are permanently protected, allowing for long-term study. A network strategy for climate change research could include everything from collecting climatological data at remote sensing stations to periodic field surveys of climate-sensitive organisms at permanent sampling plots using standardized protocols.

Natural areas can also be promoted as satellite study sites in association with other major ecological networks and programs, including: Wilderness Areas, National Wild and Scenic Rivers, National Parks, National Monuments, U.S. Forest Service Experimental Forests and Ranges, National Estuarine Research Reserves, the US Geological Survey Hydrologic Benchmark Network program, United Nations Biosphere Reserves, National Science Foundation reserves including the Long-Term Ecological Research (LTER) Network and the National Ecological Observatory Network (NEON),

Long-Term Ecosystem Productivity forestry research network, and the National Atmospheric Deposition and National Acid Precipitation Assessment Programs.

As with management and monitoring, research use of natural areas can be enhanced through dedicated funding, either as a regular component of annual agency budgets, or through funding of special projects. For example, seed grants to graduate students could help promote collaborative research with academic institutions.

Increased support for research can also be generated by better communication of research studies and their results. This includes better documentation for past and ongoing research projects, encouraging cradle-to-grave research projects to ensure that results are published, and communicating results in

different ways to meet the needs of diverse audiences that have an interest in resource management.

Finally, using natural areas to build stronger ties between research and management can help strengthen the importance and relevance of research on natural areas. For example, a number of restoration projects, including woody fuels reduction, prescribed fire, and invasive species control are being proposed for natural areas. However, there is little information available on the site-specific efficacy of these tools, including how they might affect future ecological processes. Close coordination between research and management in designing studies that evaluate these restoration efforts could provide important feedback that results in better management in and around natural areas, and greater appreciation for the importance of research on these sites.



Research burn at the Metolius RNA

CHAPTER 7. EDUCATION AND COMMUNICATION

Vision

Education and communication activities connect people with nature, promote understanding of ecology and conservation, increase volunteerism, and strengthen agency and public support for the natural areas network.

Education and Communication Goals and Objectives

Part of a strong interagency network includes effective education, communication and outreach programs. Regional natural areas have been available as outdoor educational laboratories since their inception. Overall use of natural areas as sites for educational activities, however, has been relatively low.

Most natural area educational programs to date have focused on educating college-level and higher students, professional societies and special-interest groups. There is opportunity to expand the scope of educational activities to include a focus on younger (e.g. K-12) students. Recent social trends in the United States suggest that youth may no longer be getting sufficient exposure to the outdoors and that encounters with nature can help reduce aggression, calm anxiety and develop a healthy sense of self and place (Pilz et al. 2006). A number of agencies have recently added youth education as a top emphasis area (e.g. Kimbell 2009). Engaging youth can also help promote a future adult population that is environmentally literate and appreciates the importance of natural areas and wildlands (FS 2009b).

Opportunities also exist for expanding the scope of disciplines associated with the use of natural areas beyond traditional science-based fields. For example, individuals from the arts and humanities are increasingly using wildlands as settings for their nature writing, painting or other forms of artistic expression (Sitka Center for Art and Ecology 2009).

Fostering such use on natural areas can help build a constituency that appreciates and supports natural areas. Support can also be fostered within local communities near natural areas by developing volunteer and citizen science programs to assist with research, monitoring, site surveillance, restoration projects and community outreach (Lowman et al. 2009, Yung 2007). Many of the strategic actions presented here can be supported, in

part, through the use of volunteers. Volunteers are not free in terms of the amount of staff time needed for recruitment, training and oversight. However, the benefits of incorporating their efforts can often outweigh these costs and offers an alternative to accomplishing tasks, especially when budgets are limited. A number of partners, supporters, and target groups could be considered.

There is also need for increasing the understanding and appreciation of natural areas within the agencies that manage them. There are still a number of misconceptions about natural areas—for example, that natural areas are small, unique pieces of land set aside solely to protect an unusual ecosystem. In part, these misconceptions have arisen because information about natural areas is often site-specific (establishment of a single site, result from a single study). These misperceptions also result when the importance of natural areas is not being effectively translated from the field (where most natural area information is generated) in ways that resonate with upper-level management. Therefore, strategic actions include those that can frame information in ways that show network-level strength and that can be directly tied to the support of agency missions. These could include:

1. Cost-savings associated with managing natural areas as a network across sites and agencies;
2. Important findings from natural areas that increased knowledge for making sound management decisions;
3. The strength of connections with other agencies, partners and organizations that resulted from participating in the natural areas network;
4. Increased public support of management activities as a result of natural areas management or research;

5. The importance of natural areas for providing high-quality sites for research; and

6. The broad biodiversity and conservation goals met by the natural area network



Weekly summer lunch program (above) and high school students sampling vegetation (below) at the Alder Creek Children's Forest in Douglas County



CHAPTER 8. ECOREGIONAL LISTS AND DEFINITIONS

Introduction

The lists of ecosystem and geology types, and the special species found in the nine Oregon ecoregions describe the diversity of each ecoregion and how well these types are represented in natural areas. Figure 1 identifies the nine Ecoregions used in this plan, each of which corresponds to the nine ecoregional chapters that follow. More information on the ecology or geology of these regions and more detailed maps are available in the Oregon Ecoregions EPA poster (Thorson et al. 2003). The Marine – Estuarine Ecoregion is new, and represents the only one for which the state developed the boundary, which roughly follows the continental shelf.

Status Summary

For each update of the Plan, the program develops a report outlining changes in the plan, and comparing the number of ecosystem types listed. The differences in protection for ecosystem types between the 1998, 2003, 2010, 2015, and 2020 plans are illustrated in Table 1. The differences in the new plan are a small reduction in types that were poorly classified, and some changes from new BLM resource management plans related to Greater Sage Grouse planning. The reduction of protected ecosystem elements from 2003 to 2010 all occur due to the former Coast Range, Marine and Estuarine types being moved and reclassified into two separate ecoregions. Increases were the result of new natural areas designations. Stream and river ecosystem types will be added back when a system to classify them is developed and implemented.

Plan Year	Ecosystem Types	Represented	Not Represented
1998	804	252	617
2003	750	416	334
Change 98-03	-54	+164	-283
2010	722	400	322
Change 03-10	-28	-16	-12
2015	701	462	239
Change 10-15	-21	+62	-83
2020	700	468	232
Change 15-20	-1	+6	-7

Table 1. Ecosystem types 1998-2020

Figure 2 shows the number of established natural areas included in each of the Natural Heritage Plans and the current Natural Areas Plan. The number of established areas increased rapidly in the 1980s and early 1990s when initial efforts to identify and dedicate sites in the National Forest Plans and BLM Resource Management Plans (RMPs) took effect, and again between 2010 and 2015, when the BLM updated many of their eastern Oregon RMPs. However, the rate of new natural areas being established has slowed over the last 5 years.

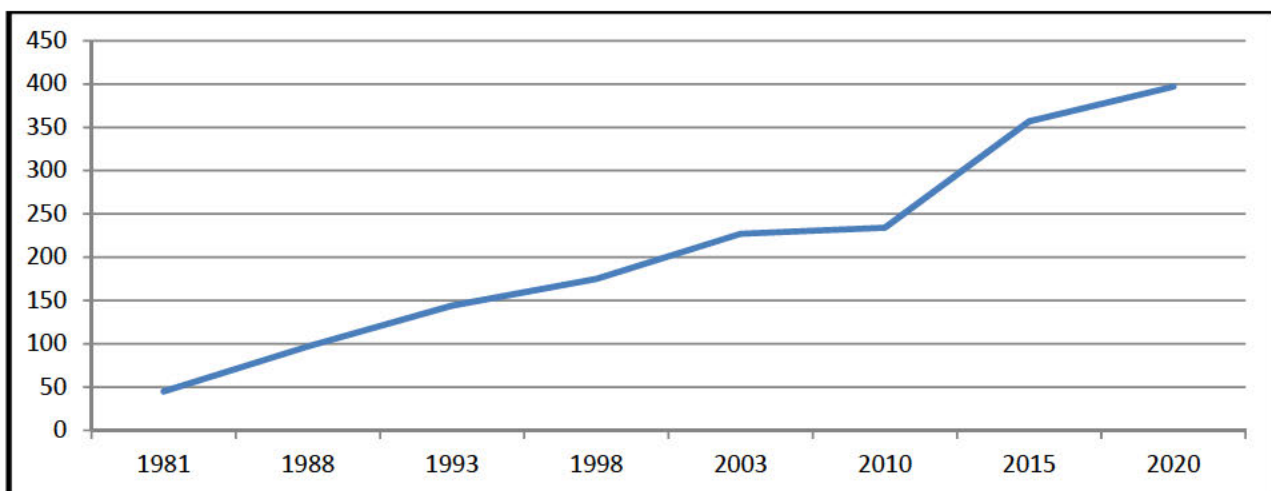


Figure 2. Numbers of Established Natural Areas in Oregon over time.

Overall, the percentage of unrepresented (or unfilled) types has remained the same at 44.5%, with the declines due to the loss of some western Oregon Areas of Environmental Concern counteracting some of the newly designated natural areas. Significant work remains to designate natural areas to represent many of these types. The majority of unrepresented ecosystems are the riparian forests, woodlands and wetlands from eastern Oregon and low elevation conifer forests in western Oregon. These types are the most difficult to find suitable examples for natural area designation because they have become fairly rare, or occur largely on private lands. Figure 3 shows how well ecosystems, geologic types and species are protected as of 2020.

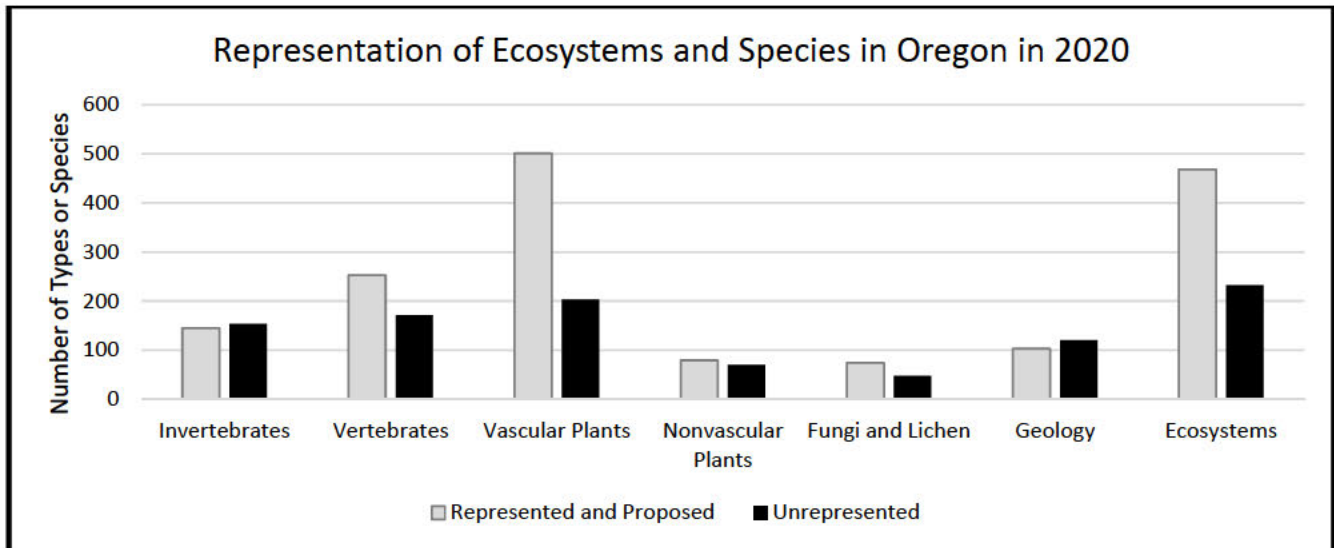


Figure 3. Numbers of Protected and Unprotected Types Across Oregon (top) and By Ecoregion (below)

In spite of the relatively small size of the current network of natural areas and other protected areas in Oregon, these sites have done a good job of including representative examples of Oregon's at-risk native plants (71%) and at-risk fungi and lichens (61%). At-risk terrestrial vertebrates are also well represented, although many at-risk fish species are not, which brings the vertebrate representation down to 59%. This is likely due to the fact that freshwater aquatic, palustrine and riparian ecosystems are the types most poorly represented. A total of 67% of all the ecosystem – ecoregional combinations are represented on natural areas, which is a major accomplishment.

As always, these lists have been significantly updated for this edition of the plan. It is hoped that agencies and the public will continue to use these lists in making decisions related to conservation. Staff from both ORBIC and OPRD and the Pacific Northwest Research Natural Area Committee also hope to continue getting feedback to improve the accuracy of the information included in these lists.

Using the Lists of Ecosystems, Geologic Features and Formations, and Species.

The next nine chapters in the plan include brief ecoregional descriptions followed by the lists of ecosystem types and species. The descriptions are only included to provide the general ecological and social context of each ecoregion. Chapters include the ecosystem types first, with the terrestrial types organized by vegetation zone, followed by the wetland types. The Oregon Biodiversity Information Center and NatureServe are continuing to work on updating the aquatic and marine classifications and these are likely to continue to be modified in future editions of the plan.

The list of ecosystem types was initially developed in a series of workshops in 1979-1980, which modified the initial list in the "Yellow Book" (Dymness et al. 1975). These included groups of plant associations which generally or occasionally occur together, so as to limit the number of natural areas needed to represent the diversity of Oregon. The current list represents a slow but steady transformation of the initial ecosystem types to

represent the full range of ecosystem diversity in Oregon, as contained in the International Vegetation Classification System, as described on page 5, in Chapter 2.

Ecosystem types are then followed by the list of geology formations and features, which were revised in 2003, and are little changed since then. Within each ecoregion, the geology elements are organized by the standard intervals of geological time, from the oldest (Devonian, about 320 million years ago) to the newest (the Quaternary, including the present).

Finally, the ecoregional chapters contain the list of special species elements. The special species are organized by major taxonomic group, with the invertebrates listed first, followed by the vertebrates broken up by class, then the vascular plants, the nonvascular plants, and lastly the lichens and fungi. Species are listed alphabetically by scientific name within each group.

The complete list of established natural areas in Oregon is included with a map in Chapter 11, as are the total list of sites names included in the plan. The Oregon Biodiversity Information Center also maintains a GIS cover showing all the conservation lands in Oregon. This Land Management and Stewardship coverage is available at the Oregon Geospatial Data Clearinghouse, and is also included in the Protected Areas Database of the United States (PAD-US), available from the USGS on the National Map.

How the Lists are Organized

Different **TEXT COLOR IN GRAY** and **BLACK** are used in all of the lists of ecological, geological and species elements to distinguish elements that are already protected from those needing designations. Those that are unrepresented are highlighted in **BLACK**. Ecosystem elements in **GRAY** are those with designations and management that adequately protect them in the ecoregion. This is not necessarily the case for species elements. Determining if a species is viable at these sites is more difficult. As a result, listing in the plan in gray only means the species is currently known to be represented at the natural area(s) listed.

The lists for each of the ecoregions are organized as a series of tables for the different element types (ecological, geological and species). Each table has four columns. The column headings and definitions are listed below.

Agency – The agency or agencies managing lands most likely to contain examples of this type. These agencies should be working to find and designate an example of this ecosystem, geologic type or species in this ecoregion. Current agency lists are maintained on file at ORBIC.

Priority – Priorities for elements listed were determined using principles detailed in Part 1 of the plan. These priorities are subject to continual update as elements become rarer, more threatened or more secure. Current priorities, determined by the Natural Heritage Advisory Council, are maintained at the Oregon Biodiversity Information Center. Determination of adequacy of representation within a proposed area is made by the Natural Heritage Advisory Council, in cooperation with the Federal Research Natural Area Committee. Due to continual status updates, elements added to the "adequately represented" category will be maintained at the Oregon Biodiversity Information Center.

Ecosystem Type – These are intended to be succinct names for discrete, but often difficult-to-describe, ecosystems. As such, the name should be considered only a flag. Most terrestrial and wetland ecosystems are plant associations. Detailed descriptions of the terrestrial and wetland plant associations are available from Oregon Biodiversity Information Center or at the NatureServe explorer website (<http://explorer.natureserve.org/servlet/NatureServe?init=Ecol>)

Present Representation – This column contains names of established, proposed and recommended natural areas that contain examples of the ecosystem type. Specific formatting and codes are used in this column. These include:

< = Present at this protected site, but only in small patches which provide only partial representation of the ecosystem type. If < is not present, the area is assumed to adequately represent the element. In this plan, these have only been used for ecosystems, not for geologic formations and features or for species.

ITALICS = Areas listed in italics have been recommended by agency ecologists or ORBIC staff as having excellent examples of the type, but have no formal designations.

Species that have been lost or extirpated in the ecoregions are labeled as such. Those known or suspected to be gone are differentiated as “Probably extirpated”, “Extirpated” or “Extinct”. For those elements considered extirpated or extinct, no agency is designated to seek representation. However, if an example of any of these extirpated types were to be located, it would immediately become a high priority for protection. Sites recommended are those high quality sites currently known. Any site meeting the quality and size criteria for the element would be suitable for designation.

The lists will be updated with each revision of the Oregon Natural Areas Plan, if possible at five-year intervals. The list of all established natural areas, registered areas, and protected areas are included as Appendix 2.

Table 2. Codes and abbreviations used in the Natural Heritage Resource lists

Priority for Ecological and Geologic Elements	Code
High	H
Moderate	M
Low	L
Unknown	U
Protected adequately at the listed site or sites	*
Adequately protected at the listed site or sites once final designation is completed	+
Only partially protected due to designation, size, or quality at this site	<
Priority for Species	
Species threatened or endangered throughout their range (ORBIC List 1)	1
Species threatened or endangered in Oregon, but more common elsewhere (List 2)	2
Species presumed extirpated throughout its range	1-X
Species presumed extirpated in Oregon, but persists elsewhere	2-x
Marine special species selected by the Natural Heritage Advisory Council	S
Species included because of their federal or state Endangered Species Act status	ESA
Species protected under the Marine Mammals Protection Act	MMPA
Potential Acting Agency	
Oregon Department of Fish and Wildlife	OFW
Oregon Department of Forestry	ODF
Oregon Department of State Lands	DSL
Oregon Department of Transportation	DOT
Oregon Ocean Policy Advisory Council	OPAC
Oregon Parks and Recreation Department	PRD
Army Corps of Engineers	ACE
Bonneville Power Administration	BPA
Bureau of Land Management	BLM
Department of Defense	DOD
National Park Service	NPS
U.S. Fish & Wildlife Service	FWS
U.S. Forest Service	FS

Present Representation (Terrestrial)

Area of Critical Environmental Concern (BLM designation only)	ACEC
Columbia Land Trust	CLT
Blue Mountain Land Trust	BMT
Confederated Tribes of the Grand Ronde	CTGR
Deschutes Land Trust	DLT
Federal Research Natural Area (Federal Agencies)	RNA
Greenbelt Land Trust	GLT
McKenzie River Trust	MRT
Metro Natural Area	MNA
National Monument (Federal Agencies)	NM
National Park (National Park Service)	NP
National Recreation Area	NRA
National Wildlife Refuge (U.S. Fish and Wildlife Service)	NWR
National Scenic Area	NSA
North Coast Land Conservancy	NCC
Portland Parks and Recreation Department Natural Area	PDX
Southern Oregon Land Conservancy	SOC
Special Interest Area (U.S. Forest Service, includes Botanical, Scenic & Geological)	SIA
State Natural Area (formerly Natural Heritage Conservation Area & State Park Natural Area)	SNA
State Scenic Waterway (PRD)	SSW
The Nature Conservancy Preserve	TNC
The Wetlands Conservancy	TWC
Wilderness Area (Federal Agencies)	WA
Wilderness Study Area (Federal Agencies, primarily BLM)	WSA
Wild and Scenic River (Federal Agencies)	WSR
Wild Rivers Land Trust	WRT
Wildlife Management Area (Oregon Department of Fish and Wildlife)	WMA

Present Representation (Marine and Estuarine)

Marine Garden	MG
Priority Rock and Reef	PRR
Research Reserve	RR
Marine Reserve	MR
Marine Habitat Refuge	HR
National Estuarine Research Reserve	NERR

CHAPTER 9. MARINE AND ESTUARINE ECOREGION

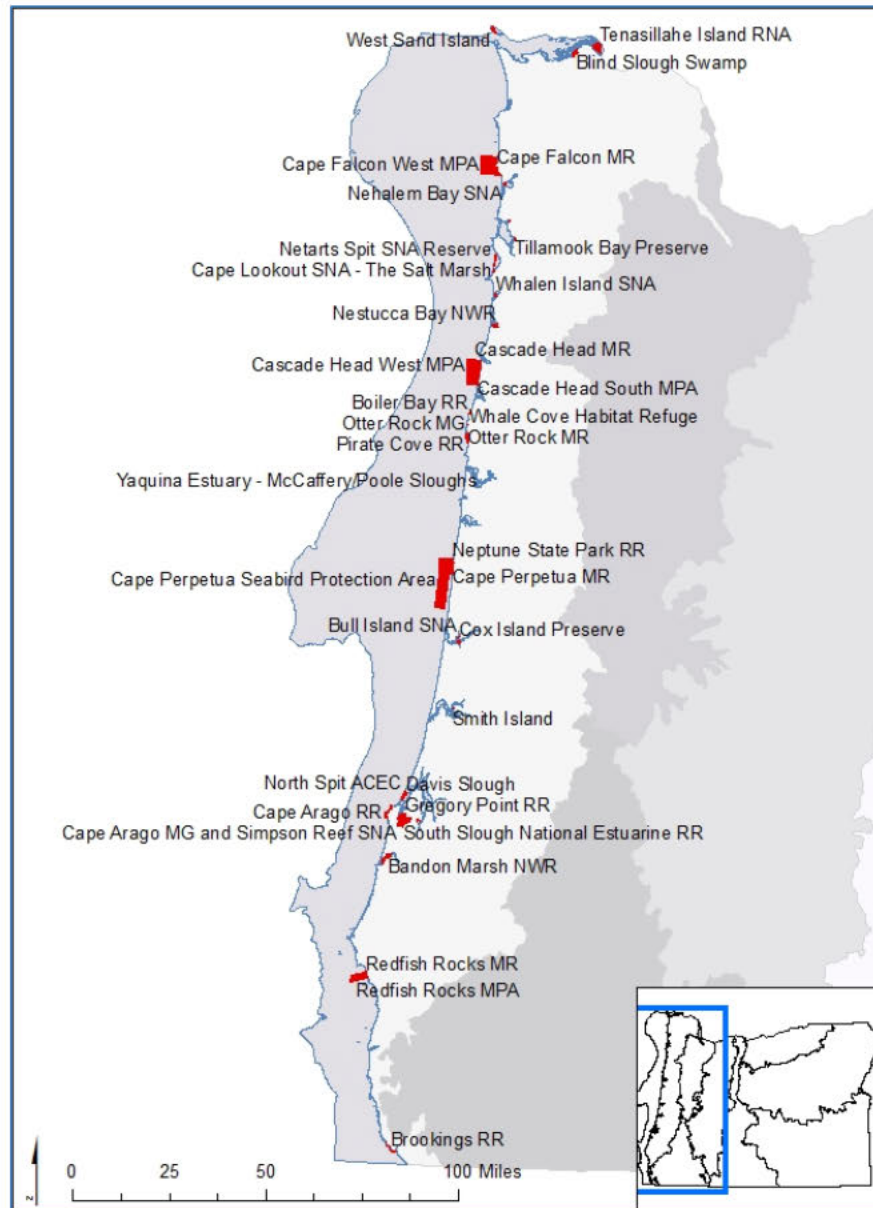


Figure 4. Map of the Oregon Marine and Estuarine Ecoregion.

The Marine and Estuarine Ecoregion includes all of Oregon's intertidal, marine and estuarine ecosystem and geologic resources, as well as all the marine and estuarine species. The classification of marine and estuarine types is a first approximation to implement a new national ecological classification created by the National Oceanic and Atmospheric Administration (NOAA) and NatureServe, based on the online Version III draft (FGDC 2010).

Protected examples of these resources are currently not well represented in Oregon's system of natural areas, and this is the first plan in which this Ecoregion is separated from the Coast Range. The publication of the *Territorial Sea Plan* (Oregon Ocean Policy Advisory Council, 1994) and current work to establish marine reserves in Oregon has created an excellent opportunity to better protect Oregon's marine and intertidal resources. Designations such as Marine Reserves, Marine Protected Areas, Marine Gardens, Habitat Refuge, Research Reserve, Seabird Protection Areas, Marine Shore and Priority Rock and Reef have been applied to many of Oregon's most significant biological and ecological marine resources.

In this plan, we have tried to match existing natural area needs to these designations. However, more inventories are needed to define the ecological resources of the Oregon Estuarine and Marine Ecoregion and to establish the designations necessary to ensure that they will be available for research and education. Because this is the first attempt to define natural area needs for the marine and estuarine areas in Oregon, and because the state is working hard to establish a set of marine reserves, this chapter can only represent a first iteration, which we anticipate changing significantly in the future. The council and the Oregon Biodiversity Information Center would appreciate comments, ideas for updates and any information that might help improve the lists that follow.

In establishing our Geologic types, we also worked to match existing geologic maps to newly defined geological natural area needs. However, more detailed mapping is needed to comprehensively define the geologic resources

of the Marine and Estuarine Ecoregion, particularly the subtidal/offshore area where only the broadest types have been mapped. Progress is being made in this area, and once this is done, there will be a solid basis for identifying and protecting the resources.

In this 2020 update, all terrestrial species and habitats which are found entirely on offshore islands have been removed. Only intertidal and subtidal habitats, and species that use intertidal and subtidal habitats remain. The species and habitats from offshore islands are now incorporated into the Coast Range ecoregion.

Figure 5 shows the numbers of ecosystem and geologic types represented and not represented in the network of established natural areas in this ecoregion. It also shows the special species representation. The selection of special species also represented a challenge in this ecoregion, since these species are not tracked or monitored in the same way the terrestrial species are in the other ecoregions.

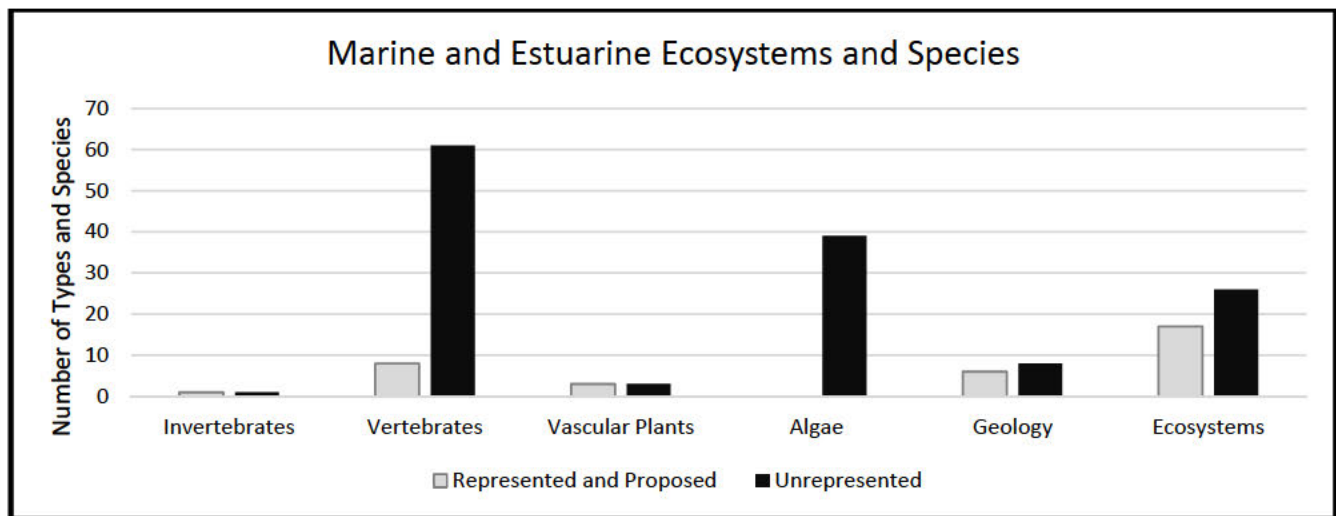


Figure 5. Represented and Unrepresented Ecosystems, Geologic Features and Formations, and Species of the Marine and Estuarine Ecoregion.



Otter Rock Marine Reserve, photograph from OPRD

MARINE AND ESTUARINE ECOSYSTEMS

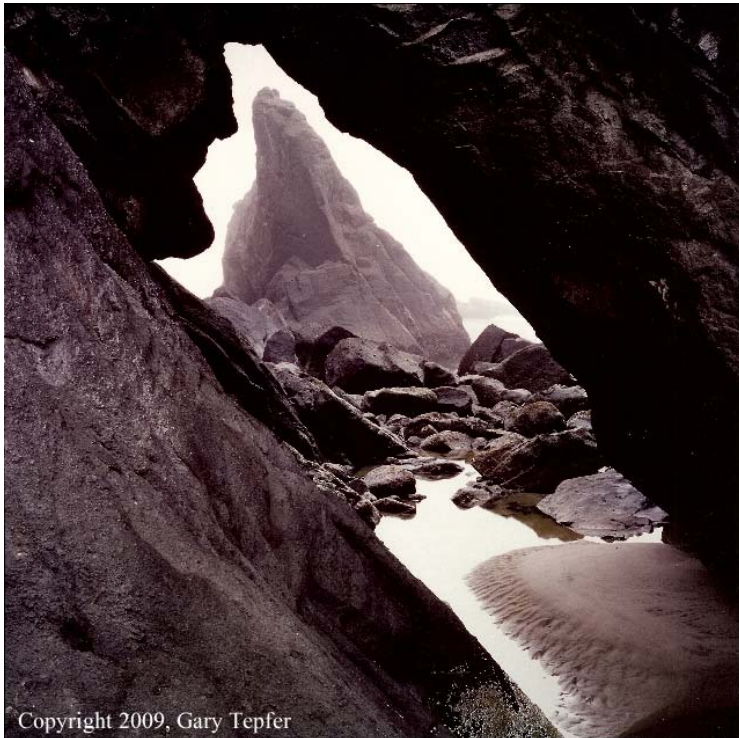
Agency	Priority	Ecosystem Name	Present Representation
		Marine	
		1. Subtidal, high-relief rock bottom with Nereocystis kelp bed with little or no algal sub-canopy.	Orford Reef PRR
	+	2. Subtidal, high-relief rock bottom with Macrocystis kelp bed with little or no algal sub-canopy.	Cape Arago PMR Simpson Reef PRR/HR
	*	3. Subtidal, high-relief rock bottom with dense algal sub-canopy under kelp bed.	Redfish Rocks MR
DSL, PRD	U	4. Subtidal, high-relief, unvegetated rock bottom.	
	*	5. Subtidal, low-relief rock bottom with Nereocystis kelp bed and possibly Macrocystis kelp bed.	Pirate Cove RR
	*	6. Subtidal, low-relief rock bottom with dense algal sub-canopy under kelp.	Nellies Cove HR
	*	7. Subtidal, low-relief, unvegetated rock bottom.	Pirate Cove RR
	*	8. Subtidal, high-energy sandy bottom.	Netarts Sand Spit SNA
DSL, PRD	U	9. Subtidal low-energy sandy bottom.	
DSL	U	10. Subtidal mud bottom.	
	*	11. Subtidal gravel bottom.	Orford Reef PRR
	*	12. Subtidal hard bottoms with reef building animals.	Norton Gulch (Gregory Point RR)
DSL	U	13. Subtidal, aphotic zone with boulder or bedrock.	
DSL	U	14. Subtidal, aphotic zone with shale or shingle.	
DSL	U	15. Subtidal, aphotic zone sandy bottom.	
	*	16. Intertidal, exposed bedrock, mussel beds.	Yachats MG Boiler Bay RR
	+	17. Intertidal, exposed bedrock, algal dominated.	North Cove - Cape Arago RR Cape Arago PMR
	*	18. Intertidal, exposed bedrock, mussel beds.	Yachats MG Boiler Bay RR
	*	19. Intertidal, exposed bedrock, surfgrass beds.	Otter Rock MG Boiler Bay RR
DSL, PRD	U	20. Intertidal, exposed bedrock, surge channels.	
DSL, PRD	U	21. Intertidal, exposed bedrock/boulders subject to sand scour and periodic sand inundation.	<i>Ecola Point</i> <i>Seal Rock</i>
DSL, PRD	U	22. Intertidal, exposed boulder field, algal dominated.	<i>Cape Lookout</i>
	*	23. Intertidal, exposed boulder field, not algal dominated.	Redfish Rocks MR
DSL, PRD	U	24. Intertidal, semi-protected, bedrock, surfgrass beds.	
DSL, PRD	U	25. Intertidal, semi-protected, bedrock, bedrock shelf.	<i>Chetco Cove</i>
	+	26. Intertidal, semi-protected, boulder field.	Cape Arago PMR

MARINE AND ESTUARINE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
DSL, PRD	U	27. Intertidal sandy/gravelly beach.	
	*	28. Intertidal, low exposure sandy beach.	Netarts Sand Spit SNA
	*	29. Intertidal, high exposure sandy beach.	Oregon Dunes NRA
	*	30. Highly erosive seacliffs.	Cape Kiwanda MG Floras Lake SNA
	*	31. Erosion resistant seacliffs, with caves if possible.	Cascade Head MR Cape Lookout SNA
	U	32. Offshore rocks, awash at high tide.	Rogue Reef Simpson Reef SNA
DSL, FWS	U	33. Offshore rocks, not awash, unvegetated.	<i>Pillar Rock (Cape Meares)</i>
Estuarine			
DSL	U	34. Unvegetated, fine sediment (mud to sand) in subtidal zone.	
DSL	U	35. Eelgrass beds, on fine (mud to sand) unconsolidated substrata in subtidal zone.	
	+	36. Unvegetated muds in intertidal zone, including <i>Abarenicola</i> in lower or middle estuary.	South Slough pSNA
	+	37. Unvegetated muddy sands in intertidal zone, including <i>Mya arenia</i> in upper estuary.	South Slough pSNA
DSL	U	38. Unvegetated sands in intertidal zone, including <i>Callinassa californionis</i> in lower or middle estuary.	
DSL	U	39. Intertidal, lower estuary, vegetated and unvegetated rocky surfaces, including macroalgal beds (<i>Enteromorpha</i> , <i>Ulva</i> , <i>Fucus</i> , <i>Polysiphonia</i> , and <i>Sargassum</i>).	
	+	40. Intertidal, lower estuary, vegetated fine, unconsolidated substrata, including eelgrass beds and macroalgal mats (<i>Enteromorpha</i> , <i>Ulva</i> , <i>Vaucheria</i> , and <i>Gracilaria</i>).	South Slough pSNA
	*	41. Low elevation/high salinity intertidal marsh on sand (dominants including Lyngby sedge, saltgrass, glasswort, three-square bulrush, seacoast bulrush and arrow grass).	Netarts Sand Spit SNA
	*	42. Low elevation/high salinity intertidal marsh on silt (dominants including Lyngby sedge, saltgrass, glasswort, three-square bulrush, seacoast bulrush and arrow grass).	Cox Island Preserve TNC Bull Island SNA Smith Island SNA
	*	43. High elevation/low salinity intertidal salt marsh (dominants including Douglas aster, Lyngby sedge, tufted hairgrass and silverweed).	South Slough pSNA Davis Slough SNA Smith Island SNA

MARINE AND ESTUARINE GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
*	1.	Estuary	South Slough pSNA
*	2.	Estuarine Island	Lewis and Clark NWR
*	3.	Sea Arch	Oregon Islands NWR
*	4.	Sea Cave	Cascade Head Preserve Cape Lookout SNA
*	5.	Sea Stack	Harris Beach State Park Oregon Islands NWR
+	6.	Rock Reefs	Orford Reef Siletz Reef
L	7.	Nearshore	
L	8.	Shelf	
L	9.	Slope	
L	10.	Channel	
L	11.	Ridge	
L	12.	Gully	
L	13.	Canyon Wall	
L	14.	Canyon Floor	



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Sea Cave at Cascade Head Preserve © Gary Tepfer

MARINE AND ESTUARINE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Haliotis kamtschatkana</i>	Pinto abalone	S		
<i>Littorina subrotunda</i>	Newcomb's littorine snail	2	North Spit ACEC	BLM
Fish				
<i>Acipenser medirostris</i>	Green sturgeon	ESA		
<i>Acipenser transmontanus</i>	White sturgeon	S		
<i>Cetorhinus maximus</i>	Basking shark	S		
<i>Eopsetta jordani</i>	Petrale sole	S		
<i>Hemilepidotus hemilepidotus</i>	Red Irish lord	S		
<i>Lampetra ayresii</i>	River lamprey	S		
<i>Oncorhynchus clarkii pop. 1</i>	Coastal cutthroat trout (Oregon Coast ESU)	S		
<i>Oncorhynchus clarkii pop. 2</i>	Coastal cutthroat trout (Southwestern Washington/Columbia River ESU)	1		
<i>Oncorhynchus clarkii pop. 4</i>	Coastal cutthroat trout (Upper Willamette River ESU)	S		
<i>Oncorhynchus clarkii pop. 5</i>	Coastal cutthroat trout (Southern Oregon/California Coasts ESU)	S	New River ACEC	BLM
<i>Oncorhynchus keta pop. 4</i>	Chum salmon (Pacific Coast ESU)	2	Cascade Head (FS)	FS
<i>Oncorhynchus kisutch pop. 1</i>	Coho salmon (Lower Columbia River ESU)	1		
<i>Oncorhynchus kisutch pop. 2</i>	Coho salmon (Southern Oregon/Northern California Coasts ESU)	1	Grassy Knob WA, Elk River WSR, Chetco River WSR, New River ACEC	FWS, FS
<i>Oncorhynchus kisutch pop. 3</i>	Coho salmon (Oregon coast ESU)	1	South Slough NERR, Cascade Head Preserve TNC, Jewell Meadows WMA, Sunset Bay State Park	TNC, OFW, PRD
<i>Oncorhynchus mykiss pop. 25</i>	Steelhead (Klamath Mountains Province ESU, winter run)	2		
<i>Oncorhynchus mykiss pop. 30</i>	Steelhead (Oregon Coast ESU, summer run)	1	Siletz Bay NWR	FWS
<i>Oncorhynchus mykiss pop. 31</i>	Steelhead (Oregon coast winter run)	1	South Slough NERR, Jewell Meadows WMA, Cummins/Gwynn Creeks RNA, Siletz Bay NWR, Nestucca Bay NWR, New River ACEC	BLM, OFW, FS, FWS
<i>Oncorhynchus tshawytscha pop. 25</i>	Chinook salmon (Southern Oregon/Northern California Coast ESU, spring run)	S		

MARINE AND ESTUARINE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Oncorhynchus tshawytscha</i> pop. 26	Chinook salmon (Southern Oregon/Northern California Coast ESU, fall run)	2		
<i>Oncorhynchus tshawytscha</i> pop. 27	Chinook salmon (Oregon Coast ESU, spring run)	S		
<i>Platichthys stellatus</i>	Starry flounder	S		
<i>Raja binoculata</i>	Big skate	S		
<i>Raja rhina</i>	Longnose skate	S		
<i>Scorpaenichthys marmoratus</i>	Cabezon	S		
<i>Sebastes alutus</i>	Pacific Ocean perch	S		
<i>Sebastes caurinus</i>	Copper rockfish	S		
<i>Sebastes crameri</i>	Darkblotch rockfish	S		
<i>Sebastes entomelas</i>	Widow rockfish	S		
<i>Sebastes flavidus</i>	Yellowtail rockfish	S		
<i>Sebastes levis</i>	Cowcod	S		
<i>Sebastes maliger</i>	Quillback rockfish	S		
<i>Sebastes melanops</i>	Black rockfish	S		
<i>Sebastes mystinus</i>	Blue rockfish	S		
<i>Sebastes nebulosus</i>	China rockfish	S		
<i>Sebastes paucispinis</i>	Boccacio	S		
<i>Sebastes pinniger</i>	Canary rockfish	S		
<i>Sebastes ruberrimus</i>	Yelloweye rockfish	S		
<i>Squalus acanthias</i>	Spiny dogfish	S		
<i>Thaleichthys pacificus</i>	Eulachon	2		
Reptiles				
<i>Caretta caretta</i>	Loggerhead sea turtle		ESA	
<i>Chelonia mydas</i>	Green sea turtle		ESA	
<i>Dermochelys coriacea</i>	Leatherback turtle		ESA	
<i>Lepidochelys olivacea</i>	Pacific ridley sea turtle		ESA	
Mammals				
<i>Balaenoptera acutorostrata</i>	Minke whale		MMPA	
<i>Balaenoptera borealis</i>	Sei whale		ESA	
<i>Balaenoptera musculus</i>	Blue whale		ESA	

MARINE AND ESTUARINE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Balaenoptera physalus</i>	Fin whale	ESA		
<i>Berardius bairdii</i>	Baird's beaked whale	MMPA		
<i>Callorhinus ursinus</i>	Northern fur seal	MMPA		
<i>Enhydra lutris</i>	Sea otter	2		
<i>Eschrichtius robustus</i>	Gray whale	ESA		
<i>Eubalaena japonica</i>	North Pacific right whale	ESA		
<i>Eumetopias jubatus</i>	Northern sea lion	2	Oregon Islands NWR, Cape Arago State Park, Ecola State Park, Cascade Head Preserve	FWS, PRD, TNC
<i>Globicephala macrorhynchus</i>	Short-finned pilot whale	MMPA		
<i>Histriophoca fasciata</i>	Ribbon seal	MMPA		
<i>Kogia breviceps</i>	Pygmy sperm whale	MMPA		
<i>Lissodelphis borealis</i>	Northern right whale dolphin	MMPA		
<i>Megaptera novaeangliae</i>	Humpback whale	ESA		
<i>Mesoplodon carlhubbsi</i>	Hubbs' beaked whale	MMPA		
<i>Mesoplodon stejnegeri</i>	Stejneger's beaked whale	MMPA		
<i>Mirounga angustirostris</i>	Northern elephant seal	MMPA		
<i>Orcinus orca</i>	Killer whale	ESA		
<i>Phoca vitulina</i>	Harbor seal	MMPA		
<i>Phocoena phocoena</i>	Harbor porpoise	MMPA		
<i>Physeter macrocephalus</i>	Sperm whale	ESA		
<i>Pseudorca crassidens</i>	False killer whale	MMPA		
<i>Zalophus californianus</i>	California sea lion	MMPA		
<i>Ziphius cavirostris</i>	Cuvier's beaked whale	MMPA		
Vascular Plants				
<i>Atriplex gmelinii</i> var. <i>gmelinii</i>	Gmelin's saltbrush	2		
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Pt. Reyes bird's-beak	1	Oregon Dunes NRA, Cape Lookout State Park, South Slough pSNA, Netarts Spit SNA, North Spit ACEC	FS, PRD, DSL, BLM
<i>Limonium californicum</i>	Western marsh-rosemary	2	North Spit ACEC	BLM
<i>Phyllospadix serrulatus</i>	Serrulate surf-grass	S		DSL
<i>Sidalcea hendersonii</i>	Henderson's sidalcea	1	Cox Island Preserve	TNC
<i>Stellaria humifusa</i>	Creeping starwort	2		

MARINE AND ESTUARINE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Algae				
<i>Ahnfeltiopsis leptophylla</i>	Red marine alga	S		DSL
<i>Alaria nana</i>	Brown marine alga	S		DSL
<i>Arthrocardia silvae</i>	Red marine alga	S		DSL
<i>Coilodesme bulligera</i>	Brown marine alga	S		DSL
<i>Cryptonemia borealis</i>	Red marine alga	S		DSL
<i>Cryptopleura peltata</i>	Red marine alga	S		DSL
<i>Desmarestia foliacea</i>	Brown marine alga	S		DSL
<i>Dictyosiphon foeniculaceus</i>	Brown marine alga	S		DSL
<i>Dictyota binghamiae</i>	Brown marine alga	S		DSL
<i>Erythrogloum californicum</i>	Red marine alga	S		DSL
<i>Farlowia compressa</i>	Red marine alga	S		DSL
<i>Farlowia conferta</i>	Red marine alga	S		DSL
<i>Gloiocladia laciniata</i>	Red marine alga	S		DSL
<i>Heterosiphonia densiuscula</i>	Red marine alga	S		DSL
<i>Hollenbergia nigricans</i>	Red marine alga	S		DSL
<i>Hollenbergia subulata</i>	Red marine alga	S		DSL
<i>Hymenena smithii</i>	Red marine alga	S		DSL
<i>Laminaria ephemera</i>	Brown marine alga	S		DSL
<i>Laminaria longipes</i>	Brown marine alga	S		DSL
<i>Loranthophycus californicus</i>	Red marine alga	S		DSL
<i>Macrocystis integrifolia</i>	Brown marine alga	S		DSL
<i>Mazzaella californica</i>	Red marine alga	S		DSL
<i>Microcladia coulteri</i>	Red marine alga	S		DSL
<i>Neogastroclonium subarticulatum</i>	Red marine alga	S		DSL
<i>Nitophyllum dotyi</i>	Red marine alga	S		DSL
<i>Pikea pinnata</i>	Red marine alga	S		DSL
<i>Porphyra torta</i>	Red marine alga	S		DSL
<i>Porphyropsis coccinea</i>	Red marine alga	S		DSL
<i>Prasiola linearis</i>	Green marine alga	S		DSL
<i>Pterocladia caloglossoides</i>	Red marine alga	S		DSL
<i>Pylaiella unilateralis</i>	Brown marine alga	S		DSL

MARINE AND ESTUARINE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Saundersella simplex</i>	Brown marine alga	S		DSL
<i>Schimmelmannia plumosa</i>	Red marine alga	S		DSL
<i>Scinaia confusa</i>	Red marine alga	S		DSL
<i>Scytosiphon gracilis</i>	Brown marine alga	S		DSL
<i>Scytothamnus fasciculatus</i>	Brown marine alga	S		DSL
<i>Sparlingia pertusa</i>	Red marine alga	S		DSL
<i>Sphacelaria plumigera</i>	Brown marine alga	S		DSL
<i>Ulvaria obscura</i> var. <i>blytii</i>	Green marine alga	S		DSL



Stellaria humifusa (Creeping starwort) on the beach near Oceanside. Photo © Paul Slichter

CHAPTER 10. COAST RANGE ECOREGION

The Coast Range Ecoregion includes the entire Oregon coastline and the northern and central Oregon Coast Range Mountains, and extends north through the state of Washington to southwestern British Columbia on Vancouver Island, and south almost to Mendocino, California. Elevations in the Oregon Coast Range Ecoregion range from sea level to 4,000 feet.

The marine climate creates the most moderate and wettest habitats in the state. Average annual rainfall of 60 to 180 inches supports spectacular stands of temperate rainforests. Vegetation is characterized by forests of Sitka spruce, western hemlock, Douglas fir, red alder, coast redwood and tanoak, which are among the fastest growing and most productive forests in the world.

The Oregon coast has other unique ecological features. Sand deposits from coastal streams and rivers (primarily the Umpqua and Columbia Rivers) have created major coastal dune systems, the largest located at the Oregon Dunes National Recreation Area. In the north coast, steep headlands and cliffs are separated by stretches of flat coastal plain and large estuaries. The south coast includes the warmest areas, with rugged headlands and very mild winters, supporting local endemic trees such as the coast redwood and Port Orford cedar and spectacular flowers such as the western lily and Chamber's paintbrush.

Almost 40% of the region is in public ownership, primarily in federal lands administered by the U.S. Forest Service and the Bureau of Land Management, and state lands administered by the Oregon Department of Forestry. Population is dispersed in many small towns, most located within a few miles of the ocean.

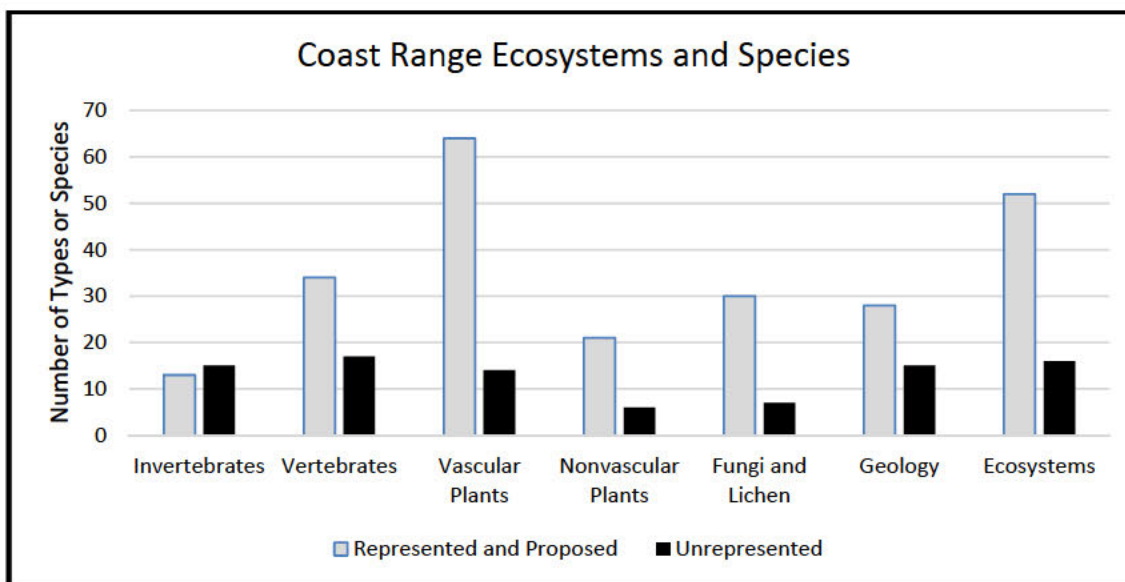


Figure 6. Coast Range Represented and Unrepresented Ecosystems, Geology and Species.

The majority of unrepresented ecosystem types are western hemlock forests which can hopefully be represented when the Forest Service updates their western Oregon forest plans. Vascular and non-vascular plants and non-aquatic vertebrates are well represented, as are fungi and lichens, with only the fish and invertebrates needing major representation or perhaps study.

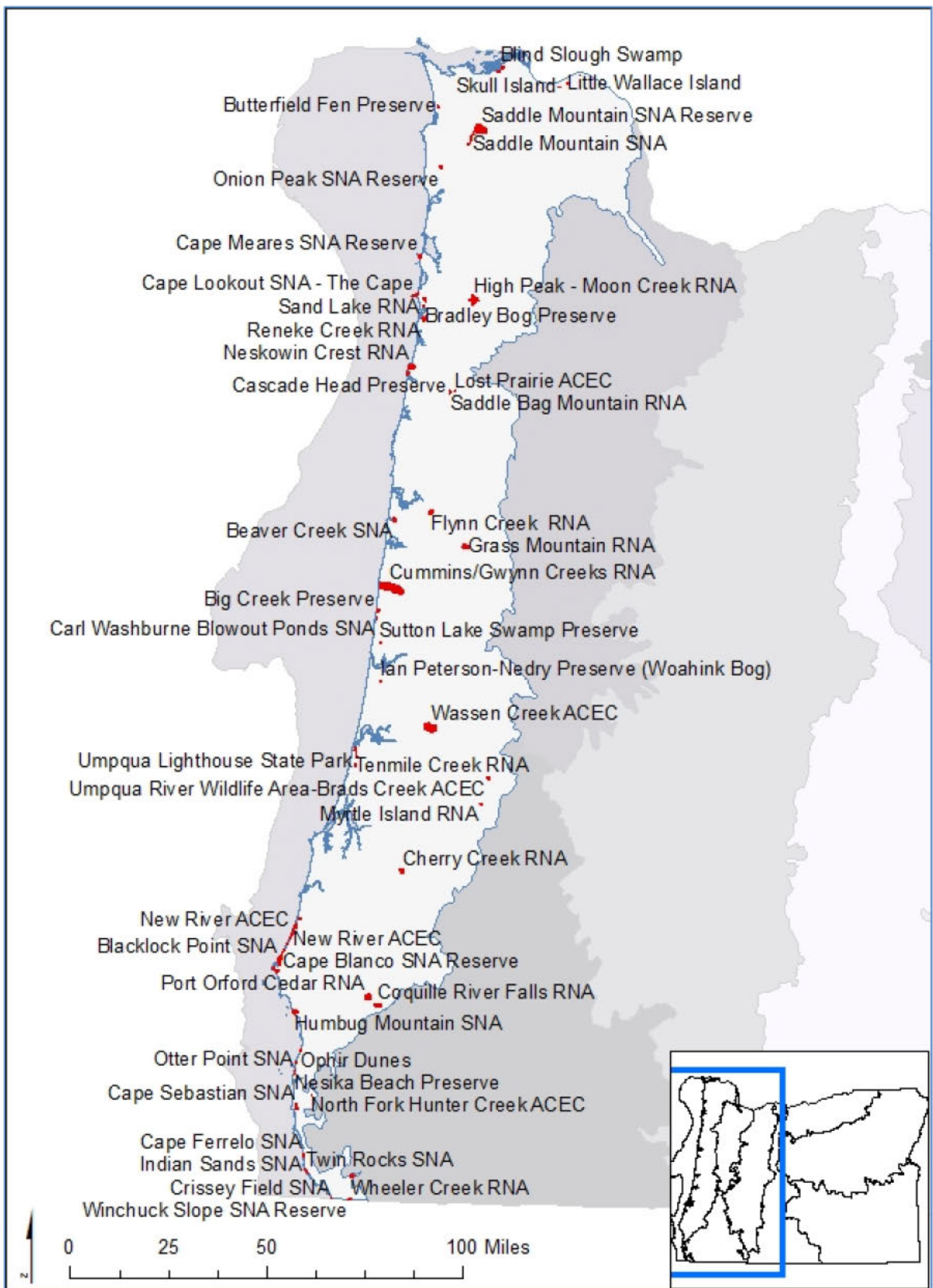


Figure 7. Map of Coast Range Ecoregion Natural Areas.

COAST RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Sitka Spruce			
	*	1. Sitka spruce/salal.	Cape Meares RNA/SNA Cape Lookout pSNA
	*	2. Sitka spruce/swordfern and Sitka spruce/fool's huckleberry-red huckleberry.	Neskowin Crest RNA Cape Lookout pSNA
FS	H	3. Sitka spruce/oxalis, with devil's club if possible.	<i>Drift Creek WA</i>
	*	4. Sitka spruce/salmonberry.	Cummins Creek RNA Reneke Creek RNA
	*	5. Grand fir-Sitka spruce forest.	Nesika Beach Preserve WRT
FS	H	6. Sitka spruce-Port Orford cedar forest on sand.	<i>South Horsefall Campground</i>
FS, BLM, PVT	H	7. Sitka spruce-western hemlock-Port Orford cedar forest on coastal terrace.	<i>Coos County Forest, Blacklock Point SNA</i>
Coast Redwood			
	*	8. Coast redwood-Douglas fir forest with evergreen shrubs (tanoak, rhododendron, and evergreen huckleberry).	Wheeler Creek RNA
FS	H	9. Coast redwood/swordfern and coast redwood/forb forest.	<i>Peavine Ridge, Bear Ridge, Chetco River, Redwood Nature Trail (FS)</i>
Port Orford Cedar			
	*	10. Douglas fir-western hemlock-Port Orford cedar forest with wet shrubs and forbs.	Port Orford Cedar RNA, Coquille River Falls RNA, Keystone Preserve WRT
	*	11. Port Orford cedar-Douglas fir-western hemlock forest with dry shrubs and forbs.	Port Orford Cedar RNA Coquille River Falls RNA
FS, BLM	H	12. Port Orford cedar forest types on ultramafic soils.	Hunter Creek Bog RNA
Western Hemlock – Douglas fir			
	*	13. Western hemlock/swordfern.	Cummins Creek RNA High Peak-Moon Creek RNA
	*	14. Western hemlock/oxalis.	Cherry Creek RNA
FS, BLM	H	15. Western hemlock/rhododendron/swordfern and western hemlock/rhododendron-salal communities.	
	*	16. Western hemlock/rhododendron-Oregon grape.	Cherry Creek RNA
FS, BLM	M	17. Western hemlock/devils club with or without grand fir.	<i>Bunker Hill</i>
	*	18. Western hemlock/vine maple with salmonberry and swordfern.	Flynn Creek RNA
FS	H	19. Western hemlock/salmonberry, with salal or hazel.	
	*	20. Western hemlock/evergreen huckleberry.	Cherry Creek RNA
	*	21. Western hemlock/vine maple-salal.	High Peak-Moon Creek RNA
FS, BLM	H	22. Western hemlock/Oregon grape, with salal if possible.	

COAST RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
FS	M	23. Western hemlock/rhododendron-evergreen huckleberry.	<i>Tahkenitch Area</i>
	*	24. Noble fir-western hemlock forest.	Grass Mountain RNA Saddle Mountain SNA
	*	25. Tanoak-Douglas fir/evergreen shrub forest.	Winchuck Slope SNA, Keystone Preserve WRT
	*	26. Pacific silver fir-western hemlock forest.	Saddle Bag Mountain RNA Onion Peak Preserve NCC
Coastal Dunes			
	*	27. Coastal dune mosaic with tree islands and early successional stages.	Tenmile Creek RNA
I		28. Native stabilized dune grassland with red fescue and dune wildrye.	Tenmile Creek RNA Tenmile closure area
	*	29. Native unstabilized dune grassland with dune bluegrass and seaside lupine.	Sand Lake RNA
	+	30. Oceanfront herb-dominated dunes with camissonia, knotweed and silvery phacelia.	Ophir Dunes SNA
FS, PRD	H	31. Douglas fir/Rhododendron-evergreen huckleberry dunes.	<i>Umpqua Lighthouse State Park</i>
Shore Pine Forests and Woodlands			
	*	32. Sitka spruce-shore pine/evergreen huckleberry.	Tenmile Creek RNA
FS	H	33. Shore pine/manzanita communities.	<i>Eel Creek, Bandon SNA</i>
	*	34. Shorepine/salal-evergreen huckleberry forest.	Blacklock Point SNA, Cape Blanco SNA
	*	35. Pygmy shorepine forest on Blacklock soil.	Blacklock Point SNA
		36. Shorepine-Pacific madrone/wavyleaf silktassel-manzanita	Bandon SNA, New River ACEC
Grasslands and Shrublands			
	*	37. Coastal headland grassland and herbaceous complex with red fescue dominant.	Cascade Head Preserve TNC Neskowin Crest RNA
	*	38. Coastal headland or oceanfront grassland with California oatgrass, red fescue, and Roemer's fescue.	Cape Blanco SNA Crook Point
	*	39. Coastal headland shrublands with salal, coastal sage or evergreen huckleberry.	Cape Lookout pSNA Cascade Head Preserve TNC
	*	40. Oceanfront shrublands with crowberry and western azalea.	Blacklock Point SNA, Cape Blanco SNA
	*	41. Grass bald on Coast Range mountain.	Grass Mountain RNA, Roman Nose pACEC, Saddle Mountain SNA
	*	42. Rock garden on Coast Range mountain.	Onion Peak Preserve NCC Saddle Mountain SNA

COAST RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Lacustrine			
	*	43. Dune-blocked lake with aquatic beds and marshy shore, surrounded by unconsolidated sands.	New River ACEC
PRD, PVT, FS, BLM	H	44. Dune or slump-blocked lake with aquatic beds and marshy shore, surrounded by sedimentary or igneous formations.	
Palustrine			
FS	U	45. Pond in active sand dune area.	
PRD, FS	U	46. Pond in stabilized sand dune area.	L Presley and Vera C Gill State Park
	*	47. Pond at mid to high elevation, including slump ponds.	Wassen Creek ACEC
	*	48. Sparsely-vegetated deflation plain marsh, with Nevada rush, sickle-leaved rush and springbank clover.	Tenmile Creek RNA
	*	49. Deflation plain marsh, dominants including slough sedge and silverweed.	Tenmile Creek RNA
	+	50. Freshwater tidal marsh on lower Columbia River, with streams and mud flats (including Lyngby sedge, hardstem bulrush and narrow-leaved cattail.	Russian Island pRNA
	*	51. Slough sedge-Sitka sedge fen.	Butterfield Fen (formerly Gearhart Bog, NCC)
	*	52. Mid to high elevation sedge fen, sphagnum bog and beaver marsh.	Lost Prairie RNA
	*	53. Labrador tea/sphagnum mire on organic soils, without Darlingtonia, including associations with shore pine and western red cedar.	Butterfield Fen NCC, Ian Peterson-Nedry Preserve (TWC)
	*	54. Labrador tea/sphagnum mire on organic soils, with Darlingtonia, including associations with shore pine and western red cedar.	Ian Peterson-Nedry Preserve (TWC)
	*	55. Labrador tea/sphagnum mire on floating lake-fill mat.	Nestucca Bay NWR (FWS), Ian Peterson-Nedry Preserve (TWC), New River ACEC
	*	56. Labrador tea-sweet gale heath.	Butterfield Fen (NCC)
	+	57. Bog blueberry/tufted hairgrass brush prairie.	Blacklock Point SNA, New River ACEC
	*	58. Willow-crabapple/slough sedge swamp with spiraea.	Sutton Lake Preserve TNC
	*	59. Shore pine/slough sedge seasonal swamp.	Heceta Dunes ACEC
		60. Cottonwood/willow-redosier dogwood tideland swamp.	Tenasillahe RNA
	*	61. Sitka spruce/redosier dogwood and willow/redosier dogwood tideland swamps.	Blind Slough Swamp Preserve TNC
PRD, FWS	H	62. Sitka spruce/skunk cabbage swamp (non-tidal).	<i>Nestucca Bay NWR (FWS), Ona Beach, Boiler Bay</i>
FS, BLM	*	63. Western red cedar-western hemlock/skunk cabbage.	<i>Upper Rock Creek</i>
	*	64. Low elevation pond with aquatic beds and marshy shore.	Port Orford Cedar RNA

COAST RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	*	65. Oregon myrtle/evergreen shrub riparian forest.	North Fork Chetco River ACEC
PRD, PVT	H	66. Shallow lake on ancient deflation plain, with aquatic beds and marshy shore, surrounded by dunes.	
	*	67. Pacific reedgrass fen.	Cape Blanco SNA
	*	68. Oregon ash-red alder swamp.	Port Orford Cedar RNA



Pacific silver fir forests at Saddle Mountain SNA

COAST RANGE GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
*	1.	Baymouth Spit	Netarts Spit SNA
*	2.	Beach Ridges	Fort Stevens State Park
H	3.	Buried Forest	<i>Neskowin Beach</i>
*	4.	Dune Sheet	Oregon Dunes NRA Tenmile RNA
+	5.	Dune-dammed Lake	Lake Marie - Umpqua Lighthouse State Park pSNA
M	6.	Landslide	<i>Newport, Jumpoff Joe</i>
M	7.	Landslide-dammed Lake	<i>Lost Lake</i>
M	8.	Liquefaction Dike	<i>Marsh Island</i>
*	9.	Ring Dike, Sill	Ecola State Park
*	10.	Sea Cliff	Cape Kiwanda State Park Cape Blanco SNA
+	11.	Tsunami Deposits	Netarts Bay Cape Lookout – Netarts Spit SNA
	12.	Wave-Cut Terrace	Sunset Bay State Park
Pleistocene			
*	13.	Cape Blanco Terrace	Cape Blanco SNA Cape Arago State Park
*	14.	Whisky Run Terrace	Cape Arago State Park
*	15.	Pioneer Terrace	Cape Arago State Park
*	16.	Seven Devils Terrace	Cape Arago State Park
*	17.	Metcalf Terrace	Cape Arago State Park
L	18.	Port Orford Formation	<i>Port Orford</i>
Miocene			
*	19.	Cape Foulweather Basalt	Depot Bay State Park
*	20.	Sandstone Of Whale Cove	Depot Bay State Park
*	21.	Depot Bay Basalt	Depot Bay State Park
*	22.	Astoria Formation	Cape Kiwanda State Park
L	23.	Nye Mudstone	<i>Newport</i>
*	24.	Empire Formation	Cape Blanco SNA South Slough SNA
Oligocene			
L	25.	Scappoose Formation	<i>Manning</i>

COAST RANGE GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
L	26.	Yaquina Formation	<i>Depot Bay</i>
		Oligocene and Eocene	
L	27.	Pittsburgh Bluff Formation	<i>Buxton</i>
L	28.	Alsea Formation	<i>Waldport</i>
		Eocene	
L	29.	Keasey Formation	<i>Buxton</i>
L	30.	Cowlitz Formation	<i>Vernonia</i>
*	31.	Basalt of Yachats	Sea Lion Point Heceta Head ACEC
L	32.	Nestucca Formation	<i>Toledo</i>
*	33.	Tunnel Point Sandstone	Cape Arago State Park
*	34.	Bastendorff Shale	Cape Arago State Park Shore Acres State Park
*	35.	Coaledo Formation	Sunset Bay State Park Shore Acres State Park
L	36.	Bateman Formation	<i>Elkton</i>
L	37.	Elkton Formation	<i>Elkton</i>
		Cretaceous	
*	38.	Hunters Cove Siltstone	Cape Sebastian State Park
*	39.	Cape Sebastian Siltstone	Cape Sebastian State Park
*	40.	Houstenaden Creek Formation	Samuel H. Boardman State Park
*	41.	Rocky Point Formation	Port Orford State Park
*	42.	Humbug Mountain Conglomerate	Humbug Mountain State Park
*			
		Jurassic	
*	43.	Otter Point Formation	Cape Blanco State Park Otter Point SNA

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
Invertebrates				
<i>Anodonta californiensis</i>	California floater (mussel)	2	Lewis & Clark NWR	FWS
<i>Anodonta nuttalliana</i>	Winged floater (mussel)	2		
<i>Bombus occidentalis</i>	Western bumblebee	2		
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	2	North Fork Hunter Creek ACEC	BLM
<i>Callophrys polios maritima</i>	Seaside hoary elfin (butterfly)	1	Oregon Islands NWR, Crook Point NWR	FWS
<i>Cicindela hirticollis siuslawensis</i>	Siuslaw sand tiger beetle	1	Bandon SNA, New River ACEC, Oregon Dunes NRA, Oregon Islands NWR, Umpqua Dunes SIA	FS, PRD BLM FWS
<i>Driloleirus macelfreshi</i>	Oregon giant earthworm	1		
<i>Fluminicola virens</i>	Olympia pebblesnail	2		
<i>Gliabates oregonius</i>	Salamander slug	1		
<i>Gonidea angulata</i>	Western ridged mussel	2		
<i>Hochbergellus hirsutus</i>	Sisters hesperian (snail)	1		
<i>Juga orickensis</i>	Redwood juga (snail)	2		
<i>Juga sp. 3</i>	Brown juga (snail)	1		
<i>Lanx subrotunda</i>	Rotund lanx (snail)	1		
<i>Lepidostoma astaneum</i>	Goeden's lepidostoman caddisfly	2	Flynn Creek RNA	FS
<i>Littorina subrotundata</i>	Newcomb's littorine snail	2	North Spit ACEC	BLM
<i>Lygus oregonae</i>	Oregon plant bug	1	Cape Blanco SNA	PRD
<i>Monadenia fidelis beryllica</i>	Green sideband (snail)	1	Humbug Mountain SNA	PRD
<i>Physella columbiana</i>	Rotund physa (snail)	1		
<i>Plebejus saepiolus littoralis</i>	Insular blue (butterfly)	1	Rock Creek WA, Cape Blanco & Cape Blanco SNA, Crook Point NWR	FS, PRD, FWS
<i>Polites mardon</i>	Mardon skipper (butterfly)	1	North Fork Hunter Creek ACEC	BLM
<i>Pomatiopsis binneyi</i>	Robust walker (snail)	1	Chetco River WSR	FS
<i>Pomatiopsis californica</i>	Pacific walker (snail)	1		
<i>Pomatiopsis chacei</i>	Marsh walker (snail)	1		
<i>Pristiloma pilsbryi</i>	Crowned tightcoil (snail)	1		
<i>Rhyacophila haddocki</i>	Haddock's rhyacophilan caddisfly	1	Marys Peak ACEC, Parker Creek headquarters	BLM
<i>Speyeria zerene hippolyta</i>	Oregon silverspot (butterfly)	1	Big Creek Preserve, Cascade Head Preserve, Rock Creek WA, Washburn State Park, Cummins Creek WA	TNC, FS
<i>Vorticifex neritoides</i>	Nerite ramshorn (snail)	1		

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
Fish				
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	Elk Creek ACEC, Lake Creek ACEC, Copper Salmon WA, Cummins / Gwynn Creeks RNA, Drift Creek WA	FS, BLM
<i>Oncorhynchus keta pop. 4</i>	Chum salmon (Pacific Coast ESU)	2	Siletz Bay NWR, Nestucca Bay NWR, Little North Fork Wilson River ACEC	FWS, BLM
<i>Oncorhynchus kisutch pop. 1</i>	Coho salmon (Lower Columbia River ESU)	1	Lewis and Clark NWR, Knappa Slough Island SNA	FWS, PRD
<i>Oncorhynchus kisutch pop. 2</i>	Coho salmon (Southern Oregon/Northern California Coasts ESU)	1	Grassy Knob WA, Wild Rogue WA, Copper Salmon WA, Grassy Knob WA, Wheeler Creek RNA	FS
<i>Oncorhynchus kisutch pop. 3</i>	Coho salmon (Oregon Coast ESU)	1	South Slough NERR, Cascade Head Preserve, Jewell Meadows WMA, Cherry Creek RNA, High Peak - Moon Creek RNA, Devil's Staircase WA, Elk Creek ACEC	DSL, TNC, OFW, BLM, FS
<i>Oncorhynchus mykiss pop. 25</i>	Steelhead (Klamath Mountains Province ESU, winter run)	2	Elk River WSR, Chetco River WSR, Rogue River WSR, Copper Salmon WA, Grassy Knob WA	FS
<i>Oncorhynchus mykiss pop. 26</i>	Steelhead (Lower Columbia River ESU, summer run)	1		
<i>Oncorhynchus mykiss pop. 27</i>	Steelhead (Lower Columbia River ESU, winter run)	1		
<i>Oncorhynchus mykiss pop. 30</i>	Steelhead (Oregon Coast ESU, summer run)	1	Siletz Bay NWR, Valley of the Giants ACEC	FWS, BLM
<i>Oncorhynchus mykiss pop. 31</i>	Steelhead (Oregon Coast ESU, winter run)	1	South Slough NERR, Big Creek Preserve, Cherry Creek RNA, Jewell Meadows WMA, High Peak - Moon Creek RNA, Salmon Copper WA	DSL, BLM, FS, OFW
<i>Oncorhynchus mykiss pop. 33</i>	Steelhead (Upper Willamette River ESU, winter run)	1		
<i>Oncorhynchus mykiss pop. 35</i>	Steelhead (Southwest Washington ESU, winter run)	2	Knappa Island SNA, Julia Butler Hanson NWR, Lewis and Clark NP	PRD, FWS, NPS
<i>Oncorhynchus tshawytscha pop. 18</i>	Chinook salmon (Deschutes River ESU, summer/fall run)	1		
<i>Oncorhynchus tshawytscha pop. 22</i>	Chinook salmon (Lower Columbia River ESU, fall run)	1	Lewis and Clark NWR, Knappa Island SNA	FWS, FS
<i>Oncorhynchus tshawytscha pop. 26</i>	Chinook salmon (Southern Oregon/Northern California Coast ESU, fall run)	2	Chetco River WSR, Rogue River WSR, Copper Salmon WA, Grassy Knob WA, Wheeler Creek RNA	FS
<i>Oregonichthys kalawatseti</i>	Umpqua chub	1		DSL, PVT
<i>Rhinichthys cataractae ssp. 1</i>	Millicoma dace	1	South Fork Coos River, West Fork Millicoma River	ODF
<i>Thaleichthys pacificus</i>	Eulachon	2		

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
Amphibians				
<i>Dicamptodon copei</i>	Cope's giant salamander	2	Saddle Mountain NA	PRD
<i>Rana boylei</i>	Foothill yellow-legged frog	2	Loeb State Park, Coquille River Falls RNA, Elk River WSR, Grassy Knob WA, Rogue River WSR, N. Fork Hunter Creek ACEC	PRD, FS, BLM
Reptiles				
<i>Actinemys marmorata</i>	Western pond turtle	2	New River ACEC, Oregon Dunes NRA, Tugman State Park, South Slough NERR, Grassy Knob WA	FS, PRD, BLM
<i>Chrysemys picta</i>	Painted turtle	2	Balch Creek Forest	MNA
Birds				
<i>Brachyramphus marmoratus</i>	Marbled murrelet	2	Elk River SSW, Upper Rock Creek ACEC, Euphoria Ridge ACEC, Brownson Ridge ACEC, Cherry Creek RNA, Oregon Islands NWR	BLM, FS, PRD, FWS
<i>Branta canadensis occidentalis</i>	Dusky Canada goose	1	Nestucca Bay NWR	FWS
<i>Branta hutchinsii leucopareia</i>	Aleutian Canada goose	2	Cape Lookout State Park, Nestucca Bay NWR, Oregon Islands NWR, Netarts Spit SNA, Floras Lake SNA	PRD, FWS
<i>Bucephala albeola</i>	Bufflehead	2		
<i>Cerorhina monocerata</i>	Rhinoceros auklet	2	Cape Lookout SNA, Port Orford Heads SNA, Oregon Islands NWR, Humbug Mountain SNA	PRD, FWS
<i>Charadrius nivosus nivosus</i>	Western snowy plover	2	Bandon NA, Cape Blanco State Park, New River ACEC, Oregon Dunes NRA, North Spit ACEC	PRD, BLM FS
<i>Cygnus buccinator</i>	Trumpeter swan	2		
<i>Elanus leucurus</i>	White-tailed kite	2		
<i>Eremophila alpestris strigata</i>	Streaked horned lark	1		
<i>Falco peregrinus anatum</i>	American peregrine falcon	2	Cape Blanco State Park, Cape Lookout State Park, Oregon Islands NWR, Oswald West State Park, Cape Meares RNA	PRD, FWS
<i>Fratercula cirrhata</i>	Tufted puffin	2	Face Rock SNA, Cape Lookout SNA, Three Arch Rocks NWR	PRD, FWS
<i>Histrionicus histrionicus</i>	Harlequin duck	2		
<i>Melanerpes lewis</i>	Lewis's woodpecker	2		
<i>Oceanodroma furcata</i>	Fork-tailed storm-petrel	2	Oregon Islands NWR	FWS
<i>Podiceps auritus</i>	Horned grebe	2		

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Podiceps grisegena</i>	Red-necked grebe	2		
<i>Poocetes gramineus affinis</i>	Oregon vesper sparrow	2	New River ACEC	
<i>Progne subis</i>	Purple martin	2	East Sand Island, Lewis And Clark NWR, Oregon Dunes NRA, Julia Butler Hansen NWR	FWS FS
<i>Ptychoramphus aleuticus</i>	Cassin's auklet	2	Oregon Islands NWR	FWS
<i>Strix occidentalis caurina</i>	Northern spotted owl	1	Wheeler Creek RNA, Cherry Creek RNA, Little Sink RNA, Bobby Creek ACEC, Drift Creek WA, Wassen Creek ACEC, Devil's Staircase WA	BLM, FS
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2		
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Ecola State Park, Boardman SSC	PRD
<i>Eumetopias jubatus</i>	Northern sea lion	2	Cape Arago RR, Three Arch Rocks NWR, Cascade Head Preserve, Ecola State Park, Oregon Islands NWR	PRD, TNC, FWS
<i>Martes caurina pop 3</i>	Pacific marten – Coastal population	1		
<i>Myotis thysanodes</i>	Fringed myotis	2	Drift Creek WA, Lewis and Clark NHP, Port Orford Ceder RNA	NPS, FS
<i>Odocoileus virginianus leucurus</i>	Columbian white-tailed deer	1	Lewis and Clark NWR	FWS
<i>Pekania pennanti</i>	Fisher	2	Grassy Knob WA	FS
<i>Thomomys bottae detumidus</i>	Pistol River pocket gopher	1	Oregon Islands NWR	FWS
<i>Thomomys mazama helleri</i>	Gold Beach pocket gopher	1		
Vascular Plants				
<i>Abronia umbellata ssp. breviflora</i>	Pink sandverbena	1	Otter Point SNA, New River ACEC, North Spit ACEC, Cape Blanco SNA	PRD, BLM
<i>Adiantum jordanii</i>	California maiden-hair	2	Rogue River WSR	FS
<i>Agrostis densiflora</i>	California bentgrass	2	Cummins Creek WA, Cape Blanco SNA, Oregon Islands NWR	FS, PRD, FWS
<i>Anemone oregana var. felix</i>	Bog anemone	2	Lost Forest/Sand Dunes/Fossil Lake ACEC/RNA	BLM
<i>Arctostaphylos hispidula</i>	Gasquet manzanita	2	Pistol River State Scenic Viewpoint	PRD
<i>Artemisia pycnocephala</i>	Coastal sagewort	2	Bandon SNA, Oregon Islands NWR, Tenmile Creek RNA, New River ACEC, Crook Point NWR	BLM, FWS, PRD
<i>Baccharis douglasii</i>	Marsh baccharis	2		
<i>Bensoniella oregana</i>	Bensonia	1		
<i>Brodiaea terrestris</i>	Dwarf brodiaea	2	Cape Arago State Park, New River ACEC, Port Orford Heads State Park	PRD, BLM

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Cardamine pattersonii</i>	Saddle Mt. bittercress	1	Onion Peak Preserve, Saddle Mountain SNA	NCC
<i>Carex brevicaulis</i>	Short-stemmed sedge	2	Lewis And Clark NHP, New River ACEC, Samuel H. Boardman State Scenic Corridor	NPS, BLM
<i>Carex livida</i>	Pale sedge	2		
<i>Carex macrocephala</i>	Bighead sedge	2	Fort Stevens State Park, Del Rey Beach State Recreation Site, Gearhart Ocean State Park, Governor Patterson Memorial State Recreation Area	PRD
<i>Carex macrochaeta</i>	Alaska long-awned sedge	2	Saddle Mountain NA	PRD
<i>Carex pluriflora</i>	Many flowered sedge	2	Butterfield Fen (formerly Gearhart Bog)	NCC
<i>Carex subbracteata</i>	Small-bract sedge	2	New River ACEC	BLM
<i>Carex zikae</i>	Short-stemmed sedge	2	New River ACEC, Bandon Marsh NWR, Cape Ferrelo SNA, Cape Kiwanda SNA	BLM, FWS, PRD
<i>Castilleja chambersii</i>	Chambers' paintbrush	1	Onion Peak Preserve, <i>Sugarloaf Mountain</i>	NCC
<i>Castilleja mendocinensis</i>	Mendocino coast paintbrush	1	Otter Point SNA, Blacklock Pt SNA	PRD
<i>Cicendia quadrangularis</i>	Timwort	2	New River ACEC	BLM
<i>Cochlearia groenlandica</i>	Spoonwort	2	Oregon Islands NWR	FWS
<i>Cryptantha leiocarpa</i>	Seaside cryptantha	2	New River ACEC, Ophir Dunes SNA	BLM, ODOT
<i>Delphinium oregonum</i>	Willamette Valley larkspur	1	Saddle Mountain SNA	PRD
<i>Delphinium pavonaceum</i>	Peacock larkspur	1		
<i>Dodecatheon austrofrigidum</i>	Frigid shootingstar	1	Onion Peak Preserve, Saddle Mountain SNA	NCC, PRD
<i>Elymus glaucus ssp. virescens</i>	Smooth wildrye	2	Oregon Islands NWR, Cape Arago RR,	PRD, FWS
<i>Elymus hirsutus</i>	Hairy wildrye	2	Onion Peak Preserve, Oregon Islands NWR, Saddle Mountain SNA	PRD, FWS
<i>Ericameria arborescens</i>	Golden fleece	2		
<i>Erigeron cervinus</i>	Siskiyou daisy	2	Rogue WSR	FS
<i>Erigeron peregrinus</i> var. <i>peregrinus</i>	Wandering daisy	2	Onion Peak Preserve, Saddle Mountain SNA	NCC, PRD
<i>Eriophorum chamissonis</i>	Russet cotton-grass	2	L. Presley & Vera C. Gill State Natural Site, New River ACEC, Cape Blanco SNA	BLM, ORD
<i>Erysimum concinnum</i>	Pacific wallflower	2	Humbug Mountain State Park	PRD
<i>Erythronium elegans</i>	Coast Range fawn-lily	1	Lost Prairie RNA	BLM

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Filipendula occidentalis</i>	Queen-of-the-forest	1	Onion Peak Preserve, Little North Fork Wilson River ACEC, Saddle Mountain SNA, Lost Prairie ACEC	NCC, PRD, BLM
<i>Frasera umpquaensis</i>	Umpqua swertia	1		
<i>Fritillaria camschatcensis</i>	Indian rice	2	Lost Prairie RNA	BLM
<i>Geum triflorum</i> var. <i>campanulatum</i>	Western red avens	2	Saddle Mountain NA	PRD
<i>Gilia millefoliata</i>	Seaside gilia	1	Crissey Field SNA, New River ACEC, Oregon Islands NWR	PRD, FWS
<i>Hydrocotyle verticillata</i>	Whorled marsh pennywort	2	Oregon Dunes NRA, William M. Tugman State Park	FS, PRD
<i>Iliamna latibracteata</i>	California globe-mallow	1	<i>Panther Creek</i>	BLM, FS
<i>Impatiens ecornuta</i>	Spurless jewelweed	2	Blind Slough Swamp Preserve, Ft. Clatsop National Historic Park	TNC, NPS
<i>Lasthenia ornduffii</i>	Large-flowered goldfields	1	Cape Blanco SNA, Otter Point SNA, Cape Ferrelo SNA, Blacklock Point SNA, Nesika Beach Preserve	PRD, TNC
<i>Lewisia columbiana</i> var. <i>rupicola</i>	Rosy lewisia	2	Onion Peak Preserve Saddle Mountain NA, Onion Peak SNA	NCC, PRD
<i>Lilium kelloggii</i>	Kellogg's lily	2	<i>Peavine Ridge</i>	FS
<i>Lilium occidentale</i>	Western lily	1	Bastendorff Bog (Sunset Bay), New River ACEC, Blacklock Point SNA	PRD
<i>Lycopodiella inundata</i>	Northern bog clubmoss	2	Jessie M. Honeyman Memorial State Park, Oregon Dunes NRA	PRD, FS
<i>Micranthes hitchcockiana</i>	Saddle Mt. saxifrage	1	Onion Peak Preserve, Saddle Mountain SNA	NCC, PRD
<i>Microseris bigelovii</i>	Coast microseris	2	Cape Blanco State Park, Oregon Islands NWR, Port Orford Heads State Park	PRD, FWS
<i>Monardella purpurea</i>	Siskiyou monardella	2	Rocky Peak ACEC	BLM
<i>Nicotiana quadrivalvis</i>	Indian tobacco	2	Myrtle Island RNA	BLM
<i>Oenothera wolfii</i>	Wolf's evening-primrose	1	Humbug Mt. SNA, Otter Point SNA, Cape Blanco SNA, Oregon Islands NWR, Brookings RR	PRD, FWS
<i>Ophioglossum pusillum</i>	Adder's-tongue	2	Jessie M. Honeyman Memorial State Park, Oregon Dunes NRA	PRD, FS
<i>Packera flettii</i>	Flett's groundsel	2	Onion Peak Preserve	NCC
<i>Pellaea andromedifolia</i>	Coffee fern	2		BLM
<i>Phacelia argentea</i>	Silvery phacelia	1	New River ACEC, Crissey Field SNA, Oregon Islands NWR, Twin Rocks SNA, Humbug Mountain SNA	BLM, FWS, PRD
<i>Plantago macrocarpa</i>	North pacific plantain	2	Smelt Sands SNA, Yachats Ocean Road SNA, Oregon Islands NWR	PRD, FWS
<i>Poa unilateralis</i> ssp. <i>pachypholis</i>	Ocean bluff grass	1	Cascade Head Preserve	TNC

COAST RANGE SPECIAL SPECIES

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<i>Polystichum californicum</i>	California sword-fern	2	Harris Beach State Park	PRD
<i>Potamogeton robbinsii</i>	Flatleaf pondweed	2	Sutton Lake Swamp Preserve	TNc
<i>Puccinellia nutkaensis</i>	Pacific alkaligrass	2	Oregon Islands NWR, Clay Myers SNA, Whalen Island SNA, Sand Lake RNA, Reneke Creek RNA, Bradley Bog Preserve	FS, PRD FWS, NCC
<i>Rhynchospora alba</i>	White beakrush	2	Ian Peterson-Nedry Preserve	TWC
<i>Rhynchospora capitellata</i>	Brownish beakrush	2	Harris Beach State Recreation Area, Oregon Islands NWR, Brookings RR	PRD, FWS
<i>Romanzoffia thompsonii</i>	Thompson mistmaiden	1		BLM
<i>Schoenoplectus subterminalis</i>	Water clubrush	2	Jessie M. Honeyman Memorial State Park, New River ACEC, Oregon Dunes NRA	PRD BLM FS
<i>Scoliopus bigelovii</i>	California fetid adder's-tongue	2		
<i>Sidalcea hendersonii</i>	Henderson's sidalcea	1	North Fork Siuslaw Marsh	MRT
<i>Sidalcea hirtipes</i>	Bristly-stemmed sidalcea	1	Neskowin Crest RNA, Cascade Head Preserve, Saddle Mountain SNA	BLM TNC
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Coast checker bloom	1	Port Orford State Wayside, Hunter Creek Bog RNA	BLM
<i>Sidalcea nelsoniana</i>	Nelson's sidalcea	1	Walker Flat ACEC, Nestucca River State Scenic Waterway	BLM
<i>Silene douglasii</i> var. <i>oraria</i>	Cascade Head catchfly	1	Cascade Head Preserve, Cape Lookout State Park SNA	TNC PRD
<i>Tauschia stricklandii</i>	Strickland's Tauschia	2		
<i>Trillium kurabayashii</i>	Giant purple trillium	2	Rogue River WSR, Bald Mountain Creek WSR	FS
<i>Triteleia laxa</i>	Ithuriel's spear	2		
<i>Utricularia gibba</i>	Humped bladderwort	2	Jessie M. Honeyman Memorial State Park, Oregon Dunes NRA, New River ACEC, L. Presley and Vira C Gill State Park	PRD, FS
<i>Utricularia minor</i>	Lesser bladderwort	2	New River ACEC	BLM
<i>Wolffia columbiana</i>	Columbia water-meal	2		
Nonvascular Plants				
<i>Anastrophyllum minutum</i>	Liverwort	2		
<i>Barbilophozia barbata</i>	Liverwort	2	Saddle Mountain NA	PRD
<i>Blepharostoma arachnoideum</i>	Liverwort	2		
<i>Bryum calobryoides</i>	Moss	2		
<i>Calypogeia sphagnicola</i>	Liverwort	2	Darlingtonia State Natural Site, New River ACEC	PRD

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Campylopus schmidii</i>	Moss	2	Heceta Sand Dunes ACEC/ONA, Oregon Dunes NRA, Sutton Creek Recreation Area	BLM, FS PRD
<i>Cephaloziella spinigera</i>	Liverwort	2	Ian Peterson-Nedry Preserve	TWC
<i>Encalypta brevicollis</i>	Moss	2	Saddle Mountain SNA	PRD
<i>Encalypta brevipes</i>	Moss	2	Saddle Mountain NA	PRD
<i>Haplomitrium hookeri</i>	Liverwort	2	Oregon Dunes NRA	FS
<i>Herbertus aduncus</i>	Liverwort	2	Saddle Mountain NA, Onion Peak Preserve	PRD, NCC
<i>Herbertus dicranus</i>	Liverwort	2	Saddle Mountain NA	PRD
<i>Iwatsukiella leucotricha</i>	Moss	2	Saddle Mountain NA, Onion Peak Preserve	PRD, NCC
<i>Kurzia makinoana</i>	Liverwort	2	New River ACEC	BLM
<i>Limbella fryei</i>	Moss	1	Sutton Lake Preserve, New River ACEC	TNC
<i>Orthodontium gracile</i>	Moss	2	<i>Peavine Ridge</i>	FS
<i>Orthodontium pellucens</i>	Moss	2	<i>Peavine Ridge, Redwood Nature Trail, Bear Ridge</i>	FS
<i>Phymatoceros phymatodes</i>	Hornwort	2		
<i>Plagiochila semidecurrens</i> var. <i>semidecurrens</i>	Liverwort	2	Saddle Mountain NA	PRD
<i>Polytrichum strictum</i>	Hummock haircap moss	2	Butterfield Fen	NCC
<i>Radula brunnea</i>	Liverwort	2	Saddle Mountain NA	PRD
<i>Radula obtusiloba</i> ssp. <i>polyclada</i>	Liverwort	2	Saddle Mountain NA	PRD
<i>Rhytidium rugosum</i>	Moss	2	Saddle Mountain NA	PRD
<i>Schistochilopsis laxa</i>	Liverwort	2	Ian Peterson-Nedry Preserve, Sand Lake Recreation Area	TWC PRD
<i>Tetraphis geniculata</i>	Moss	2	Valley of The Giants ONA-ACEC	BLM
<i>Triquetrella californica</i>	Moss	1	Humbug Mountain SNA, Oregon Islands NWR	PRD, FWS
<i>Tritomaria quinquedentata</i>	Liverwort	2	Saddle Mountain SNA	PRD
Fungi				
<i>Albatrellus avellaneus</i>	Fungus	1	Cape Sebastian SNA, Cape Arago SNA, Oregon Islands NWR	PRD, FWS
<i>Aminita novinupta</i>	New bride blusher	2	Rogue WSR	FS
<i>Arcangeliella camphorata</i>	Fungus	1	Copper Salmon WA	FS
<i>Bryoria bicolor</i>	Electrified horsehair lichen	1	Cape Arago RR, Cascade Head, Oregon Islands NWR	PRD, FWS

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Calicium adpersum</i>	Lichen	2		
<i>Chamonixia caespitosa</i>	Fungus	2	Cape Perpetua Scenic Area, Mary's Peak ONA/ACEC, Saddle Bag Mountain RNA, Yachats Ocean Road SNA, Oregon Islands NWR	FS, BLM, PRD, FWS
<i>Cladidium bolanderi</i>	Lichen	2	Harris Beach SNA, Oregon Dunes NRA, Oregon Islands NWR	PRD, FS, FWS
<i>Cortinarius barlowensis</i>	Fungus	2		
<i>Cystangium pavelekii</i>	Fungus	1	Oregon Dunes NRA	FWS
<i>Heterodermia japonica</i>	Lichen	2	Cape Lookout State Natural Area	PRD
<i>Heterodermia sitchensis</i>	Lichen	2	Oregon Dunes NRA, Cape Lookout SNA, Oregon Island NWR	FS, PRD, FWS
<i>Hypogymnia pulverata</i>	Lichen	2		
<i>Hypogymnia subphysodes</i>	Lichen	2	Clear Lake Dunes	Lane Co.
<i>Hypotrachyna revoluta</i>	Lichen	2	Cape Arago State Park, Cape Lookout State Park, Shore Acres State Park, Sunset Bay State Park, Ecola State Park	PRD
<i>Leioderma soledatum</i>	Lichen	2	Heceta Sand Dunes ACEC/ONA, Oregon Dunes NRA, Sutton Creek Recreation Area, South Beach State Park	BLM FS, PRD
<i>Leptogium cyanescens</i>	Lichen	2	Estella Matilda Happ Preserve Sutton Lake Preserve	TWC TNC
<i>Lobaria linita</i>	Lichen	2		
<i>Niebla cephalota</i>	Lichen	2	North Spit ACEC, Oregon Dunes NRA, Cape Arago State Park	BLM FS PRD
<i>Otidea smithii</i>	Fungus	2	Mary's Peak SIA/ACEC	BLM, FS
<i>Pannaria rubiginella</i>	Lichen	2	Heceta Sand Dunes ACEC/ONA	BLM
<i>Pannaria rubiginosa</i>	Lichen	2	Heceta Sand Dunes ACEC/ONA, Oregon Dunes NRA, Beaver Creek SNA, Estella Matilda Happ Preserve	FS, BLM TWC, PRD
<i>Phaeocollybia gregaria</i>	Fungus	1	Saddle Bag Mountain RNA, Mary's Peak SIA	BLM, FS
<i>Phaeocollybia oregonensis</i>	Fungus	1	Cascade Head Experimental Forest	FS
<i>Pilophorus nigricaulis</i>	Lichen	2	Onion Peak Preserve, Lost Prairie ACEC	NCC, BLM
<i>Pseudocyphellaria mallota</i>	Lichen	2		
<i>Pseudorhizina californica</i>	Fungus	2	Oregon Dunes NRA	FS
<i>Ramalina pollinaria</i>	Lichen	2	Ecola State Park, New River ACEC, North Spit ACEC, Boardman State Scenic Corridor	PRD, BLM

COAST RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Ramaria rubella forma blanda</i>	Fungus	2	Oregon Dunes NRA	FS
<i>Rhizopogon clavitisporus</i>	Fungus	2		
<i>Rhizopogon exiguus</i>	Fungus	2	Mary's Peak SIA/ACEC	FS, BLM
<i>Sarcodon fuscoindicus</i>	Violet hedgehog	2	Devil's Staircase WA	FS
<i>Sticta arctica</i>	Lichen	2	Saddle Mountain NA	PRD
<i>Sulcaria badia</i>	Lichen	1	Oregon Dunes NRA	FS
<i>Teloschistes flavicans</i>	Lichen	2	Cape Lookout State Park, Harris Beach State Recreation Area, Cape Blanco SNA, Cascade Head Preserve	PRD, FS TNC
<i>Thaxterogaster pavelekii</i>	Fungus	1	Cape Lookout State Park	PRD
<i>Tubur pacificum</i>	Fungus	1	Cummins/Gwynn Creeks RNA	FS
<i>Usnea nidulans</i>	Lichen	2		



South Slough National Estuarine Research Reserve

CHAPTER 11. WILLAMETTE VALLEY ECOREGION

The Willamette Valley Ecoregion is located between the Coast Range and the Western Cascades in northwestern Oregon and includes Oregon's largest river valley. From Oregon it extends north to include the Vancouver, Washington bottomlands. The valley is characterized by broad, alluvial flats and low basalt hills. Soils include deep alluvial silts from river deposits and dense heavy clays from pluvial deposits in the valley bottom's numerous oxbow lakes and ponds.

The abundant rainfall and fertile soils make the valley Oregon's most important agricultural region. This has been the case since the first settlers began arriving via the Oregon Trail. As a result, the Willamette Valley is Oregon's most developed area. The Willamette Valley is home to most Oregonians, with more than 70% of the state's population, the majority of its industry and almost half of its farmland.

When the first European settlers came to Oregon, the valley was a mosaic of gallery riparian forests and wetlands, open white oak savannas and prairie, with valley margins of oak, ponderosa pine and Douglas fir woodlands. Native Americans maintained the prairies, oak savannas and woodlands by regularly burning most of the valley. With settlement, the prairies have been largely farmed and the open oak savannas and oak-conifer woodlands have been logged or become closed canopy forests due to fire suppression.

The Willamette Valley's location on the Pacific Flyway makes it an important area for migrating and wintering waterfowl. Geese and shorebirds benefit from flooded agricultural lands and the Willamette River and its many tributaries support salmon and steelhead runs, mostly of hatchery origin due to the large number of dams in the system. The valley's few remaining fragments of native prairie support many special plant species and endemic invertebrates, while the remaining wetlands provide habitat to the Oregon chub, the western pond turtle and many other sensitive animal species.

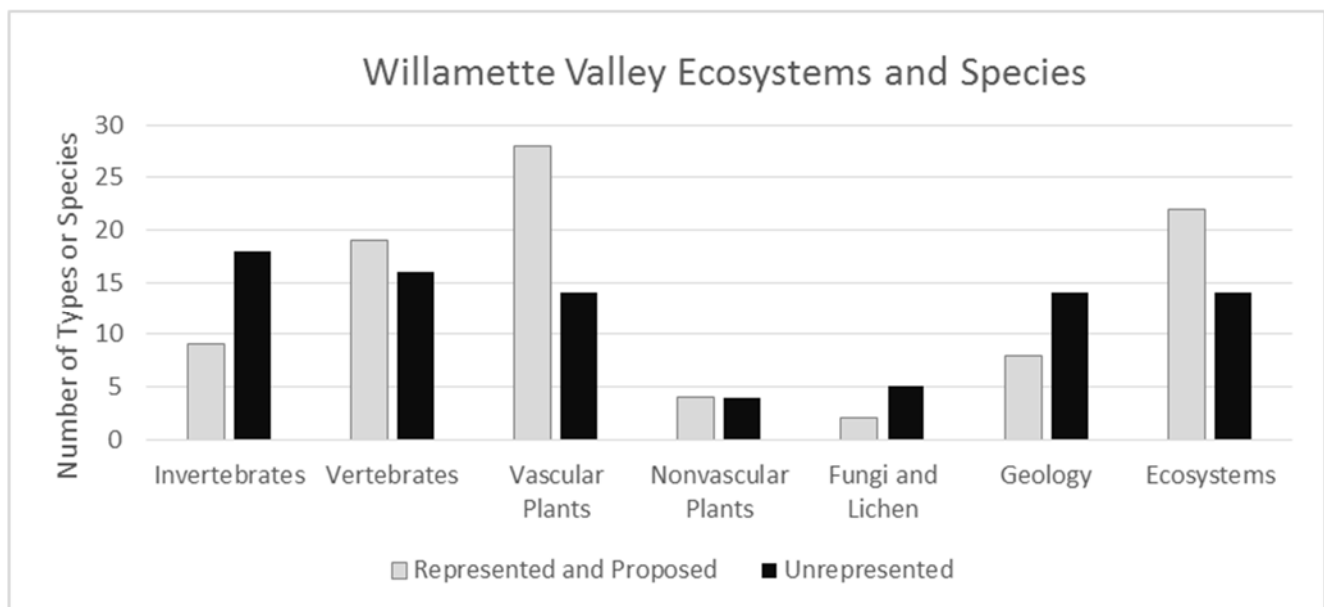


Figure 8. Willamette Valley Represented and Unrepresented Ecosystems and Species.

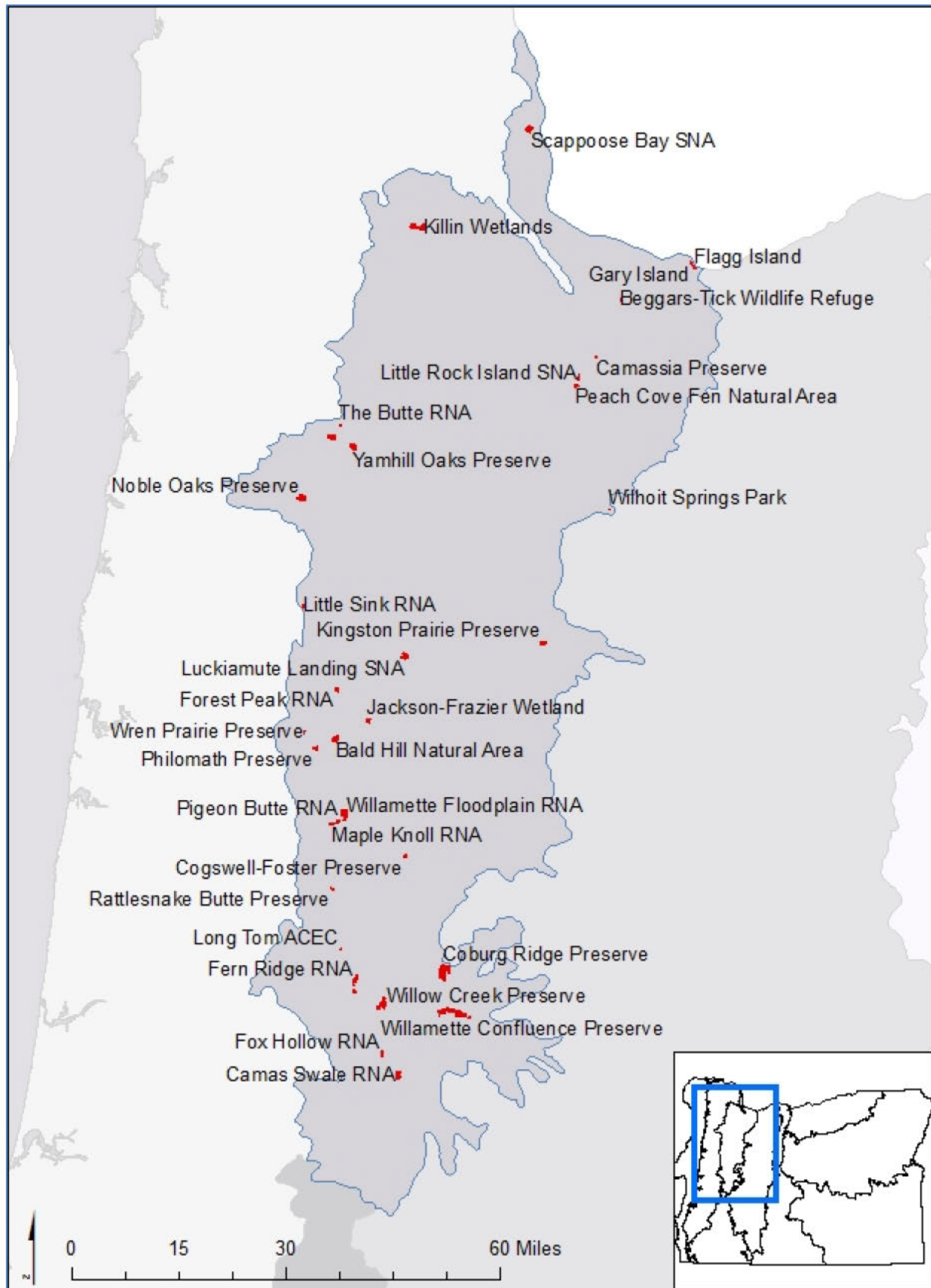


Figure 9. Willamette Valley Ecoregion Natural Areas Map.

WILLAMETTE VALLEY ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Conifer Forests			
	*	1. Douglas fir/salal/swordfern.	Fox Hollow RNA Camas Swale RNA
	*	2. Douglas fir/poison oak forest.	The Butte RNA Fox Hollow RNA Forest Peak RNA
	*	3. Douglas fir-western hemlock/Oregon grape and salal forests, with grand fir if possible.	Mohawk RNA Wilhoit Springs RNA
	*	4. Ponderosa pine-Douglas fir/California fescue woodland.	Fox Hollow RNA Ponderosa Pine pACEC
	*	5. Douglas fir-grand fir/vine maple-salal.	Little Sink RNA
	*	6. Douglas fir – western red cedar-western hemlock/hazel forest on alluvial terrace and slopes.	Sandy River Gorge Preserve TNC Sandy River ACEC
Mixed Hardwood-Conifer Forests			
	*	7. Douglas fir-bigleaf maple forest with some grand fir if possible.	Forest Peak RNA The Butte RNA Mohawk RNA
BLM	M	8. Madrone-Douglas fir-oak woodlands with poison oak and snowberry.	<i>McCully Mountain Fishermen's Bend Campground</i>
BLM, PVT	H	9. Oregon white oak-Douglas fir/snowberry woodland.	<i>McCully Mountain</i>
	*	10. Ponderosa pine-Douglas fir-California black oak woodland.	Lorane Ponderosa Pine pACEC Fox Hollow RNA
Hardwood Forests			
	*	11. Oregon white oak/grass savanna.	The Butte RNA , Wren Prairie Preserve TNC, Baskett Slough NWR
	*	12. Oregon white oak/poison oak-snowberry/blue wildrye woodland.	Pigeon Butte RNA, Maple Knoll RNA, Baskett Slough NWR
BLM, County	H	13. Oregon white oak-madrone/poison oak/bunchgrass woodland.	<i>Bald Hill Park Howard Buford Recreation Area</i>
Prairies			
	*	14. Roemer fescue valley grassland.	Dorena Prairie ACE, Wren Prairie Preserve TNC, Kingston Prairie Preserve TNC, Basket Slough NWR
	*	15. Lemmon's needlegrass-moss bald.	Forest Peak RNA Rattlesnake Butte CTGR
Riparian Woodlands			
	*	16. Oregon ash-bigleaf maple-Oregon white oak riparian forest.	Willamette Floodplain RNA, Mission Bottom
PVT, PRD	M	17. White alder bottomland riparian forest.	

WILLAMETTE VALLEY ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Lacustrine			
PRD, PVT, FWS	H	18. Oxbow lake on Willamette River, with aquatic beds and marshy shore.	<i>Mission Bottom</i>
PRD, DSL, OFW	H	19. Shallow backwater lake on major river floodplain, with associated marsh and mudflats.	<i>Burlington Bottoms Sauvie Island WMA</i>
Palustrine			
	*	20. Slump pond at margin of valley, with aquatic beds.	Little Sink RNA
OFW, PVT	M	21. Tidal marsh on major river, with associated mud flats (including spikerush, bulrush, burreed and wapato).	
PRD, PVT	M	22. Wapato marsh (including cutgrass, knotgrass and nodding beggars tick).	<i>Beggars Tick Marsh Sauvie Island</i>
	*	23. Slough sedge-one sided sedge marsh.	Fern Ridge RNA Willamette Floodplain RNA
	*	24. Tufted hairgrass valley bottomland prairie, with vernal pools and brush prairie (including Nootka rose, Douglas spiraea and dwarf blueberry).	Willamette Floodplain RNA Willow Creek Preserve TNC Fern Ridge RNA
	*	25. Tufted hairgrass-California oatgrass bottomland prairie.	Fern Ridge RNA Willow Creek Preserve TNC
	*	26. Nootka rose/water parsley shrub swamp.	Jackson-Frazier Wetland
PVT	H	27. Geyer willow-Hooker willow shrub swamp.	<i>Killin Wetlands (MNA)</i>
	*	28. Hooker willow-Sitka willow shrub swamp.	Camassia Preserve TNC <i>Beggars Tick Marsh</i>
PVT, OFW	M	29. Pacific willow shrub swamp.	<i>Government Island, Luckiamute- Little Luckiamute, Rooster Rock, Scappoose Bay, Sauvie Island WMA</i>
	*	30. Oregon ash/slough sedge woodland with snowberry.	Willamette Floodplain RNA
FWS, OFW	M	31. Oregon ash/Pacific willow woodland.	<i>Luckiamute River</i>
PRD	M	32. Riparian area dominated by river and Pacific willow.	<i>Rooster Rock</i>
	+	33. Riparian area dominated by Oregon ash, black cottonwood and redosier dogwood.	Gary, Flagg and Chatham Islands
PVT, PRD	H	34. Riparian area dominated by Oregon ash, black cottonwood and snowberry.	<i>Santiam Bar, Multnomah Channel (Sauvie Island), Mission Bottom</i>
PVT	H	35. Western red cedar-western hemlock/skunk cabbage swamp.	Possibly extirpated
	*	36. Columbia sedge marsh.	Smith and Bybee Lakes (Metro)

WILLAMETTE VALLEY GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
	M	1. Meandering Stream	<i>Tualatin River</i>
	*	2. River Terraces	Sandy River Gorge Preserve, Sandy River ACEC, Oxbow Park (MNA)
PVT	H	3. Talus Caves In Boring Lava Rock Fall	<i>Carver Caves</i>
Pleistocene			
	*	4. Glacial Erratic	Erratic Rock State Wayside
PVT	L	5. Portland Hills Silt	<i>Forest Park</i>
PVT	L	6. Willamette Silt	<i>River Bend</i>
PVT	L	7. Cataclysmic Flood Bedforms	<i>Irvington Bar</i>
	*	8. Cataclysmic Flood Scours	Rock Island State Greenway Site
Pleistocene and Pliocene			
	*	9. Boring Lava	Rocky Butte State Park, Lewis and Clark State Park
	*	10. Boring Volcano	Mt. Scott Park
	*	11. Springwater Terrace Gravel	Milo McIver State Park, Eagle Creek Park
Pliocene and Miocene			
	*	12. Troutdale Formation	Oxbow Park, Milo McIver State Park
	*	13. Sandy River Mudstone	Oxbow Park, Milo McIver State Park
Miocene			
PVT	L	14. Molalla Formation	<i>Molalla</i>
PVT	L	15. Wanapum Basalt	<i>Oregon City</i>
PVT	L	16. Grand Ronde Basalt	<i>Oregon City</i>
Oligocene			
	L	17. Scotts Mills Formation	<i>Drake Crossing</i>
Eocene			
	L	18. Little Butte Volcanics	<i>Mollala</i>
	L	19. Eugene Formation	<i>Spores Point</i>
	L	20. Fisher Formation	<i>Eugene</i>
	L	21. Spencer Formation	<i>Eugene</i>
	L	22. Yamhill Formation	<i>McMinnville</i>

WILLAMETTE VALLEY SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
Invertebrates				
<i>Acetropis americana</i>	American grass bug	1	William L. Finley NWR	FWS
<i>Acupalpus punctulatus</i>	Marsh ground beetle	1	William L. Finley NWR	FWS
<i>Anodonta californiensis</i>	California floater (mussel)	2	Sauvie Island WMA	OFW
<i>Anodonta nuttalliana</i>	Winged floater	2		
<i>Anodonta oregonensis</i>	Oregon floater (mussel)	2	Sauvie Island WMA, Champoeg SNA	OFW, PRD
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	1	Oak Basin Prairies ACEC	BLM
<i>Capnia kersti</i>	A stonefly	1	Willow Creek Preserve	TNC
<i>Chloealtis aspasma</i>	Siskiyou short-horned grasshopper	1		
<i>Colligyrus</i> sp. 4	Columbia duskysnail	1		
<i>Cryptomastix devia</i>	Puget oregonian (snail)	1		
<i>Driloleirus macelfreshi</i>	Oregon giant earthworm	1		
<i>Dumontia oregonensis</i>	a water flea	2	Willamette Floodplain RNA	FWS
<i>Euphydryas editha taylori</i>	Taylor's checkerspot (butterfly)	1	Bezell Memorial Forest, Fitton Green NA	Benton Co.
<i>Fisherola nuttalli</i>	Shortface lanx (= Giant Columbia River limpet)	1	Whitaker Ponds NA, Wright Island NA, Flyway Wetlands NA	ACE, PDX
<i>Fluminicola fuscus</i>	Columbia pebblesnail or spire snail	1	Bridgetown Slough NA	MNA
<i>Fluminicola nuttallianus</i>	Dusky pebblesnail	1		
<i>Fluminicola virens</i>	Olympia pebblesnail	2	Burlington Creek Forest	MNA
<i>Gonidea angulata</i>	Western ridged mussel	2	Sauvie Island WMA, Little Rock Islands SNA, Willamette Narrows	OFW, PRD
<i>Juga hemphilli hemphilli</i>	Barren juga (snail)	1		
<i>Juga</i> sp. 3	Brown juga (snail)	1		
<i>Margaritifera falcata</i>	Western pearlshell (mussel)	2	Little Rock Islands SNA, Jackson Bottoms Wetlands Preserve	MNA, PRD
<i>Physella columbiana</i>	Rotund physa (snail)	1		
<i>Physella hordacea</i>	Grain physa (snail)	1		
<i>Plebejus icarioides fenderi</i>	Fender's blue (butterfly)	1	Baskett Slough NWR, Willow Creek and Wren Prairie Preserves, Basket Slough NWR, Pigeon Butte RNA, Lupine Meadows	TNC, FWS, GLT
<i>Pristiloma pilsbryi</i>	Crowned tightcoil (snail)	1		
<i>Pristiloma wascoense</i>	Shiny tightcoil (snail)	2		
<i>Ramellogammarus similimanus</i>	Stumptown scud	1	Columbia Slough NA, Tryon Creek SNA, Drake Lane NA, Oaks Bottom NA, Chehalem Ridge NA, Woods Memorial NA	MNA, PRD

WILLAMETTE VALLEY SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Vespericola</i> sp. 2	Bald hesperian (snail)	1	Willow Creek Preserve	TNC
<i>Vorticifex neritoides</i>	Nerite ramshorn (snail)	1		
Fish				
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	Sandy River ACEC, Jackson Bottoms Wetlands, Brookside NA, Fanno Creek NA, EE Wilson WMA, Tualatin River NWR, Luckiamute Landing SNA	FWS, OFW, MNA, PRD
<i>Oncorhynchus kisutch</i> pop. 1	Coho salmon (Lower Columbia River ESU)	1	Tryon Creek SNA, Sandy River WSR, Sauvie Island WMA, Milo McIver SNA, Scappoose Bay SNA	PRD, BLM, OFW
<i>Oncorhynchus kisutch</i> pop. 3	Coho salmon (Oregon Coast ESU)	1		
<i>Oncorhynchus mykiss</i> pop. 27	Steelhead (Lower Columbia River ESU, winter run)	1	Sauvie Island WMA, Scappoose Bay SNA, Tryon Creek SNA, Richarson Creek NA, Deep Creek NA, Bakers Ferry NA	OFW, PRD, MNA
<i>Oncorhynchus mykiss</i> pop. 30	Steelhead (Oregon Coast ESU, summer run)	1		
<i>Oncorhynchus mykiss</i> pop. 31	Steelhead (Oregon Coast ESU, winter run)	1		
<i>Oncorhynchus mykiss</i> pop. 33	Steelhead (Upper Willamette River ESU, winter run)	1	Ankeny NWR, Tualatin River NWR, Fanno Creek NA, Ankeny NWR, EE Wilson WMA	FWS, MNA, OFW
<i>Oncorhynchus tshawytscha</i> pop. 21	Chinook salmon (Lower Columbia River ESU, spring run)	1	Sandy River WSR, Sandy River Gorge RNA, Sauvie Island WMA	BLM, OFW
<i>Oncorhynchus tshawytscha</i> pop. 22	Chinook salmon (Lower Columbia River ESU, fall run)	1	Sandy River WSR, Sandy River Gorge RNA, Sauvie Island WMA	BLM, OFW
<i>Oncorhynchus tshawytscha</i> pop. 23	Chinook salmon (Upper Willamette River ESU, spring run)	1	Roaring River WSR, Collawash River WSR, Ankeny NWR, Upper Willamette Valley ACEC	FS, FWS, BLM, PRD
<i>Oregonichthys crameri</i>	Oregon chub	1	Ankeny NWR, William L. Finley NWR, Elijah Bristow State Park, Maple Knoll RNA	FWS, PRD
<i>Salvelinus confluentus</i> pop. 17	Bull trout (Willamette SMU)	1		
<i>Thaleichthys pacificus</i>	Eulachon	2		
Amphibians				
<i>Rana boylei</i>	Foothill yellow-legged frog	2		
<i>Rana pretiosa</i>	Oregon spotted frog	1	William L. Finley NWR	FWS
Reptiles				
<i>Actinemys marmorata</i>	Western pond turtle	2	Ankeny NWR, Elijah Bristow State Park, William L. Finley NWR, Willow Creek Preserve	FWS, PRD, TNC

WILLAMETTE VALLEY SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Chrysemys picta</i>	Painted turtle	2	Ankeny NWR, Champoeg State Heritage Area, Fern Ridge WMA, Sauvie Island WMA, William L. Finley NWR	FWS, PRD
Birds				
<i>Agelaius tricolor</i>	Tricolored blackbird	2		
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2	Baskett Slough NWR, Kingston Prairie Preserve, Fern Ridge RNA, Willow Creek Preserve	TNC, GLT ACE FWS
<i>Branta canadensis occidentalis</i>	Dusky Canada goose	1		
<i>Branta hutchinsii leucopareia</i>	Aleutian Canada goose	2	Ankeny NWR, Baskett Slough NWR, William L. Finley NWR, Sauvie Island WMA	FWS, OFW
<i>Bucephala albeola</i>	Bufflehead	2		
<i>Cygnus buccinator</i>	Trumpeter swan	2		
<i>Elanus leucurus</i>	White-tailed kite	2		
<i>Eremophila alpestris strigata</i>	Streaked horned lark	1	Baskett Slough NWR, William L. Finley NWR	FWS
<i>Falco peregrinus anatum</i>	American peregrine falcon	2		
<i>Histrionicus histrionicus</i>	Harlequin duck	2	North Santiam River SP	PRD
<i>Melanerpes lewis</i>	Lewis's woodpecker	2	Sauvie Island WMA	
<i>Podiceps auritus</i>	Horned grebe	2		
<i>Pooecetes gramineus affinis</i>	Oregon vesper sparrow	2	Baskett Slough NWR, W Eugene Wetlands, Willow Creek Preserve	FWS TNC
<i>Progne subis</i>	Purple martin	2	Fern Ridge WMA, Sauvie Island WMA, Willamette River Greenway	
<i>Strix occidentalis caurina</i>	Northern spotted owl	1	Camas Swale RNA, Upper Willamette Valley Margin ACEC Little Sink RNA	BLM,
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2		
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Milo McIver SNA, Coburg Ridge Preserve Easment	PRD, TNC
<i>Myotis thysanodes</i>	Fringed myotis	2	Carver Caves, Clackamas Bluff NA	MNA
<i>Odocoileus virginianus leucurus</i>	Columbian white-tailed deer	1	Burlington Bottoms	BPA
Vascular Plants				
<i>Carex comosa</i>	Bristly sedge	2		

WILLAMETTE VALLEY SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Carex retrorsa</i>	Retrorse sedge	2	Sauvie Island WMA, Rooster Rock SNA	OFW, PRD
<i>Castilleja levisecta</i>	Golden paintbrush	1-x		
<i>Cicendia quadrangularis</i>	Timwort	2	Willow Creek Preserve, Long Tom ACEC	TNC, BLM
<i>Coleanthus subtilis</i>	Moss grass	2	Sauvie Island WMA	OFW
<i>Cyperus acuminatus</i>	Short-pointed cyperus	2	Fern Ridge WMA	OFW
<i>Cyperus lupulinus</i> ssp. <i>lupulinus</i>	Great Plains flatsedge	2		
<i>Danthonia spicata</i>	Poverty oatgrass	2	Peach Cove Fen Natural Area	MNA
<i>Delphinium leucophaeum</i>	White rock larkspur	1	Camassia Preserve, Little Rock Island, Champeog State Heritage Park, Elk Rock, Peach Cove Fen	TNC, PRD, MNA
<i>Delphinium nuttallii</i>	Nuttall's larkspur	2	Willamette Valley Prairie Oak and Pine ACEC	BLM
<i>Delphinium oregonum</i>	Willamette Valley larkspur	1	North Santiam State Recreation Area	PRD
<i>Delphinium pavonaceum</i>	Peacock larkspur	1	Willamette Floodplain RNA, Kingston Prairie Preserve	FWS, GLT
<i>Diplacus tricolor</i>	Three-colored monkeyflower	2	Ankeny NWR, Cogswell Foster Preserve TNC, Willamette River Greenway, William L. Finley NWR	FWS, TNC, PRD
<i>Erigeron decumbens</i>	Willamette Valley daisy	1	Fern Ridge RNA, William L. Finley NWR, Baskett Slough NWR	ACE, FWS
<i>Eucephalus vialis</i>	Wayside aster	1	Camas Swale RNA, Camas Swale ACEC, Willow Creek Preserve	BLM, TNC
<i>Horkelia congesta</i> ssp. <i>congesta</i>	Shaggy horkelia	1	Fern Ridge RNA, Long Tom ACEC, Willow Creek Preserve	ACE, BLM, TNC
<i>Howellia aquatilis</i>	Howellia	1	William L. Finley NWR, Peach Cove Fen Natural Area	FWS, MNA
<i>Hydrocotyle verticillata</i>	Whorled marsh pennywort	2		
<i>Iris tenax</i> var. <i>gormanii</i>	Gorman's iris	1		
<i>Lathyrus holochlorus</i>	Thin-leaved peavine	1	William L. Finley NWR, Ankeny NWR	FWS
<i>Lipocarpha micrantha</i>	Small-flowered lipocarpha	2		
<i>Lomatium bradshawii</i>	Bradshaw's lomatium	1	Fern Ridge RNA, Long Tom ACEC, Willamette Floodplain RNA, Willow Creek Preserve, Jackson Frazier Wetlands	ACE, BLM, FWS, TNC
<i>Lupinus oregonus</i>	Kincaid's lupine	1	Baskett Slough NWR, William L. Finley NWR, Oak Basin Prairies ACEC, Fern Ridge RNA	FWS, BLM

WILLAMETTE VALLEY SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Navarretia willamettensis</i>	Willamette navarretia	1	Fern Ridge RNA, Fern Ridge WMA, Willow Creek Preserve	ACE, TNC
<i>Pellaea andromedifolia</i>	Coffee fern	2		
<i>Penstemon hesperius</i>	Rydberg's penstemon	1	Tualatin NWR, Penstemon Prairie	FWS
<i>Pyrrcoma racemosa</i> var. <i>racemosa</i>	Racemose pyrrcoma	2	Fern Ridge RNA, Willow Creek Preserve	ACE, TNC
<i>Rhynchospora alba</i>	White beakrush	2		
<i>Romanzoffia thompsonii</i>	Thompson mistmaiden	1		ACE, BLM
<i>Rorippa columbiae</i>	Columbia cress	1	Columbia Gorge NSA	FS
<i>Rotala ramosior</i>	Toothcup	2		PVT
<i>Scirpus pendulus</i>	Drooping bulrush	2	Upper Willamette Valley Margin ACEC, Courtney Creek Preserve	FWS, ACE
<i>Sedella pumila</i>	Sierra mock-stonecrop	2		BLM
<i>Sericocarpus rigidus</i>	White-topped aster	1	Fern Ridge RNA, Kingston Prairie Preserve	BLM, GLT
<i>Sidalcea hirtipes</i>	Bristly-stemmed sidalcea	1		
<i>Sidalcea nelsoniana</i>	Nelson's sidalcea	1	Willamette Prairie RNA, Wren Prairie Preserve TNC, William L. Finley NWR	BLM, TNC, FWS
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	1	Willow Creek Preserve	TNC
<i>Sullivantia oregana</i>	Oregon sullivantia	1	Crown Point, Rooster Rock State Park	PRD
<i>Taraxia ovata</i>	Golden eggs	2	Coyote Spencer Wetlands, William L. Finley NWR	MRT, FWS
<i>Trillium albidum</i> ssp. <i>parviflorum</i>	Giant white wakerobin	1	Camassia Preserve, Buttes Natural Area	TNC, MNA
<i>Trillium kurabayashii</i>	Giant purple trillium	2	McDonald-Dunn Research Forest	OSU
<i>Utricularia gibba</i>	Humped bladderwort	2	Fern Ridge WMA, Fern Ridge Dam, Killin Wetlands	OFW, ACE, MNA
<i>Utricularia minor</i>	Lesser bladderwort	2		
<i>Wolffia borealis</i>	Dotted water-meal	2	Little Sink RNA	BLM
<i>Wolffia columbiana</i>	Columbia water-meal	2	Killin Wetlands, Smith and Bybee Lakes, Willamette Park Corvallis	MNA, Corvallis
Nonvascular Plants				
<i>Bruchia flexuosa</i>	Moss	2	Willow Creek Preserve, Fern Ridge RNA, Fern Ridge WMA	TNC, ACE, OFW
<i>Ephemerum crassinervium</i>	Moss	2	Fern Ridge RNA	ACE

WILLAMETTE VALLEY SPECIAL SPECIES

Scientific Name	Common Name	List	Representation	Agency
<i>Ephemerum serratum</i>	Moss	2	Willow Creek Preserve, Fern Ridge RNA, Fern Ridge WMA	TNC, ACE
<i>Micromitrium synoicum</i>	Moss	2	Finley NWR	FWS
<i>Phymatoceros phymatodes</i>	Hornwort	2		
<i>Physcomitrella patens</i>	Moss	2	Sauvie Island WMA, William L. Finley NWR	OFW, FWS
<i>Preissia quadrata</i>	Liverwort	2		
<i>Pseudephemerum nitidum</i>	Delicate earth-moss	2	Fern Ridge RNA, Long Tom ACEC, Fern Ridge WMA	BLM, OFW
<i>Sphaerocarpos hians</i>	Liverwort	1	Avery Park	City
Fungi				
<i>Calicium adpersum</i>	Lichen	2	Little Sink RNA	BLM
<i>Lobaria linita</i>	Lichen	2	Little Sink RNA	BLM
<i>Phaeoclavulina abietina</i>	Green-staining coral mushroom	2	Little Sink RNA	BLM
<i>Phaeocollybia gregaria</i>	Fungus	1		
<i>Pseudorhizina californica</i>	Fungus	2		
<i>Sulcaria badia</i>	Lichen	2	Fitton Green Natural Area, Cardwell Hill Preserve, Wren Prairie Preserve	Benton Co, GLT, TNC

CHAPTER 12. KLAMATH MOUNTAINS ECOREGION

The Klamath Mountains Ecoregion covers most of southwestern Oregon and northwestern California and includes the Siskiyou Mountains, California's Marble Mountains and Trinity Alps and the interior valleys and foothills between these mountain ranges. Oregon elevations are from 100 to over 7,500 feet. The ecoregion also has major climatic extremes. Far western portions receive more than 100 inches of rain per year, with relatively mild temperatures year-round. The southern interior valleys are much drier, with locations receiving less than 20 inches of rain per year and summer high temperatures averaging more than 90° F.

The Ecoregion has the oldest landscapes in Oregon, representing the only large area of the state not shaped primarily by volcanism. It also is by far the most geologically diverse region, having large areas of metamorphic and sedimentary rocks such as serpentine, limestone and gabbro, as well as granite and basalt. Topography ranges from steep, dissected mountains and canyons to gentle foothills and flat valley bottoms.

The combination of exceptional climatic, geologic and topographic diversity supports the most diverse habitats in Oregon. In addition, the Klamath Mountain Ecoregion is a floristic crossroads, including elements of the Sierra Nevada Mountains, Sacramento Valley and Coast Range Mountains of California; the Cascade Mountains of Oregon and Washington; and the Great Basin to the east. Its geologic age, stable climate, and unusual geology result in the Ecoregion being a major center of species endemism for vascular plants. Of the 4,000 native plant species or subspecies occurring in Oregon, about half are found in this ecoregion with about a quarter of these known only here. The region is also known for its diversity of conifers, with 30 different species. In Oregon, the West Cascades has the second largest number of conifer species, with 18 species.

Prior to European settlement, the landscape was dominated by Douglas fir forests, oak woodlands and ponderosa pine woodlands. There were native grasslands and chaparral on the valley bottoms, and diverse conifer and mixed hardwood forests. All of the natural habitats have changed since fire suppression became effective in the early twentieth century. The region has a high frequency of dry, summer lightning storms, leading to natural fire frequency of less than 40 years for most of the region, and closer to 20 years in the valleys and eastern portions of the region. Over 50 years of fire suppression have dramatically altered the ecology of the forests, savannas and shrublands in this region.

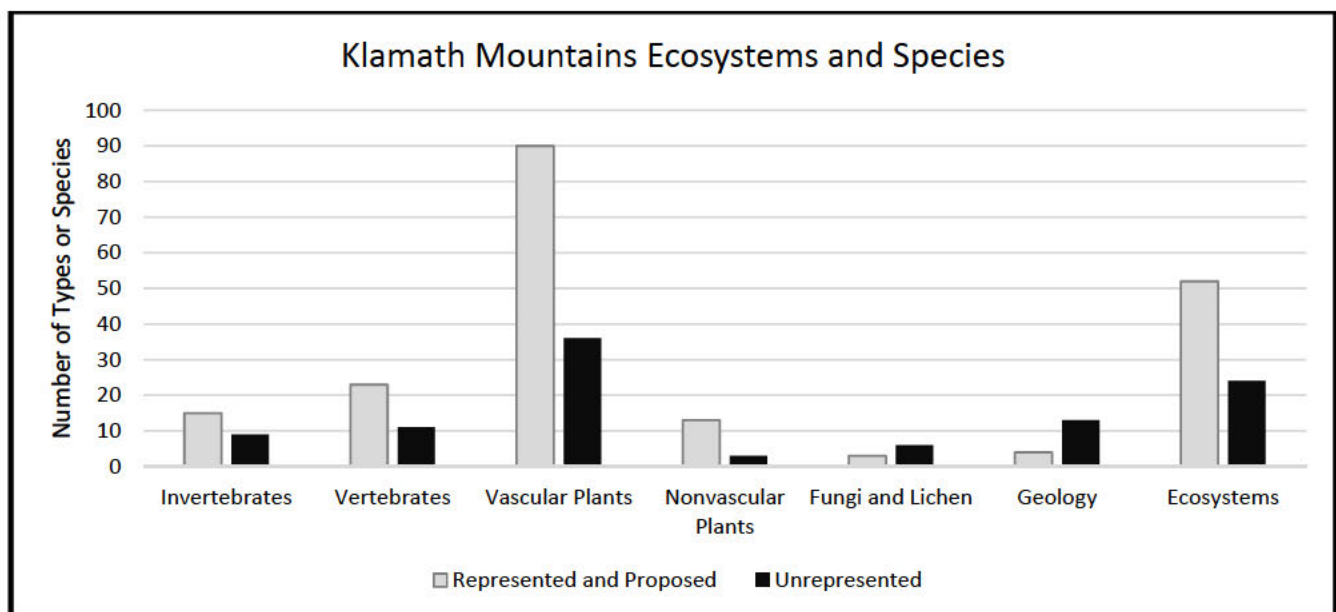


Figure 8. Represented and Unrepresented Ecosystems, Geologic Types and Species for the Klamath Mountains Ecoregion.

While there have not been a large number of new natural areas established in last 5 years, the combination of a few new protected areas and changes in the lists of at-risk species found in the Klamath Mountains ecoregion, has significantly improved the overall representation of both species and ecosystems in the region. As of the publication of this plan, 68% of the species are represented on the protected areas included in this plan, and 69% of the ecosystem types are represented, which give the small size of these areas and the diversity represented in this ecoregion, is a major accomplishment.

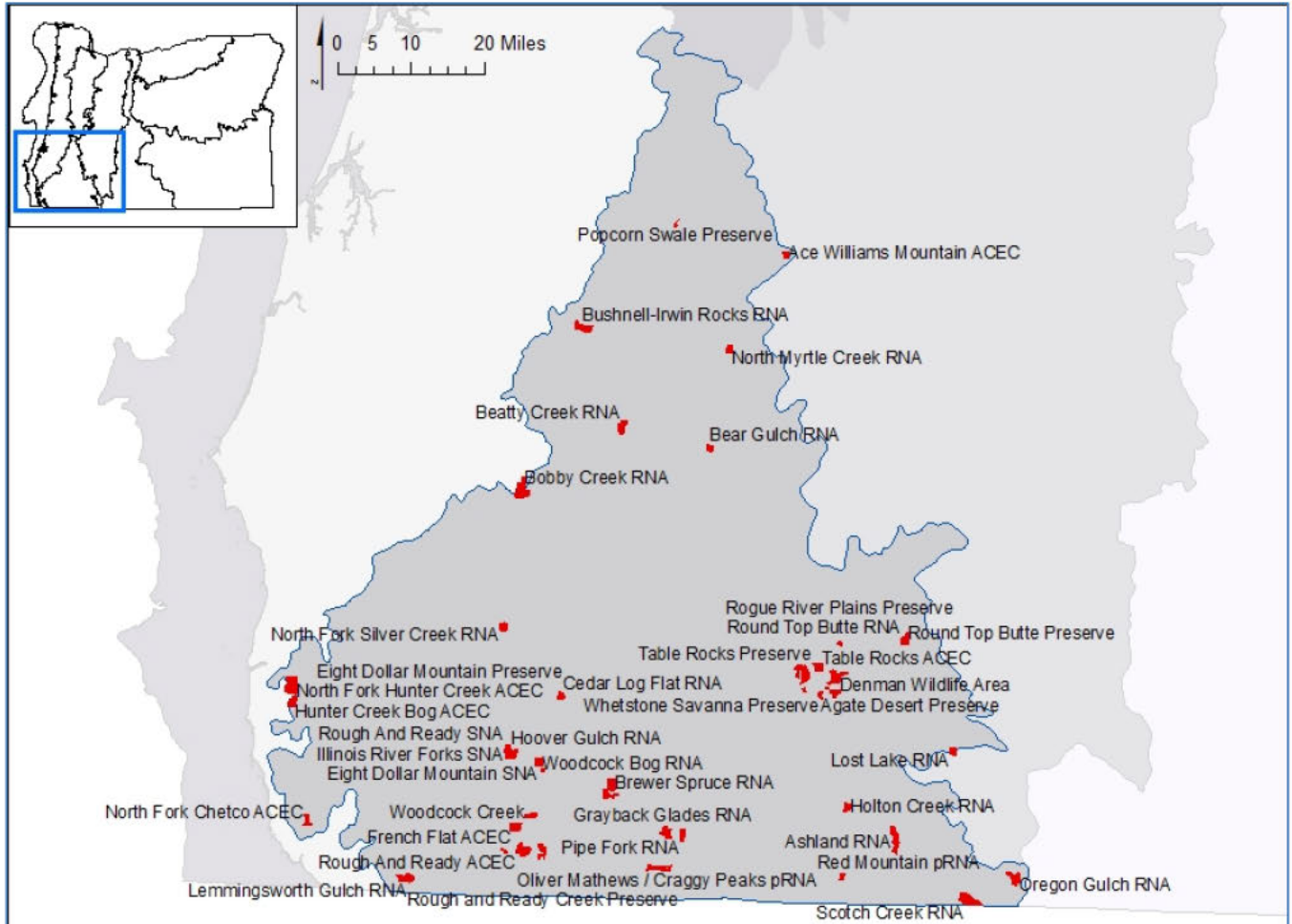


Figure 11. Klamath Mountains Ecoregion Natural Areas map.

KLAMATH MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Oregon White Oak			
	*	1. Oregon white oak savanna or open woodland with forbs or grasses.	Round Top Butte Preserve TNC/RNA, Bushnell-Irwin Rockes ACEC, Whetstone Savanna Preserve TNC
	*	2. Oregon white oak-Douglas fir-madrone/poison oak woodland.	Bushnell-Irwin Rocks ACEC Fawn Butte pRNA
Port Orford Cedar			
FS, BLM	H	3. Port Orford cedar/huckleberry oak/beargrass on ultramafic soils.	
	*	4. Port Orford cedar-white fir/Oregon grape and Port Orford cedar-tanoak/salal communities.	Pipe Fork RNA
	*	5. Port Orford cedar-western hemlock with leucothe and swordfern.	North Fork Silver Creek RNA
	*	6. Port Orford cedar/hairy honeysuckle/fescue on ultramafic soils.	Lemmingsworth Gulch RNA Cedar Log Flat RNA
FS, BLM	H	7. Port Orford cedar maritime types with evergreen huckleberry/swordfern or rhododendron-salal.	
Ponderosa Pine			
	*	8. Ponderosa pine-Douglas fir moist forest.	Ashland RNA
	*	9. Ponderosa pine-white oak woodland.	Round Top Butte Preserve RNA-TNC French Flat RNA, Fawn Butte pRNA
	*	10. Ponderosa pine-black oak woodland.	Table Rocks Preserve TNC / BLM
BLM	H	11. Western juniper-Oregon white oak-Ponderosa pine/buckbrush/bunchgrass savanna.	<i>Siskiyou Pass</i>
Douglas Fir			
	+	12. Douglas fir serpentine woodland.	Eight Dollar Mtn ACEC/pSNA Lemmingsworth Gulch RNA
FS, BLM	M	13. Douglas fir/pinemat manzanita.	
FS, BLM	M	14. Douglas fir forest with salal, oceanspray and/or swordfern.	
	*	15. Douglas fir/canyon live oak woodland with poison oak and dwarf Oregon grape if possible.	Bear Gulch RNA Hoover Gulch RNA
FS, BLM	H	16. Douglas fir-California black oak/poison oak.	French Flat RNA
	*	17. Douglas fir-Ponderosa pine forest with poison oak, hairy snowberry or Piper's Oregon grape understory.	North Myrtle Creek RNA Oregon Gulch RNA
FS, BLM	H	18. Douglas fir/oceanspray or dry shrub community.	

KLAMATH MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Western Hemlock			
FS	M	19. Western hemlock-white fir forest with dwarf Oregon grape.	
FS, BLM	H	20. Western hemlock/salal/swordfern and western hemlock/vine maple-salal with western red cedar.	
FS, BLM	M	21. Western hemlock-tanoak/Pacific rhododendron, western hemlock-incense cedar/salal or western hemlock/salal-dwarf Oregon grape associations.	Bobby Creek RNA
FS, BLM	M	22. Western hemlock coastal communities with California laurel, evergreen huckleberry and swordfern.	
Tan Oak			
	*	23. Tanoak on ultramafics with shrub understory.	Lemmingsworth Gulch RNA
	*	24. Tanoak - Douglas fir dry site forest with canyon live oak, dwarf Oregon grape and poison oak if possible.	Hoover Gulch RNA Lemmingsworth Gulch RNA
	*	25. Moist tanoak forests (tanoak-bigleaf maple-canyon live oak/swordfern, tanoak-Port Orford cedar/ salal, and tanoak/evergreen huckleberry-rhododendron-salal).	Bobby Creek RNA
FS, BLM	H	26. Tanoak-western hemlock/evergreen huckleberry forest with swordfern if possible.	
		27. Tanoak-Douglas fir moist forest with evergreen huckleberry, salal and dwarf Oregon grape.	Bobby Creek RNA
FS	H	28. Tanoak on ultramafics with sugar pine and golden chinkapin.	
FS	L	29. Tanoak with white fir and Sadler's oak at a cool site.	
White Fir			
FS, BLM	M	30. White fir/pinemat manzanita on shallow soil.	
FS	L	31. White fir-tanoak/prince's pine forest.	
	*	32. White fir at high elevations (white fir-red fir/Sadler oak or vanilla leaf or prince's-pine-threeleaf anemone and whitefir/beargrass associations).	Grayback Glades RNA
	*	33. White fir/dwarf Oregon grape moderately dry site forest with twinflower and vanilla leaf if possible.	North Fork Silver Creek RNA North Myrtle Creek RNA
	*	34. White fir, moderately dry site forest with baldhip rose, hairy snowberry and starflower if possible.	Oregon Gulch RNA
	*	35. White fir moist site forest with rhododendron, dwarf Oregon grape, and twinflower.	Holton Creek RNA
FS, BLM	M	36. White fir/Sadler oak on ultramafics.	
	*	37. White fir with Brewer spruce and Alaska yellow cedar if possible.	Brewer Spruce RNA Oliver Mathews pRNA
Red Fir – Mountain Hemlock			
	+	38. Red fir-mountain hemlock/pinemat manzanita/prince's pine.	Oliver Mathews pRNA

KLAMATH MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	+	39. Red fir-white fir/baldhip rose/one-sided pyrola.	Oliver Mathews pRNA
FS	M	40. Red fir-white fir/Sadler oak/one-sided pyrola or prince's pine.	
FS	M	41. Red fir/mountain sweetroot.	
	+	42. Mountain hemlock/herb association.	Oliver Mathews pRNA
		Serpentine Pine	
	*	43. Knobcone pine forest.	Lemmingsworth Gulch RNA, North Fork Hunter Creek ACEC
	*	44. Jeffrey pine grassland savanna.	Beatty Creek RNA, Cedar Log Flat RNA, North Fork Hunter Creek ACEC
	*	45. Jeffrey pine with incense cedar and dry shrubs.	Eight Dollar Mtn SNA/ACEC/SIA
	*	46. Jeffrey pine/huckleberry oak-pinemat manzanita forest with box-leaved silk-tassel if possible.	Eight Dollar Mtn SNA/ACEC/SIA, Woodcock Bog RNA/SNA
	+	47. Western white pine/beargrass.	Lemmingsworth Gulch RNA, Red Mountain pRNA
	+	48. Western white pine/huckleberry oak/beargrass with tanoak and Jeffrey pine if possible.	Lemmingsworth Gulch RNA Red Mountain pRNA
		Chaparral	
BLM	H	49. Manzanita-wedgeleaf ceanothus/bunchgrass chaparral.	
	*	50. Sticky manzanita-gray manzanita serpentine chaparral.	Rough & Ready Creek Preserve ACEC/TNC
	*	51. Live oak/Fremont silk-tassel-birchleaf mountain mahogany/bunchgrass.	Cascade-Siskiyou NM
	*	52. Birchleaf mountain mahogany-ceanothus-rosaceous mixed chaparral.	Scotch Creek RNA
		Grasslands	
	+	53. Baker cypress woodland.	Oliver Mathews pRNA, Baker Cypress ACEC
	*	54. Bluebunch wheatgrass-California oatgrass-Lemmon's needlegrass slopes.	Round Top Butte Preserve TNC/RNA
PVT, BLM	H	55. Idaho fescue-junegrass-Lemmon's needlegrass non-serpentine grassland.	
	*	56. Coastal oak-conifer woodland and meadow mosaic.	North Fork Hunter Creek ACEC
		Lacustrine	
FS, BLM	U	57. Dune or slump-blocked lake with aquatic beds and marshy shore.	
	*	58. Valley floor vernal pools on hardpan.	Table Rocks RNA, Agate Desert Preserve TNC
	*	59. Vernal pools on basaltic andesite.	Table Rocks RNA, Poverty Flat ACEC

KLAMATH MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	*	60. Lower to upper montane lake with aquatic beds and marshy shore, on serpentine or peridotite.	Red Mountain pRNA
		Palustrine	
	*	61. Douglas fir-bigleaf maple forest.	North Myrtle Creek RNA
FS, BLM	M	62. Riparian hardwoods with ash and black cottonwood.	
PVT, BLM	H	63. Alluvial terrace with ash, Oregon white oak and Ponderosa pine.	
	*	64. High elevation alder glade.	Grayback Glades RNA
	*	65. Riparian hardwood forest along a major river (with alder, bigleaf maple and myrtle).	North Fork Chetco River RNA Myrtle Island RNA
	*	66. Mid to high elevation pond with aquatic beds and marshy shore.	Brewer Spruce RNA
	+	67. Mid to high elevation vernal ponds and large cold springs.	Oliver Mathews pRNA
FS	L	68. Tufted hairgrass-sedge wetland.	
	*	69. Tufted hairgrass-California oatgrass bottomland seasonally flooded prairie.	Round Top Butte Preserve RNA/TNC French Flat RNA
	*	70. Mire on floating lake-fill mat.	Sharon Lake Fen Preserve
	*	71. Hillslope wetland with willow and saussurea.	Oregon Caves NM
FS	U	72. Montane fen and wet mountain meadow complex.	
	*	73. Darlingtonia fen on serpentine-peridotite, with western azalea and camas along margins.	Lemmingsworth Gulch RNA Woodcock Bog RNA
	*	74. Darlingtonia fen on serpentine-peridotite, with Port Orford cedar.	Hunter Creek Bog RNA
	*	75. Riparian on serpentine-peridotite, with Port Orford cedar, western azalea and darlingtonia.	Kalmiopsis WA
	*	76. California laurel riparian forest.	North Fork Chetco River RNA

KLAMATH MOUNTAINS GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Quaternary			
	*	1. Limestone Caves	Oregon Caves NM
	*	2. River Gorge	Mule Creek Canyon Rogue WSR
Eocene			
PVT	L	3. Tyee Formation	<i>Reston</i>
PVT	L	4. Camas Valley Formation	<i>Reston</i>
PVT	L	5. White Tail Ridge Formation	<i>Reston</i>
PVT	L	6. Tenmile Formation	<i>Reston</i>
PVT	L	7. Bushnell Rock Formation	<i>Reston</i>
Eocene and Paleocene			
PVT	L	8. Siletz River Volcanics	<i>Reston</i>
Cretaceous			
	*	9. Days Creek Formation	Eight Dollar Mountain SIA/ACEC
Cretaceous and Jurassic			
BLM, FS	M	10. Riddle Formation	<i>Days Creek</i>
PVT	L	11. Dothan Formation	<i>Winston</i>
Jurassic			
FS	M	12. Colebrooke Schist	
FS	L	13. Coast Range Ophiolite	<i>Riddle</i>
BLM, FS	M	14. Galice Formation	<i>Galice</i>
	*	15. Rogue Formation	Rogue River WSR (by Glendale)
BLM, FS	M	16. Josephine Ophiolite	<i>Cave Junction</i>
Jurassic and Triassic			
	L	17. May Creek Schist	<i>Evans Creek</i>

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Bombus franklini</i>	Franklin's bumblebee	1	Bear Creek Greenway, Rogue River Trail	Jackson Co.
<i>Bombus occidentalis occidentalis</i>	Western bumblebee	2	Cascade-Siskiyou NM, Denman WMA, Ashland RNA, Crater Lake NP, Agate Desert Preserve, Soda Mountain WA, S Grouse Gap SIA	BLM, FS, TNC, NPS
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	1	Lower Table Rock ACEC, Table Rocks RNA, Whetstone Savanna Preserve TNC, Denman WMA	BLM, TNC OFW
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	1	Cascade-Siskiyou NM	BLM
<i>Chloealtis aspasma</i>	Siskiyou short-horned grasshopper	1	Cascade-Siskiyou NM, Soda Mountain WA, S Grouse Gap SIA	BLM, FS
<i>Dumontia oregonensis</i>	A water flea	2	Denman WMA, Agate Desert Preserve	OFW, TNC
<i>Fluminicola multifarius</i>	Shasta pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Helminthoglypta hertleini</i>	Oregon shoulderband (snail)	1	North Bank ACEC	BLM
<i>Hesperia colorado oregonia</i>	Oregon branded skipper (butterfly)	2	Cascade-Siskiyou NM	BLM
<i>Juga</i> sp. 2	Blue Mountains juga (snail)	1		
<i>Juga</i> sp. 3	Brown juga (snail)	1		
<i>Lanx alta</i>	Highcap lanx (snail)	1	Oregon Caves NM	NPS
<i>Lanx subrotunda</i>	Rotund lanx (snail)	1		
<i>Monadenia fidelis beryllica</i>	Green sideband (snail)	1		
<i>Monadenia fidelis celeuthia</i>	Traveling sideband (snail)	1	Whetstone Savanna Preserve	TNC
<i>Plebejus podarce klamathensis</i>	Gray blue (butterfly)	2		
<i>Polites mardon</i>	Mardon skipper (butterfly)	1	Cascade-Siskiyou NM, Soda Mtn WA, North Fork Hunter Creek ACEC	BLM
<i>Pomatiopsis binneyi</i>	Robust walker (snail)	1		
<i>Pomatiopsis chacei</i>	Marsh walker (snail)	1		
<i>Prophyaon</i> sp. 1	Klamath tail-dropper (slug)	1		
<i>Rhyacophila colonus</i>	O'Brien rhyacophilan caddisfly	1		
<i>Speyeria coronis coronis</i>	Coronis fritillary (butterfly)	2	Rough & Ready Flat SIA, Cascade-Siskiyou NM, Illinois River WSR	TNC, BLM, FS
<i>Stygobromus oregonensis</i>	Oregon Cave amphipod	1	Oregon Caves NM	NPS
<i>Vespericola sierranus</i>	Siskiyou hesperian (snail)	1	Cascade Siskiyou NM	BLM
Fish				
<i>Catostomus rimiculus</i> pop. 1	Jenny Creek sucker	1	Cascade-Siskiyou NM	BLM

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	Eight Dollar Mtn ACEC, N Fork Chetco ACEC, Rogue WSR, Denman WMA, Hoover Gulch RNA, Kalmiopsis WA, Wild Rogue WA	FS, BLM OFW
<i>Oncorhynchus kisutch</i> pop. 2	Coho salmon (Southern Oregon/Northern California Coasts ESU)	1	Rogue River WSR, Chetco River WSR, Illinois River WSR, Wild Rogue WA	BLM, FS
<i>Oncorhynchus kisutch</i> pop. 3	Coho salmon (Oregon Coast ESU)	1	Canyon Creek Forest SNA	PRD
<i>Oncorhynchus mykiss</i> pop. 24	Steelhead (Klamath Mountains Province ESU, summer run)	2	Rogue River WSR, Chetco River WSR, Illinois River WSR, Wild Rogue WA	BLM, FS
<i>Oncorhynchus mykiss</i> pop. 25	Steelhead (Klamath Mountains Province ESU, winter run)	2	Rogue River WSR, Chetco River WSR, Illinois River WSR, Wild Rogue WA, Smith River WSR	BLM, FS
<i>Oncorhynchus mykiss</i> pop. 30	Steelhead (Oregon Coast ESU, summer run)	1		
<i>Oncorhynchus mykiss</i> pop. 31	Steelhead (Oregon Coast ESU, winter run)	1	North Myrtle Creek RNA, Canyon Creek Forest SNA	BLM, PRD
<i>Oncorhynchus tshawytscha</i> pop. 26	Chinook salmon (Southern Oregon/Northern California Coast ESU, fall run)	2	Rogue River WSR, Chetco River WSR, Illinois River WSR, Wild Rogue WA	BLM, FS
<i>Oregonichthys kalawatseti</i>	Umpqua chub	1	<i>Cow Creek Reservation</i>	
Amphibians				
<i>Aneides flavipunctatus</i>	Black salamander	2	Ashland RNA	FS
<i>Plethodon stormi</i>	Siskiyou Mountains salamander	1		BLM
<i>Rana boylei</i>	Foothill yellow-legged frog	2	Cascade-Siskiyou NM, Illinois River State Scenic Waterway, Kalmiopsis WA, Popcorn Swale Preserve, Rogue River Wild & Scenic River, Rough and Ready Creek Preserve.	PRD, FS TNC, BLM
Reptiles				
<i>Actinemys marmorata</i>	Western pond turtle	2	Denman WMA, Kalmiopsis WA, Lost Lake RNA, Rogue River WSR, North Bank ACEC, Cascade-Siskiyou NM	FS, BLM
Birds				
<i>Agelaius tricolor</i>	Tricolored blackbird	2	Denman WMA	
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2		
<i>Brachyramphus marmoratus</i>	Marbled murrelet	2	Rogue WSR, <i>Peavine Ridge</i>	FS
<i>Branta hutchinsii leucopareia</i>	Aleutian Canada goose	2		
<i>Bucephala albeola</i>	Bufflehead	2		

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Elanus leucurus</i>	White-tailed kite	2		
<i>Eremophila alpestris strigata</i>	Streaked horned lark	1		
<i>Falco peregrinus anatum</i>	American peregrine falcon	2	Brewer Spruce RNA, Cascade-Siskiyou NM, Kalmiopsis WA, Wild Rogue WA, Rogue River State Scenic Waterway.	FS, BLM
<i>Melanerpes lewis</i>	Lewis's woodpecker	2	Denman WMA, Table Rocks Preserve, Touvelle State Recreation Site, North Bank ACEC	TNC, PRD, BLM
<i>Picoides albolarvatus</i>	White-headed woodpecker	2		
<i>Poocetes gramineus affinis</i>	Oregon vesper sparrow	2		
<i>Progne subis</i>	Purple martin	2		
<i>Strix occidentalis caurina</i>	Northern spotted owl	1	Ashland RNA, Bear Gulch ACEC, Bear Gulch RNA, Cascade-Siskiyou NM, Oregon Caves NM, Rogue WSR	BLM, FS, NPS
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2	Cascade-Siskiyou NM, Soda Mtn WA	BLM
<i>Canis lupus</i>	Gray wolf	2	Cascade-Siskiyou NM, Sky Lakes WA	BLM, FS
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Kalmiopsis WA, Oregon Caves NM, Rogue River State Scenic Waterway, Table Rocks ONA, Deer Cr ACEC	NPS, FS, BLM
<i>Martes caurina</i> pop 3	Pacific marten - Coastal population	1	Rogue River WSR	FS
<i>Myotis thysanodes</i>	Fringed myotis	2	Oregon Caves NM, Pipe Fork RNA, Ashland RNA, Soda Mtn WA, Cascade-Siskiyou NM	NPS, BLM, FS
<i>Odocoileus virginianus leucurus</i>	Columbian white-tailed deer	1	North Bank ACEC	BLM
<i>Pekania pennanti</i>	Fisher	2	Cascade-Siskiyou NM, Pipe Fork RNA	BLM
Vascular Plants				
<i>Adiantum jordanii</i>	California maiden-hair	2	Illinois River WSR, Wild Rogue WA	FS
<i>Allium peninsulare</i>	Peninsular onion	2	Cascade-Siskiyou NM, Soda Mountain WA	BLM
<i>Androsace elongata</i> ssp. <i>acuta</i>	Long-stemmed androsace	2	Table Rocks Preserve	TNC
<i>Arabis koehleri</i> var. <i>koehleri</i>	Koehler's rockcress	1	North Bank ACEC	BLM
<i>Arabis macdonaldiana</i>	Red Mountain rockcress	1	Kalmiopsis WA, Rough & Ready Flat SIA, West Fork Illinois River ACEC	FS, BLM
<i>Arabis modesta</i>	Rogue Canyon rockcress	2	Rogue River State Scenic Waterway	BLM

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Arctostaphylos hispidula</i>	Gasquet manzanita	2	Wild Rogue WA, Kalmiopsis WA, North Fork Hunter Creek ACEC	FS, BLM
<i>Astragalus californicus</i>	California milk-vetch	2	Cascade-Siskiyou NM, Scotch Creek RNA	BLM
<i>Astragalus gambelianus</i>	Gambel milk-vetch	2	Cascade-Siskiyou NM, Scotch Creek RNA, Soda Mountain WA	BLM
<i>Balsamorhiza lanata</i>	Woolly balsamroot	1	Cascade-Siskiyou NM, Soda Mountain WA	BLM
<i>Bensoniella oregana</i>	Bensonia	1	Bear Camp SIA	FS
<i>Callitriche marginata</i>	Winged water-starwort	2	Table Rocks ACEC, Table Rocks Preserve	BLM, TNC
<i>Callitriche triochlearis</i>	Wheel fruited water-starwort	2	Table Rocks ACEC, Denman WMA	BLM, OFW
<i>Calochortus coxii</i>	Cox's mariposa-lily	1	<i>Ridge above Myrtle Creek</i>	BLM
<i>Calochortus greenei</i>	Greene's mariposa-lily	1	Cascade Siskiyou NM, Oregon Gulch RNA, Soda Mountain WA, Jenny Creek WSR	BLM, FS
<i>Calochortus howellii</i>	Howell's mariposa-lily	1	Woodcock Bog RNA, Eight Dollar Mountain ACEC/Preserve, Oregon Mountain SIA, French Flat ACEC,	BLM, FS, TNC
<i>Calochortus indecorus</i>	Sexton Mt. mariposa-lily	1-X		
<i>Calochortus nudus</i>	Shasta star-tulip	2		
<i>Calochortus persistens</i>	Siskiyou mariposa lily	1		
<i>Calochortus umpquaensis</i> ssp. <i>confertus</i>	Umpqua mariposa-lily	1	Callahan Meadows ACEC	BLM
<i>Calochortus upquaensis</i> ssp. <i>flavicomus</i>	Umpqua mariposa-lily	1	<i>Ace Williams Mt.</i>	BLM
<i>Camassia howellii</i>	Howell's camassia	1	<i>West Fork Illinois River</i>	BLM
<i>Carex comosa</i>	Bristly sedge	2		
<i>Carex klamathensis</i>	Klamath sedge	1	Eight Dollar Mountain Preserve and ACEC, Woodcock Bog RNA, Illinois River ACEC	TNC, BLM
<i>Carex nervina</i>	Sierra nerved sedge	2	Oregon Caves NM	FS, NPS
<i>Castilleja schizotricha</i>	Split-hair paintbrush	2	Red Mountain RNA	FS
<i>Cheilanthes covillei</i>	Coville's lipfern	2		
<i>Cheilanthes intertexta</i>	Coastal lipfern	2	Cascade-Siskiyou NM, Oregon Gulch RNA, Scotch Creek RNA, Soda Mountain WA	BLM
<i>Chlorogalum angustifolium</i>	Narrow-leaved amole	2		
<i>Cicendia quadrangularis</i>	Timwort	2	Illinois River WSR	BLM, FS
<i>Corydalis aquae-gelidae</i>	Cold-water corydalis	1		

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Cryptantha milo-bakeri</i>	Milo Baker's cryptantha	2		
<i>Cyperus acuminatus</i>	Short-pointed cyperus	2		
<i>Cypripedium fasciculatum</i>	Clustered lady's-slipper	2	Cascade-Siskiyou NM, Kalmiopsis WA, Scotch Creek RNA, Dakubetede ACEC, Soda Mountain WA	BLM, FS
<i>Delphinium nudicaule</i>	Red larkspur	2	Cascade-Siskiyou NM, Rogue River WSR, Soda Mountain WA	BLM
<i>Delphinium nuttallii</i>	Nuttall's larkspur	2	Cascade-Siskiyou NM, Soda Mountain WA	BLM
<i>Dicentra pauciflora</i>	Few-flowered bleedingheart	2	Hinkle Lake SIA	FS
<i>Draba howellii</i>	Howell's whitlow-grass	2	Big Craggies SIA, Brewer Spruce RNA, Hinkle Lake SIA	BLM, FS
<i>Enemion occidentale</i>	Western false rue-anemone	2		
<i>Epilobium oreganum</i>	Oregon willow-herb	1	Cedar Log Flat RNA, Woodcock Bog RNA, Oregon Mountain SIA, Kalmiopsis WA, Eight Dollar Mt. ACEC/Preserve/SIA	BLM, FS, TNC
<i>Epilobium siskiyouense</i>	Siskiyou willow-herb	1	Dutchman Peak SIA	FS
<i>Ericameria arborescens</i>	Golden fleece	2	Kalmiopsis WA, Chetco River WSR	FS
<i>Erigeron cervinus</i>	Siskiyou daisy	2	Babyfoot Lake SIA, Grayback Mt SIA, Kalmiopsis WA, Red Flat SIA	FS
<i>Erigeron klamathensis</i>	Klamath Daisy	2	Babyfoot Lake SIA, Kalmiopsis WA, Red Mountain RNA	
<i>Erigeron petrophilus</i>	Cliff daisy	2	Oliver Mathews RNA	BLM
<i>Eriogonum lobbii</i>	Lobb's buckwheat	2	Big Craggies SIA	FS
<i>Erodium macrophyllum</i>	Large-leaved filaree	1		
<i>Erythronium howellii</i>	Howell's adder's-tongue	1	Eight Dollar Mountain SIA, French Flat ACEC, Rough & Ready ACEC, Waldo-Takilma ACEC, Oregon Caves NM	FS, BLM, TNC
<i>Eschscholzia caespitosa</i>	Gold poppy	2		
<i>Eucephalus vialis</i>	Wayside Aster	1	Beatty RN, Craggy Mountain SIA	BLM, FS
<i>Frasera umpquaensis</i>	Umpqua swertia	1	Bear Camp SIA	FS
<i>Fritillaria gentneri</i>	Gentner's fritillaria	1	Cascades Siskiyou NM, Cobleigh Road ACEC, Dukubetede ACEC, Oregon Gulch RNA, Pickett Creek ACEC, Scotch Creek RNA	BLM
<i>Fritillaria purdyi</i>	Purdy's fritillaria	2		
<i>Gentiana plurisetosa</i>	Bristly gentian	1	Grayback Mountain SIA, Oregon Caves NM	FS, NPS

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Gentiana setigera</i>	Waldo gentian	1	Lemmingsworth Gulch RNA, Woodcock Bog RNA, Eight Dollar Mountain SNA/Preserve, West Fork Illinois River ACEC, Hunter Creek Bog ACEC, Kalmiopsis WA	BLM, FS, TNC, PRD
<i>Hackelia bella</i>	Beautiful stickseed	2	Cascade Siskiyou NM, Soda Mountain WA	BLM
<i>Hackelia mundula</i>	Pin stickseed	2	<i>South Grouse GAP</i>	FS
<i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>	Purple flowered rush-lily	1	Rough & Ready Flat SIA, Woodcock Bog RNA, Illinois River SNA	BLM, FS, PRD
<i>Hastingsia bracteosa</i> var. <i>bracteosa</i>	Large-flowered rush-lily	1	Eight Dollar Mountain ACEC/SNA, Rough & Ready Flat SIA/ACEC	BLM, FS, PRD
<i>Helianthus bolanderi</i>	Bolander's sunflower	2	Cascade-Siskiyou NM, Oregon Gulch RNA, Soda Mountain WA	BLM
<i>Hesperocyparis bakeri</i>	Baker's cypress	2	Grayback Mountain SIA, Miller Lake SIA, Baker Cypress ACEC	FS, BLM
<i>Hieracium horridum</i>	Shaggy hawkweed	2	<i>South Grouse Gap</i>	FS
<i>Horkelia congesta</i> ssp. <i>congesta</i>	Shaggy horkelia	1	<i>Ace Williams Mountain</i>	BLM
<i>Horkelia hendersonii</i>	Henderson's horkelia	1	<i>South Grouse Gap</i>	FS
<i>Horkelia tridentata</i> ssp. <i>tridentata</i>	Three-toothed horkelia	2	Ashland RNA	FS
<i>Iliamna latibracteata</i>	California globe-mallow	1	Oregon Caves NM, Craggy Mountain SIA	BLM, FS, NPS
<i>Juncus uncialis</i>	Inch-high rush	2	Whetstone Savanna Preserve	TNC
<i>Keckiella lemmonii</i>	Bush beardtongue	2		BLM, FS
<i>Lewisia leeana</i>	Lee's lewisia	2	Grayback Mt SIA, Red Mountain RNA, Oregon Caves NM, Oliver Matthews/Craggy Peaks RNA	FS, NPS
<i>Lilium kelloggii</i>	Kellogg's lily	2		
<i>Limnanthes alba</i> ssp. <i>gracilis</i>	Slender meadow-foam	1	Illinois River Forks SNA, Rough & Ready ACEC, Waldo-Takilma ACEC, Woodcock Bog RNA	PRD BLM
<i>Limnanthes floccosa</i> ssp. <i>bellingeriana</i>	Bellinger's meadow-foam	1	Cascade-Siskiyou NM, Soda Mountain WA	BLM
<i>Limnanthes pumila</i> ssp. <i>grandiflora</i>	Big-flowered wooly meadow-foam	1	Agate Desert Preserve, Whetstone Savanna Preserve, Denman WMA	TNC OFW
<i>Limnanthes pumila</i> ssp. <i>pumila</i>	Dwarf wooly meadow-foam	1	Table Rocks RNA and Preserve	BLM, TNC
<i>Lomatium cookii</i>	Agate Desert lomatium	1	Agate Desert Preserve, French Flat ACEC, Whetstone Savanna Preserve, Woodcock Bog RNA	BLM, TNC
<i>Lomatium engelmannii</i>	Engelmann's desert-parsley	2	Chrome Ridge SIA	FS
<i>Lotus stipularis</i>	Stipuled trefoil	2	Rogue WSR	BLM, FS

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Lupinus lepidus</i> var. <i>ashlandensis</i>	Mt. Ashland lupine	1	Mt. Ashland, South Grouse Gap	FS
<i>Lupinus oreganus</i>	Kincaid's lupine	1	Callahan Meadows ACEC	BLM
<i>Lupinus tracyi</i>	Tracy's lupine	2	Babyfoot Lake SIA, Kalmiopsis WA	FS
<i>Meconella oregana</i>	White meconella	1	Table Rocks Preserve, Table Rocks ACEC	TNC BLM
<i>Microseris douglasii</i> ssp. <i>douglasii</i>	Douglas' microseris	2-x		
<i>Diplacus bolanderi</i>	Bolander's monkeyflower	2		BLM, FS
<i>Diplacus congdonii</i>	Congdon's monkeyflower	2		
<i>Monardella purpurea</i>	Siskiyou monardella	2	Kalmiopsis WA, Lemmingsworth Gulch RNA, Rough & Ready Flat SIA, Rogue River Wild & Scenic River, Rocky Peak ACEC	FS, BLM
<i>Nemacladus capillaris</i>	Slender nemacladus	2	Cascade-Siskiyou NM, Oregon Gulch RNA	BLM
<i>Pellaea andromedifolia</i>	Coffee fern	2	North Bank ACEC	BLM
<i>Pellaea mucronata</i> ssp. <i>californica</i>	California bird's-foot cliffbrake	2		BLM
<i>Perideridia erythrorhiza</i>	Red-root yampah	1	Eight Dollar Mountain SIA, North Bank ACEC	BLM, FS
<i>Phacelia leonis</i>	Siskiyou phacelia	1	Waldo-Takilma ACEC	BLM, FS
<i>Pilularia americana</i>	American pillwort	2	Agate Desert Preserve, Table Rocks ACEC	BLM, TNC
<i>Plagiobothrys austiniae</i>	Austin's plagiobothrys	2	Table Rocks ACEC/Preserve, Cascade-Siskiyou NM	
<i>Plagiobothrys figuratus</i> ssp. <i>corallicarpus</i>	Coral seeded allocarya	1	Whetstone Savanna Preserve	TNC
<i>Plagiobothrys greenei</i>	Greene's popcorn flower	2	Table Rocks RNA	BLM
<i>Plagiobothrys hirtus</i>	Rough popcorn flower	1	Popcorn Swale Preserve	TNC
<i>Poa rhizomata</i>	Timber bluegrass	2	Cascade-Siskiyou NM, Soda Mountain WA	BLM
<i>Polystichum californicum</i>	California sword-fern	2	Beatty Creek RNA	BLM
<i>Prosartes parvifolia</i>	Siskiyou fairy bells	1		
<i>Rafinesquia californica</i>	California chicory	2	Cascade-Siskiyou NM, Scotch Creek RNA, Oregon Gulch RNA, Soda Mountain WA	BLM
<i>Ranunculus austrooreganus</i>	Southern Oregon buttercup	1	Whetstone Savanna Preserve, Upper Table Rock ACEC, Round Top Butte RNA, Denman WMA	TNC BLM OFW
<i>Rhamnus ilicifolia</i>	Redberry	2	Cascade-Siskiyou NM, Soda Mountain WA	BLM

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Ribes divaricatum</i> var. <i>pubiflorum</i>	Straggly gooseberry	2	Rogue River WSR	BLM
<i>Romanzoffia thompsonii</i>	Thompson mistmaiden	1	Bushnell-Irwin Rocks RNA	BLM
<i>Salix laevigata</i>	Polished willow	2		
<i>Saxifragopsis fragarioides</i>	Strawberry saxifrage	2	Kalmiopsis WA, Brewer Spruce RNA, Big Craggies SIA	FS
<i>Schoenoplectus subterminalis</i>	Water clubrush	2	Kalmiopsis WA	FS
<i>Scirpus pendulus</i>	Drooping bulrush	2	Illinois River State Scenic Waterway, Rogue River WSR, Hoover Gulch RNA, Wild Rogue WA	FS, BLM
<i>Sedum moranii</i>	Rogue River stonecrop	1	Rogue River WSR, East Fork Whiskey Creek ACEC	BLM, FS
<i>Sidalcea hickmanii</i> ssp. <i>petraea</i>	Hickman's southern Oregon sidalcea	1		
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Coast checker bloom	1	Hunter Creek Bog ACEC	BLM
<i>Silene hookeri</i> ssp. <i>bolanderi</i>	Bolander's catchfly	2		BLM
<i>Silene hookeri</i> ssp. <i>serpentinicola</i>	Serpentine catchfly	1	Smith River SIA/NRA	FS
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	1	North Bank ACEC	BLM
<i>Solanum parishii</i>	Parish's horse-nettle	2	Cascade-Siskiyou NM, Hinkle Lake SIA, Sterling Mine Ditch ACEC, Soda Mountain WA	BLM, FS
<i>Sophora leachiana</i>	Western necklace	1	York Creek SIA, Kalmiopsis WA	FS
<i>Streptanthus glandulosus</i>	Common jewel flower	2		
<i>Streptanthus howellii</i>	Howell's streptanthus	1	Lemmingsworth Gulch RNA, Rough & Ready Flat SIA/ACEC, Eight \$ Mountain SNA, Kalmiopsis WA	BLM, TNC, FS
<i>Taraxia ovata</i>	Golden eggs	2		
<i>Tauschia howellii</i>	Howell's tauschia	1		
<i>Tetrapteron graciliflorum</i>	Slender-flowered evening-primrose	2	Cascade-Siskiyou NM, Oregon Gulch RNA, Pilot Rock ACEC, Soda Mountain WSA	BLM
<i>Trillium kurabayashii</i>	Giant purple trillium	2	Rogue River WSR, Illinois River WSR	FS
<i>Triteleia laxa</i>	Ithuriel's spear	2		
<i>Utricularia minor</i>	Lesser bladderwort	2		
<i>Viola primulifolia</i> ssp. <i>occidentalis</i>	Western bog violet	1	Lemmingsworth Gulch RNA, Woodcock Bog RNA, Eight Dollar Mountain ACEC/Preserve	BLM, TNC, FS
<i>Wolffia columbiana</i>	Columbia water-meal	2	Table Rocks Preserve, Kelly Slough WMA	TNC OFW
<i>Zigadenus fontanus</i>	Small-flowered death camas	2	Ashland RNA	BLM

KLAMATH MOUNTAINS SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Nonvascular Plants				
<i>Anastrophyllum minutum</i>	Comb notchwort (Liverwort)	2	Red Mountain RNA	FS
<i>Andreaea schofieldiana</i>	Moss	2	Cascade-Siskiyou NM, Soda Mountain WA, Babyfoot Lake SNA	BLM, FS
<i>Bryum calobryoides</i>	Moss	2	Oregon Caves NM	NPS
<i>Calypogeia sphagnicola</i>	Liverwort	2	Hunter Creek Bog ACEC, Lemmingsworth Gulch RNA	BLM, FS
<i>Cryptomitrium tenerum</i>	Liverwort	2	Rogue River WSR	FS
<i>Didymodon norrisii</i>	Moss	2	Round Top Butte RNA	BLM
<i>Encalypta brevicollis</i>	Moss	2	Wild Rogue WA	FS
<i>Encalypta brevipes</i>	Moss	2	Wild Rogue WA	FS
<i>Entosthodon fascicularis</i>	Moss	2		
<i>Ephemerum crassinervium</i>	Moss	2		
<i>Meesia uliginosa</i>	Moss	2	Cascade-Siskiyou NM	BLM
<i>Phymatoceros phymatodes</i>	Hornwort	2	Rogue River WSR	FS
<i>Porella bolanderi</i>	Liverwort	2	Bushnell-Irwin Rocks ACEC/RNA, Cascade-Siskiyou NM, Soda Mt. WA	BLM
<i>Rivulariella gemmipara</i>	Liverwort	1	Sky Lakes WA	FS
<i>Schistidium cinclidodonteum</i>	Moss	2	Oregon Gulch RNA, Soda Mountain WA, Cascade-Siskiyou NM	BLM
<i>Tortula mucronifolia</i>	Moss	2		
Fungi				
<i>Arcangeliella camphorata</i>	Fungus	1		
<i>Dermocybe humboldtensis</i>	Fungus	1	Bushnell-Irwin Rocks RNA	BLM
<i>Gastroboletus vividus</i>	Fungus	1		
<i>Ramaria spinulosa</i> var. <i>diminutiva</i>	Fungus	1		
<i>Phaeoclavulina abietina</i>	Green-staining coral mushroom	2	North Myrtle Creek RNA	BLM
<i>Rhizopogon chamaleontinus</i>	Fungus	2		
<i>Rhizopogon clavitisporus</i>	Fungus	2		
<i>Rhizopogon ellipsosporus</i>	Fungus	2	Waldo-Takilma ACEC	BLM
<i>Rhizopogon exiguus</i>	Fungus	2		

CHAPTER 13. WEST CASCADES ECOREGION

The West Cascades Ecoregion extends from southern British Columbia south almost to the California border. This mountainous, heavily forested ecoregion is bounded on the west by the farms and woodlands of the Willamette Valley or the drier forests and valleys of the Klamath Mountains. To the east, it spills over the crest of the Cascade Mountains to the drier pine forests of the East Cascades.

The crest of the Cascade Range is dominated by a series of volcanic peaks. In Oregon, Mount Hood is the highest at 11,240 feet, but a dozen others top 8,000 feet. The western slopes of the range feature long ridges with steep sides and wide, glaciated valleys. Most of the rivers draining the northern two-thirds of the ecoregion flow into the Willamette Valley and then to the Columbia River system; the southern third drains to the Pacific Ocean through the Umpqua and Rogue River systems. The climate varies with elevation and, to a lesser extent, latitude. Higher elevations receive heavy winter snows. The drier southern half has a fire regime similar to the Klamath Mountains, with frequent lightning-caused fires. In the north, the natural fire regime historically has had less frequent but more severe fires.

The ecoregion is almost entirely forested. Douglas fir-western hemlock forests dominate large areas up to elevations of about 3,300 feet. However, most of the previously-harvested forests of the lowlands and lower slopes now support mixed conifer-deciduous forests, with young Douglas fir and western hemlock forests found in a mosaic with hardwood species such as bigleaf maple and red alder. Silver fir-mountain hemlock forests occur at mid-elevations. Silver fir is common between 2,600 and 4,200 feet. Mountain hemlock is most common between 3,200 and 6,000 feet. In the higher areas, mountain hemlock or occasionally Alaska yellow cedar, subalpine fir or whitebark pine woodlands open into alpine parklands with patches of forest interspersed with shrub and meadow communities. Alpine areas feature a variety of habitats ranging from dwarf shrubs, grasses and forbs to wetlands and barren expanses of rocks and ice.

The West Cascades Ecoregion is almost entirely in federal ownership, managed by the U.S. Forest Service, aside from the lands included in Crater Lake National Park, and some lower elevation lands managed by the Bureau of Land Management. The remaining low elevation areas are a mix of state lands managed by the Oregon Department of Parks and Recreation and the Oregon Department of Forestry, and private lands.

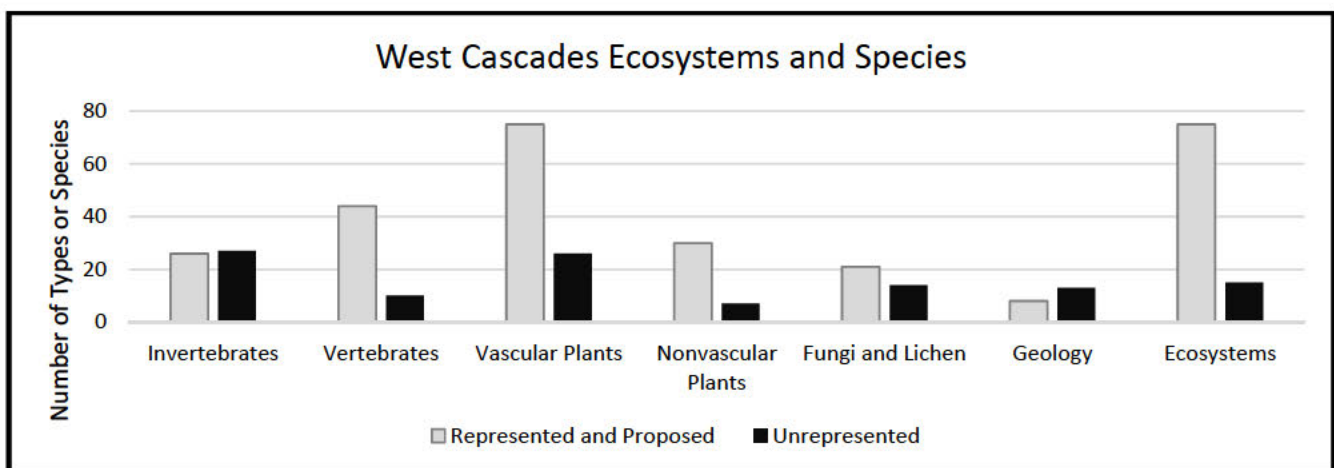


Figure 12. Represented and Unrepresented Ecosystems and Species for the West Cascades Ecoregion.

This 2020 plan lists 90 ecosystem types in the West Cascades, of which 75 are adequately represented on natural areas. Of the 15 types not adequately represented, only 9 are forest types, most of which are mixed conifer forests including Douglas fir and/or White fir. These are mostly found in the southern portions, and hopefully can be included in the next Rogue-Siskiyou National Forest Plan revision, which is scheduled to be completed before the 2025 plan.

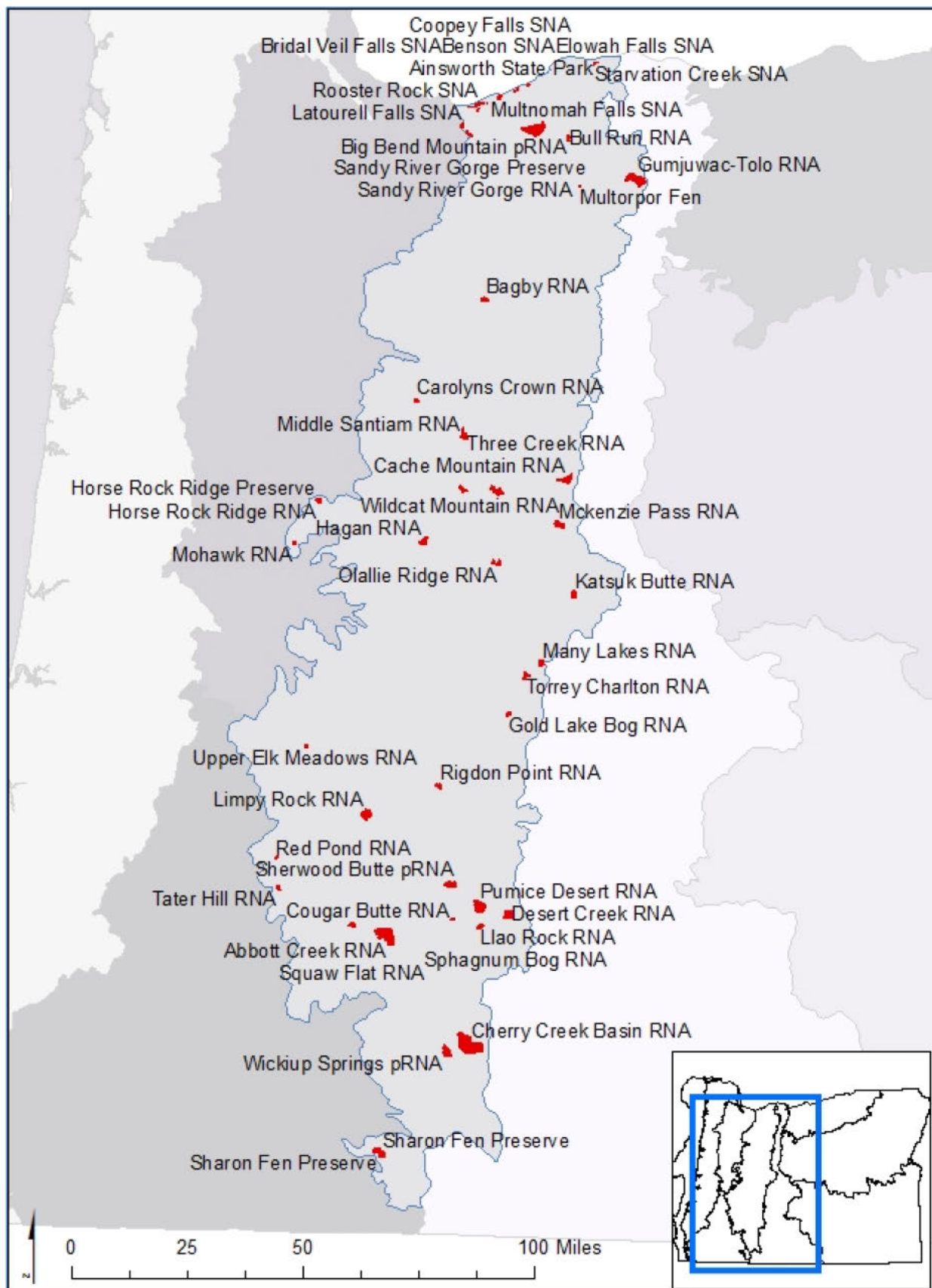


Figure 13. West Cascades Ecoregion Natural Areas Map.

WEST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
		Western Hemlock	
	*	1. Western hemlock/oceanspray.	Tater Hill RNA Limpy Rock RNA
	*	2. Western hemlock/salal/twinflower with white-flowered hawkweed and common prince's pine if possible.	Hagan RNA
	*	3. Western hemlock/salal-Oregon grape.	Hagan RNA
	*	4. Western hemlock/rhododendron-salal.	Bagby RNA
	*	5. Western hemlock/rhododendron-Alaska huckleberry.	Middle Santiam RNA
	*	6. Western hemlock/Alaska huckleberry-salal.	Menagerie WA
	*	7. Western hemlock/rhododendron/twinflower with beargrass if possible.	Bull Run RNA
	*	8. Western hemlock/dwarf Oregon grape/swordfern.	Middle Santiam RNA
	*	9. Western hemlock/dwarf Oregon grape/oxalis.	Middle Santiam RNA
	*	10. Western hemlock/dwarf Oregon grape/vanilla leaf.	Menagerie WA
	*	11. Western hemlock/dwarf Oregon grape/twinflower.	Hagan RNA
	*	12. Western hemlock/salal.	Columbia WA
FS	H	13. Western hemlock/vanilla leaf.	
	*	14. Western hemlock/oxalis.	Middle Santiam RNA
	*	15. Western hemlock/devil's club.	Carolyn's Crown - Shafer Creek RNA, Columbia WA
	*	16. River terrace forest with Douglas fir, western red cedar, western hemlock and associated hardwoods.	Middle Santiam R. Terrace ACEC
	*	17. Old growth western red cedar types.	Carolyn's Crown – Shafer Creek RNA
		Pacific Silver Fir	
FS	L	18. Silver fir/dwarf Oregon grape.	
	+	19. Silver fir/rhododendron/beargrass.	Big Bend Mountain WMA Carolyn's Crown – Shafer Creek RNA
	*	20. Silver fir/rhododendron-dwarf Oregon grape.	Big Bend Mountain WMA Bull Run RNA
FS	M	21. Silver fir forest with big huckleberry and dwarf bramble.	
	+	22. Silver fir/big huckleberry/beadlily.	Salmon-Huckleberry WA Big Bend Mountain WMA
	*	23. Silver fir/big huckleberry/beargrass.	Big Bend Mountain WMA Bull Run RNA
	*	24. Silver fir/vine maple.	Upper Elk Meadows RNA
	*	25. Silver fir/Alaska huckleberry/bunchberry with rhododendron if possible.	Big Bend Mountain WMA Wildcat Mountain RNA Carolyn's Crown – Shafer Creek RNA

WEST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	*	26. Silver fir/Oregon oxalis.	Carolyn's Crown – Shafer Creek RNA
	*	27. Silver fir/coolwort foamflower and silver fir/vine maple/coolwort foamflower communities.	Wildcat Mountain RNA
	*	28. Silver fir/Cascades azalea with fool's huckleberry.	Mount Hood WA
	*	29. Silver fir/Devil's club.	Big Bend Mountain WMA Bull Run RNA
Douglas Fir			
	+	30. Douglas fir-canyon live oak forest.	Bear Gulch RNA
	*	31. Douglas fir-Oregon white oak/poison oak woodland with associated meadows.	Squaw Flat RNA
FS, BLM	M	32. Douglas fir/poison oak woodland.	
	*	33. Douglas fir/salal/swordfern forest.	Red Ponds RNA
	*	34. Douglas fir/oceanspray-dwarf Oregon grape.	Rigdon Point RNA
	*	35. Douglas fir/oceanspray/whipplevine with incense cedar if possible.	Limpy Rock RNA
FS	H	36. Douglas fir-ponderosa pine-incense cedar/California fescue forest.	
	*	37. Douglas fir-ponderosa pine-sugar pine/evergreen shrub forest.	Abbott Creek RNA
White Fir and Red Fir			
FS, BLM	M	38. White fir-Douglas fir/Piper's Oregon grape.	
	*	39. White fir-incense cedar/dwarf Oregon grape forest.	Abbott Creek RNA
FS	M	40. White fir-Douglas fir forest with dwarf Oregon grape and threelobed anemone and tall shrubs if possible.	
FS, BLM	M	41. White fir/big huckleberry or vine maple with twinflower, vanilla leaf or snow bramble.	
FS, BLM	M	42. White fir/dwarf Oregon grape-salal.	
	L	43. White fir-red fir/prince's pine.	
	*	44. Ponderosa pine/greenleaf manzanita-bitterbrush.	Desert Creek RNA
	*	45. Shasta red fir/big huckleberry.	Wickiup Springs pRNA Cougar Butte RNA
	*	46. Red fir-Alaska yellow cedar forest.	Sky Lakes WA
	*	47. Mountain meadow-white fir forest mosaic with blue wildrye and Umpqua swertia.	Cougar Butte RNA
Mountain Hemlock			
	8	48. Mountain hemlock/big huckleberry.	Gold Lake Bog RNA, Waldo WA
	*	49. Mountain hemlock/rhododendron.	Three Sisters WA, Waldo Lake WA

WEST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	+	50. Mountain hemlock/grouse huckleberry and mountain hemlock/woodrush forests.	Torrey-Charlton RNA Three Sisters WA
		Subalpine and Alpine Communities	
	*	51. Subalpine bitterbrush steppe with long stolon sedge and needlegrass.	Desert Creek RNA
	*	52. Engelmann spruce-subalpine fir forest.	Gold Lake Bog RNA
	*	53. Alaska yellow cedar forest mosaic.	Three Creeks RNA
	*	54. Lodgepole pine/Brewer's sedge forest.	Pumice Desert RNA
	*	55. Whitebark pine in the high Cascades.	Llao Rock RNA
	*	56. Subalpine meadow mosaic in the high Cascades.	Three Sisters WA, Mt. Jefferson WA Rogue-Umpqua Divide WA
	*	57. Subalpine pumice and ash fields.	Pumice Desert RNA
	*	58. Alpine needlegrass in the high Cascades.	Sky Lakes WA, Mountain Lakes WA
	*	59. Alpine mosaic (above treeline with a variety of meadows, rocky areas, and aspects).	Three Sisters WA, Mount Jefferson WA Mount Thielsen WA
		Special Types	
	*	60. Lava flow with representative vegetation (range from mid to high elevations).	McKenzie Pass RNA
FS	U	61. Recent lahar (mudflow) with successional forest communities including lodgepole pine/pinemat manzanita.	
FS	L	62. Lodgepole pine/sedge communities on glacial outwash.	
	+	63. Blue wildrye or red fescue grass bald communities.	Horse Rock Ridge RNA Grassy Mountain pACEC
	+	64. Chaparral communities dominated by chinquapin and manzanita.	Old Baldy RNA
		Lacustrine	
	*	65. Mid-montane lake with aquatic beds and marshy shore, surrounded by mixed conifer forest.	Lost Lake RNA
		66. Mid to upper montane lake with aquatic beds and marshy shore.	Waldo Lake WA, Diamond Lake WA, Mt Jefferson WA, Mt. Washington WA
	+	67. Subalpine lake.	Big Bend Mountain RNA, Crabtree Lake ONA/ACEC
	*	68. Alpine lake.	Three Sisters WA
	*	69. Ultraoligotrophic montane lake.	Waldo Lake WA, Crater Lake NP
		Palustrine	
	*	70. Low elevation pond, with aquatic beds and marshy shore.	Red Ponds RNA

WEST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	*	71. Upper montane to subalpine pond, with aquatic beds and marshy shore.	Gold Lake Bog RNA, Torrey-Charlton RNA, Many Lakes RNA
	*	72. Alpine pond.	Three Sisters WA
	+	73. Montane vernal pond.	Big Bend Mountain pRNA Torrey-Charlton RNA
FS	U	74. Flowing and pooled hot springs.	
	*	75. Flowing and pooled cold springs.	Big Bend Mountain pRNA, Bull Run RNA, Three Sisters WA
	*	76. Vernal seepage slopes on low to mid elevation rocky bald communities, with monkeyflower, saxifrage and moss.	Horse Rock Ridge RNA Grassy Mountain pACEC
	+	77. Sphagnum mire on floating lake fill mat.	Hidden Lake SIA
	+	78. Sitka sedge fen.	Big Bend Mountain pRNA
	*	79. Subalpine sedge fen, dominated by black and Holm sedge.	Three Sisters WA Mount Jefferson WA
	*	80. Few flowered spikerush/brown moss fen, with lodgepole pine.	Gold Lake Bog RNA Many Lakes RNA
	*	81. Bog laurel shrub swamp.	Torrey-Charlton RNA Sphagnum Bog RNA
	*	82. Forb flush on seepage slope (including marsh marigold, shooting-star, bistort, arrowleaf groundsel and false hellebore).	Upper Elk Meadows RNA Three Sisters WA Mt. Jefferson WA
	*	83. Geyer willow shrub swamp.	Gold Lake Bog RNA
	*	84. Sitka alder/devils club swamp on seepy talus slopes or avalanche tracks.	Three Sisters WA Mt. Jefferson WA
	*	85. Sitka alder/lady fern swamp.	Upper Elk Meadows RNA Olallie Ridge RNA
	*	86. Bog birch shrub swamp.	Gold Lake Bog RNA Many Lakes RNA
	+	87. Mountain alder/sedge on organic soils.	Sphagnum Bog RNA Many Lakes RNA
	*	88. Bog blueberry shrubswamp, with Engelmann spruce, lodgepole pine, and tufted hairgrass.	Gold Lake Bog RNA Many Lakes RNA
FS, BLM	H	89. Western red cedar-western hemlock/skunk cabbage swamp.	
FS	L	90. Alaska yellow cedar/devils club swamp.	

WEST CASCADES GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
	*	1. Columbia River Gorge	Columbia River Gorge National Scenic Area
	*	2. Multnomah Falls	Columbia River Gorge National Scenic Area
PRD	H	3. Sand dunes in western Columbia River Gorge	<i>Rooster Rock State Park</i>
	*	4. Bridge of the Gods Landslide	Columbia River Gorge National Scenic Area
	*	5. Bagby Hot Springs	Bagby RNA
Pleistocene and Holocene			
	*	6. Eliot Glacier	Mt. Hood WA
FS	M	7. Old Maid Lahar	<i>Sandy River</i>
	M	8. Cascades Stratovolcanoes Cone: Mt. McLoughlin	<i>Mt. McLoughlin</i>
	*	9. Cascades Stratovolcanoes Eroded cone: Three-Fingered Jack	Mt. Washington WA
	*	10. Cascades Stratovolcanoes Caldera: Crater Lake	Crater Lake NP
Pliocene and Miocene			
FS	L	11. Outerson volcanics	<i>Outerson Mountain</i>
FS	L	12. Rhododendron Formation	<i>Rhododendron</i>
Miocene and Oligocene			
	*	13. Eagle Creek Formation	Eagle Creek, Columbia River Gorge NSA
FS	L	14. Sardine Formation	<i>Sardine Mountain</i>
FS, PVT	L	15. Breitenbush Formation	<i>Cleator Bend, Breitenbush River</i>
Oligocene and Eocene			
FS	L	16. Heppsie Andesite	<i>Heppsie Mountain</i>
FS	L	17. Wasson Formation	<i>Lake Creek</i>
FS	L	18. Roxy Formation	<i>Ashland</i>
FS	L	19. Tuff of Bond Creek	<i>Diamond Rock</i>
FS	L	20. Colestin Formation	<i>Colostin</i>
Cretaceous			
FS	L	21. Hornbrook Formation	<i>Jacksonville</i>

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Aeshna sitchensis</i>	Zigzag Darner	2	Gold Lake Bog RNA, Little Crater Lake SIA	FS
<i>Agonum belleri</i>	Beller's ground beetle	2	Little Crater Lake Geological Area	FS
<i>Allomyia scotti</i>	Scott's apatanian caddisfly	1	White River WSR, Salmon River WSR	BLM, FS
<i>Anodonta californiensis</i>	California floater (mussel)	2		
<i>Anodonta oregonesis</i>	Oregon floater	2		
<i>Anodonta nuttalliana</i>	Winged floater	2		
<i>Bombus franklini</i>	Franklin's bumblebee	1	Sharon Fen Preserve, Cascade-Siskiyou NM	TNC BLM
<i>Bombus occidentalis</i>	Western bumblebee	2	Mount Hood WA, Cascade-Siskiyou NM, Mount Jefferson WA, Three Sisters WA, Multipor Fen NA	FS, BLM
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	1	Cascade-Siskiyou NM, Mohawk RNA	BLM
<i>Carinacauda stormi</i>	Cascades axetail slug	1	Table Rock WA, Sandy River ACEC, Mount Hood WA, Opal Creek WA	FS, BLM
<i>Chloealtis aspasma</i>	Siskiyou short-horned grasshopper	1	Cascade-Siskiyou NM	BLM
<i>Colligyryus greggi</i>	Rocky Mountain duskysnail	2	Mount Hood WA	FS
<i>Cryptomastix devia</i>	Puget oregonian (snail)	1		
<i>Cryptomastix hendersoni</i>	Columbia Gorge oregonian (snail)	1		
<i>Farula constricta</i>	A caddisfly	1	Multnomah Falls SNA, Hatfield WA	FS
<i>Fluminicola</i> sp. 15	Tiger lily pebblesnail	1		
<i>Fluminicola</i> sp. 19	Keene Creek pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Fluminicola</i> sp. 21	Pinhead pebblesnail	1		
<i>Fluminicola</i> sp. 4	Fall Creek pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Fluminicola</i> sp. 7	Lake of the Woods pebblesnail	1	Mountain Lakes WA	FS
<i>Fuminicola fresti</i>	Frest's pebblesnail	1	Cascade-Siskiyou NM, Jenny Creek WSR, North Umpqua WSR	FS, BLM
<i>Gonidea angulata</i>	Western ridged mussel	2		FS, BLM
<i>Helminthoglypta hertleini</i>	Oregon shoulderband (snail)	1		
<i>Hesperia colorado oregonia</i>	Oregon branded skipper (butterfly)	2	Cascade-Siskiyou NM	BLM
<i>Juga hemphilli dallesensis</i>	Dalles juga (snail)	1		
<i>Juga hemphilli hemphilli</i>	Barren juga (snail)	1		
<i>Juga</i> sp. 1	Basalt juga (snail)	1		
<i>Juga</i> sp. 3	Brown juga (snail)	1		

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Juga newberryi</i>	Purple juga (snail)	1	North Umpqua River WSR	FS
<i>Juga sp. 7</i>	Three-band juga (snail)	1		
<i>Lanx subrotunda</i>	Rotund lanx (snail)	1	North Umpqua River WSR	FS
<i>Margaritifera falcata</i>	Western pearlshell (mussel)	2	North Umpqua WSR	FS
<i>Monadenia fidelis celeuthia</i>	Traveling sideband (snail)	1		
<i>Monadenia fidelis columbiana</i>	Columbia sideband (snail)	2		
<i>Monadenia fidelis minor</i>	Oregon snail (Dalles sideband)	1	Hood River, East Fork WSR	FS
<i>Monadenia fidelis ssp. 3</i>	Duncan sideband (snail)	1		
<i>Nanonemoura wahkeena</i>	Wahkeena Falls flightless stonefly	1	Multnomah Falls SNA	FS, PRD
<i>Neothremma andersoni</i>	Columbia Gorge caddisfly	1	Multnomah Falls SNA, Benson SNA	FS, PRD
<i>Neothremma prolata</i>	A caddisfly	1	Columbia Gorge NSA	FS
<i>Physella columbiana</i>	Rotund physa (snail)	1		
<i>Physella hordacea</i>	Grain physa (snail)	1		
<i>Plebejus podarce klamathensis</i>	Gray blue (butterfly)	2	Rogue-Umpqua Divide WA, Cascade-Siskiyou NM	BLM, FS
<i>Polites mardon</i>	Mardon skipper (butterfly)	1	Cascade-Siskiyou NM	BLM
<i>Pristiloma crateris</i>	Crater Lake tightcoil (snail)	1	Crater Lake NP, Sandy River WSR	NPS, FS
<i>Pristiloma wascoense</i>	Shiny tightcoil (snail)	2		
<i>Prophysaon sp. 1</i>	Klamath tail-dropper (slug)	1		
<i>Rhyacophila chandleri</i>	A caddisfly	2	H.J. Andrews Experimental Forest	FS
<i>Rhyacophila leechi</i>	A caddisfly	2	H.J. Andrews Experimental Forest	FS
<i>Speyeria coronis coronis</i>	Coronis fritillary (butterfly)	2		
<i>Vanduzeeina borealis californica</i>	California shield-backed bug	2		
<i>Vespericola sierranus</i>	Siskiyou hesperian (snail)	1	Cascade-Siskiyou NM	BLM
<i>Vorticifex neritoides</i>	Nerite ramshorn (snail)	1		
<i>Zapada wahkeena</i>	Wahkeena Falls flightless stonefly	1	Columbia River Gorge NSA, Multnomah Falls SNA	FS
Fish				
<i>Catostomus rimiculus pop. 1</i>	Jenny Creek sucker	1		
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	Sandy River ACEC, Mount Hood WA, Badger Creek WA, Salmon WSR	FS, BLM
<i>Oncorhynchus clarkii pop. 2</i>	Coastal cutthroat trout (Southwestern Washington/Columbia River ESU)	1	Mount Hood WA, Hatfield WA, Elowah Falls SNA, Seneca Fouts Memorial SNA, Starvation Creek SNA	FS, PRD

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Oncorhynchus keta</i> pop. 3	Chum salmon (Columbia River ESU)	1		
<i>Oncorhynchus kisutch</i> pop. 1	Coho salmon (Lower Columbia River ESU)	1	Salmon-Huckleberry WA, Salmon River WSR, Roaring River WSR, Clackamas River WSR	FS
<i>Oncorhynchus kisutch</i> pop. 2	Coho salmon (Southern OR, Northern CA ESU)	1	Elk Creek WSR, Cobleigh Road ACEC	BLM, FS
<i>Oncorhynchus kisutch</i> pop. 3	Coho salmon (Oregon Coast ESU)	1	North Umpqua WSR, Tater Hill RNA, Boulder Creek WA, Squaw Flat RNA,	BLM
<i>Oncorhynchus mykiss</i> pop. 24 and pop 25	Steelhead (Klamath Mountains Province ESU, summer run)	2	Cobleigh Road ACEC, Elk Creek WSR	FS, BLM
<i>Oncorhynchus mykiss</i> pop. 26	Steelhead (Lower Columbia River ESU, summer run)	1	Hood River, East Fork WSR	FS
<i>Oncorhynchus mykiss</i> pop. 27	Steelhead (Lower Columbia River ESU, winter run)	1	Columbia River Gorge National Scenic Area, Mount Hood WA, Hatfield WA	FS
<i>Oncorhynchus mykiss</i> pop. 30	Steelhead (Oregon Coast ESU, summer run)	1	North Umpqua River WSR	FS
<i>Oncorhynchus mykiss</i> pop. 31	Steelhead (Oregon Coast ESU, winter run)	1	North Umpqua River WSR	FS
<i>Oncorhynchus mykiss</i> pop. 33	Steelhead (Upper Willamette River ESU, winter run)	1	Elkhorn Creek River WSR	BLM
<i>Oncorhynchus tshawytscha</i> pop. 21	Chinook salmon (Lower Columbia ESU, spring run)	1	Salmon-Huckleberry WA	FS
<i>Oncorhynchus tshawytscha</i> pop. 22	Chinook salmon (Lower Columbia ESU, fall run)	1	Buck and Gordon Creeks NA, Sandy River WSR	MNA, BLM
<i>Oncorhynchus tshawytscha</i> pop. 23	Chinook salmon (Upper Willamette ESU, spring run)	1	Bull of the Woods WA, Clackamas River WSR	FS
<i>Oncorhynchus tshawytscha</i> pop. 26	Chinook salmon ESU (Southern OR, Northern CA, fall run)	1	Elk Creek WSR	FS
<i>Oregonichthys crameri</i>	Oregon chub	1		
<i>Oregonichthys kalawatseti</i>	Umpqua chub	1		
<i>Salvelinus confluentus</i> pop. 14	Bull trout (Odell Lake SMU)	1	Diamond Peak WA	FS
<i>Salvelinus confluentus</i> pop. 18	Bull trout (Deschutes SMU)	1		
<i>Salvelinus confluentus</i> pop. 17	Bull trout (Willamette SMU)	1	McKenzie River WSR	FS
<i>Salvelinus confluentus</i> pop. 21	Bull trout (Hood River SMU)	1	Mount Hood WA, Hood River River WSR	FS
<i>Salvelinus confluentus</i> pop. 27	Bull trout (Klamath RU)	1	Sky Lakes WA, Crater Lake NP	FS, NPS
<i>Salvelinus confluentus</i> pop. 28	Bull trout (Coastal RU)	1	McKenzie River ACEC, Upper Willamette Valley Margin ACEC, Clackamas WA & WSR, Diamond Peak WA, Mount Hood WA	BLM, FS

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Amphibians				
<i>Dicamptodon copei</i>	Cope's giant salamander	2	Hatfield WA, Bull Run RNA, White River WSR, Mt. Hood WA, Salmon-Hucklebery WA, Oneonta Gorge Botanical Area, Multnomah Falls SNA	FS, BLM, PRD
<i>Plethodon larselli</i>	Larch Mountain salamander	2	Columbia Gorge NSA, Seneca Fouts Memorial NA, Starvation Creek SMA	FS, PRD
<i>Rana boylei</i>	Foothill yellow-legged frog	2	North Umpqua WSR, Cascade-Siskiyou NM	FS, BLM
<i>Rana pretiosa</i>	Oregon spotted frog	1	Gold Lake Bog RNA, Many Lakes RNA, Sky Lakes WA, Three Sisters WA, Cascade-Siskiyou NM	BLM, FS
<i>Taricha granulosa mazamae</i>	Crater Lake newt	1	Crater Lake NP	NPS
Reptiles				
<i>Actinemys marmorata</i>	Western pond turtle	2	North Fork of the Middle Fork Willamette WSR, Rogue Umpqua Divide WA, Cascade-Siskiyou NM	FS, BLM
<i>Chrysemys picta</i>	Painted turtle	2		
Birds				
<i>Bucephala albeola</i>	Bufflehead	2	Three Sisters WA	FS
<i>Cypseloides niger</i>	Black swift	2	Starvation Creek SNA, Three Sisters WA	PRD, FS
<i>Egretta thula</i>	Snowy egret	2	Upper Klamath NWR	FWS
<i>Falco peregrinus anatum</i>	American peregrine falcon	2	Columbia Gorge NSA, Crater Lake NP, Starvation Creek SP, Three Sisters WA	FS, PRD, NPS
<i>Gymnogyps californianus</i>	California condor	1-x		
<i>Histrionicus histrionicus</i>	Harlequin duck	2	Boulder Creek WA, Three Sisters WA, McKenzie River WSR, Salmon-Huckleberry WA, Hood River WSR	FS
<i>Melanerpes lewis</i>	Lewis's woodpecker	2		
<i>Picoides albolarvatus</i>	White-headed woodpecker	2	Cache Mountain RNA	FS
<i>Podiceps auritus</i>	Horned grebe	2		
<i>Podiceps grisegena</i>	Red-necked grebe	2	Cascade-Siskiyou NM	BLM
<i>Progne subis</i>	Purple martin	2		BLM
<i>Strix occidentalis caurina</i>	Northern spotted owl	1	Limpy Rock RNA, Rigdon Point RNA, Wildcat Mountain RNA, Hagan RNA, Carolyns Crown RNA, Bull Run RNA, Hagen RNA, Cascade-Siskiyou NM, Mohawk RNA, Cache Mountain RNA, Cherry Creek Basin RNA.	BLM, NPS, FS

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2	Upper Rogue River WSR	FS
<i>Canis lupus</i>	Gray wolf	2	Cascade-Siskiyou NM, Sky Lakes WA, Crater Lake NP, Wickup Springs RNA	FS, BLM, NPS
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Clackamas River SSW, Mount Washington WA, North Umpqua WSR, Silver Falls SNA	PRD, FS
<i>Gulo gulo</i>	Wolverine	2	Mt. Jefferson WA, Mt. Thielsen WA, Mt. Washington WA	
<i>Lynx canadensis</i>	Canada lynx	2		
<i>Myotis thysanodes</i>	Fringed myotis	2	Cascades-Siskiyou NM, Upper Rogue WSR, Roaring River WA	FS
<i>Pekania pennanti</i>	Fisher	2	Upper Rogue River WSR, Rogue-Umpqua Divide, Diamond Peak WA, Cascade-Siskiyou NM	FS, BLM
<i>Vulpes vulpes necator</i>	Sierra Nevada red fox	1	Sky Lakes WA, Gold Lake Bog RNA, Three Sisters WA, Crater Lake NP, Cascade-Siskiyou NM	FS, BLM, NPS
Vascular Plants				
<i>Agrostis howellii</i>	Howell's bentgrass	1	Wahkeena Falls SIA, Elowah Falls	FS
<i>Allium peninsulare</i>	Peninsular onion	2	Cascade-Siskiyou NM	BLM
<i>Antirrhinum vexillo-calyculatum ssp. breweri</i>	Brewer's snapdragon	2	Cascade-Siskiyou NM	BLM
<i>Anemone oregana var. felix</i>	Bog anemone	2		
<i>Arnica viscosa</i>	Shasta arnica	2	Crater Lake NP, Mt Thielsen WA, Three Sisters WA, Cherry Creek Basin RNA, Sky Lakes WA	NPS, FS
<i>Artemisia campestris var. wormskioldii</i>	Northern wormwood	1-x		
<i>Asplenium septentrionale</i>	Grass-fern	2		
<i>Boechea atrorubens</i>	Sickle-pod rockcress	2	Columbia Gorge NSA	FS
<i>Boechea hastatula</i>	Hells Canyon rockcress	1	Wildcat Mountain RNA	BLM
<i>Bochera. horizontalis</i>	Crater Lake rockcress	1	Sky Lakes WA, Crater Lake NP	FS, NPS
<i>Botrychium montanum</i>	Mountain grape-fern	2	White River WSR	FS
<i>Botrychium pumicola</i>	Pumice grape-fern	1	Crater Lake NP, Three Sisters WA, Whychus Creek WSR	NPS, FS
<i>Calamagrostis breweri</i>	Brewer reedgrass	2	Mt Hood WA, Mt Jefferson WA	FS
<i>Calamagrostis tweedyi</i>	Tweedy's reedgrass	2	Crater Lake NP	NPS
<i>Calochortus monophyllus</i>	One-leaved calochortus	2	Cascade-Siskiyou NM	BLM

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Calochortus nitidus</i>	Broad-fruit mariposa lily	2	Cascade-Siskiyou NM	BLM
<i>Calochortus umpquaensis</i>	Umpqua mariposa-lily	1	Ace Williams Mountain ACEC	BLM
<i>Carex capitata</i>	Capitate sedge	2	Cascade-Siskiyou NM, Three Sisters WA	FS, BLM
<i>Carex crawfordii</i>	Crawford's sedge	2	Crater Lake NP	NPS
<i>Carex diandra</i>	Lesser paniced sedge	2	Three Sisters WA	FS
<i>Carex lasiocarpa</i> var. <i>americana</i>	Slender sedge	2		
<i>Carex livida</i>	Pale sedge	2	Big Bend pRNA, Three Sisters WA, Salmon-Huckleberry WA	FS
<i>Carex macrochaeta</i>	Alaska long-awned sedge	2	Columbia Gorge NSA, Multnomah Falls SNA	FS, PRD
<i>Carex nardina</i>	Spikenard sedge	2	Mt. Thielsen WA	FS
<i>Carex retrorsa</i>	Retrorse sedge	2	Rooster Rock SNA	PRD, FS
<i>Carex scirpoidea</i> ssp. <i>stenochlaena</i>	Alaskan single-spiked sedge	2		
<i>Carex vernacula</i>	Native sedge	2		
<i>Castilleja chlorotica</i>	Green-tinged paintbrush	2		
<i>Castilleja collegiorum</i>		1	Sky Lakes WA	FS
<i>Castilleja thompsonii</i>	Thompson's paintbrush	2	Gumjuwac-Tolo RNA, Badger Creek WA	FS
<i>Cheilanthes covillei</i>	Coville's lipfern	2		
<i>Cheilanthes intertexta</i>	Coastal lipfern	2	Cascade-Siskiyou NM	BLM
<i>Cicendia quadrangularis</i>	Timwort	2		
<i>Collomia mazama</i>	Mt. Mazama collomia	1	Sphagnum Bog RNA, Sky Lakes WA	NPS, FS
<i>Coptis trifolia</i>	Three-leaf goldthread	2	<i>Crater Creek</i>	
<i>Corydalis aquae-gelidae</i>	Cold-water corydalis	1	Clackamas WA, Roaring River WA, Salmon-Huckleberry WA	FS
<i>Cryptantha simulans</i>	Pine woods cryptantha	2	Cascade-Siskiyou NM	BLM
<i>Cypripedium fasciculatum</i>	Clustered lady's-slipper	2	Cascade-Siskiyou NM, Umpqua River SSW	BLM
<i>Delphinium nuttallii</i>	Nuttall's larkspur	2	Abbott Creek RNA	FS
<i>Delphinium oregonum</i>	Willamette Valley larkspur	1		
<i>Delphinium pavonaceum</i>	Peacock larkspur	1		
<i>Diphasiastrum complanatum</i>	Ground cedar	2	Mount Hood WA, Salmon-Huckleberry WA	FS
<i>Epilobium palustre</i>	Swamp willow-herb	2	Many Lakes WA, Rogue-Umpqua Divide WA, Crater Lake NP, Sphagnum Bog RNA	FS, NPS

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Erigeron howellii</i>	Howell's daisy	1	Columbia Gorge NSA, Mark O. Hatfield WA, Benson SNA, Salmon-Huckleberry WA, Elowah Falls SNA	FS, PRD
<i>Erigeron oregonus</i>	Oregon daisy	1	Oneonta Gorge SIA, Benson SNA, Elowah Falls SNA, Latourell Falls SNA, Starvation Creek SNA	FS, PRD
<i>Eriogonum villosissimum</i>	Acker Rock wild buckwheat	1	Acker Rock	FS
<i>Eucephalus gormanii</i>	Gorman's aster	1	Bull-of-the-Woods WA, Mt. Jefferson WA, Table Rock WA	FS
<i>Eucephalus vialis</i>	Wayside aster	1	Upper Willamette Valley Margin ACEC, Willamette Valley Prairie Oak and Pine ACEC	BLM
<i>Frasera umpquaensis</i>	Umpqua swertia	1	Rogue-Umpqua WA, Upper Elk Meadows RNA	FS, BLM
<i>Fritillaria camschatcensis</i>	Indian rice	2	Latourell Prairie, Bull Run Watershed	FS
<i>Fritillaria gentneri</i>	Gentner's fritillaria	1	Cobleigh Road ACEC	BLM
<i>Gentiana newberryi</i> var. <i>newberryi</i>	Newberry's gentian	2	Mt Washington WA, Sky Lakes WA, Three Sisters WA	FS
<i>Hackelia bella</i>	Beautiful stickseed	2	Cascade-Siskiyou NM	BLM
<i>Hesperocyparis bakeri</i>	Baker's cypress	2	Oliver Mathews RNA, Miller Lake SIA	BLM
<i>Hieracium horridum</i>	Shaggy hawkweed	2	Crater Lake NP	NPS
<i>Horkelia congesta</i> ssp. <i>congesta</i>	Shaggy horkelia	1	Willamette Valley Prairie Oak and Pine ACEC	BLM
<i>Iliamna latibracteata</i>	California globe-mallow	1	Cascade-Siskiyou NM, Elk Creek WSR	BLM, FS
<i>Juncus kelloggii</i>	Kellogg's dwarf rush	2	Horse Rock Ridge RNA, Seneca Fouts SNA, Wygant SNA	BLM, PRD, FS
<i>Kalmiopsis fragrans</i>	North Umpqua kalmiopsis	1	Limpy Rock RNA	BLM
<i>Lathyrus holochlorus</i>	Thin-leaved peavine	1	Upper Willamette Valley Margin ACEC, Willamette Valley Prairie Oak and Pine ACEC	BLM
<i>Lewisia columbiana</i> var. <i>columbiana</i>	Columbia lewisia	2	Columbia Gorge NSA	FS
<i>Limnanthes alba</i> ssp. <i>gracilis</i>	Slender meadow-foam	1		
<i>Limnanthes floccosa</i> ssp. <i>bellingeriana</i>	Bellinger's meadow-foam	1	Poverty Flat ACEC, Cascade-Siskiyou NM, Cobleigh Road ACEC	BLM
<i>Lobelia dortmanna</i>	Water lobelia	2		
<i>Lupinus oregonus</i>	Kincaid's lupine	1		
<i>Lycopodiella inundata</i>	Northern bog clubmoss	2	Williams Lake ACEC, Diamond Peak WA, <i>Multorpor Fen</i> , Three Sisters WA	BLM, FS
<i>Meconella oregana</i>	White meconella	1	Wygant SNA, Vinzenz Lausmann Memorial SNA	PRD

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Nemacladus capillaris</i>	Slender nemacladus	2	Cascade-Siskiyou NM, <i>Pinehurst</i>	BLM
<i>Ophioglossum pusillum</i>	Adder's-tongue	2	McKenzie WSR	FS
<i>Penstemon barrettiae</i>	Barrett's penstemon	1	Bonneville Dam	ACE
<i>Penstemon peckii</i>	Peck's penstemon	1		
<i>Perideridia erythrorhiza</i>	Red-root yampah	1	Cascade-Siskiyou NM	BLM
<i>Persicaria punctata</i>	Dotted smartweed	2	Red Pond RNA, Mark O Hatfield WA, Ainsworth SNA	PRD, BLM, FS
<i>Phlox hendersonii</i>	Henderson phlox	2	Mt Hood WA	FS
<i>Plagiobothrys figuratus</i> ssp. <i>corallicarpus</i>	Coral seeded allocarya	1	Cascade-Siskiyou NM	BLM
<i>Plagiobothrys greenei</i>	Greene's popcorn flower	2		
<i>Poa glauca</i> ssp. <i>rupicola</i>	Timberline bluegrass	2	Crater Lake NP	NPS
<i>Poa rhizomata</i>	Timber bluegrass	2	Cascade-Siskiyou NM	BLM
<i>Polystichum californicum</i>	California sword-fern	2	North Umpqua WSR	FS
<i>Potentilla villosa</i>	Villous cinquefoil	2	Mt Hood WA, Waldo Lake WA	FS
<i>Ranunculus austrooreganus</i>	Southern Oregon buttercup	1	Cascade-Siskiyou NM	BLM
<i>Rhynchospora alba</i>	White beakrush	2		
<i>Ribes divaricatum</i> var. <i>pubiflorum</i>	Straggly gooseberry	2		
<i>Romanzoffia thompsonii</i>	Thompson mistmaiden	1	Iron Mountain SIA, Rogue-Umpqua WA	FS
<i>Rorippa columbiae</i>	Columbia cress	1		
<i>Rotala ramosior</i>	Toothcup	2		
<i>Scheuchzeria palustris</i>	Rannoch-rush	2	Diamond Peak WA, Gold Lake Bog RNA, Many Lakes RNA	
<i>Schoenoplectus subterminalis</i>	Water clubrush	2		
<i>Scirpus pendulus</i>	Drooping bulrush	2	Horse Rock Ridge RNA, Cascade-Siskiyou NM	BLM
<i>Sisyrinchium sarmentosum</i>	Pale blue-eyed grass	1	Little Crater Lake SIA, Collawash WSR	FS
<i>Solanum parishii</i>	Parish's horse-nettle	2	Cascade-Siskiyou NM	BLM
<i>Streptopus streptopoides</i>	Kruhsea	2	Big Bend pRNA, Mark O. Hatfield WA	FS
<i>Suksdorfia violacea</i>	Violet suksdorfia	2	Columbia Gorge NSA, Seneca Fouts Memorial SNA, Viento State Park	FS, PRD
<i>Sullivantia oregana</i>	Oregon sullivantia	1	Table Rock WA, Starvation Creek SNA, Shepperds Dell SNA	FS, PRD
<i>Tauschia stricklandii</i>	Strickland's tauschia	2	Mark O. Hatfield WA	FS
<i>Utricularia gibba</i>	Humped bladderwort	2	Foster Dam	ACE

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Utricularia minor</i>	Lesser bladderwort	2	Crater Lake NP, Diamond Peak WA, Gold Lake Bog RNA, Many Lakes RNA Sharon Fen Preserve, Sphagnum Bog RNA, Three Sisters WA	BLM, NPS, FWS, FS
<i>Utricularia ochroleuca</i>	Northern bladderwort	2	Gold Lake Bog RNA, Waldo Lake WA	FS
<i>Viola primulifolia ssp. occidentalis</i>	Western bog violet	1	Rogue-Umpqua Divide WA	FS
<i>Wolffia borealis</i>	Dotted water-meal	2	Red Ponds RNA, Foster Dam, Cascade-Siskiyou NM	BLM, ACE
<i>Wolffia columbiana</i>	Columbia water-meal	2	Red Ponds RNA	BLM
Nonvascular Plants				
<i>Anastrophyllum minutum</i>	Liverwort	2	Mt Hood WA, Mt. Jefferson WA, Three Sisters WA	FS
<i>Andreaea schofieldiana</i>	Moss	2	Carolyn's Crown-Shafer Creek RNA	BLM
<i>Anthelia julacea</i>	Liverwort	2	Mt. Hood WA	FS
<i>Barbilophozia lycopodioides</i>	Liverwort	2	Mt Jefferson WA	FS
<i>Blepharostoma arachnoideum</i>	Liverwort	2	Low Elevation Headwaters of the McKenzie River ACEC	BLM
<i>Brachydontium olympicum</i>	Moss	2		
<i>Bryum calobryoides</i>	Moss	2	Olallie Ridge RNA, Cascade-Siskiyou NM	FS, BLM
<i>Calypogeia sphagnicola</i>	Liverwort	2	Gold Lake Bog RNA, Salmon-Huckleberry WA, White Rock Fen ACEC	BLM
<i>Cephaloziella spinigera</i>	Liverwort	2	Crater Lake NP, Three Sisters WA, Sphagnum Bog RNA	NPS, FS
<i>Conostomum tetragonum</i>	Moss	2	Mt Hood WA	FS
<i>Entosthodon fascicularis</i>	Moss	2	Horse Rock Ridge ACEC	BLM
<i>Gymnomitrium concinnatum</i>	Liverwort	2	Mt Hood WA	FS
<i>Haplomitrium hookeri</i>	Liverwort	2	Three Sisters WA	FS
<i>Harpanthus flotovianus</i>	Liverwort	2	Three Sisters WA	FS
<i>Herbertus aduncus ssp. aduncus</i>	Liverwort	2	Columbia Gorge NSA , Guy W. Talbot SNA, Latourell Falls SNA, Oneonta Gorge SIA	FS, PRD
<i>Jamesoniella autumnalis var. heterostipa</i>	Liverwort	1	Waldo Lake WA	FS
<i>Jungermannia polaris</i>	Liverwort	2	Three Sisters WA, Waldo Lake WA	FS
<i>Marsupella condensata</i>	Liverwort	2	Mt Hood WA	FS
<i>Marsupella emarginata var. aquatica</i>	Liverwort	2	North Fork of the Middle Fork Willamette River SSW, Waldo WA	FS
<i>Marsupella sparsifolia</i>	Liverwort	2		

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Nardia japonica</i>	Liverwort	2	Mt Hood WA, Three Sisters WA	FS
<i>Orthotrichum hallii</i>	Moss	2	Horse Rock Ridge RNA	FS
<i>Polytrichastrum sexangulare</i> var. <i>vulcanicum</i>	Moss	2	Mt Hood WA	FS
<i>Porella bolanderi</i>	Liverwort	2		
<i>Porella vernicosa</i> ssp. <i>fauriei</i>	Liverwort	2-x		
<i>Preissia quadrata</i>	Narrow mushroom-headed liverwort	2	Mt Jefferson WA	FS
<i>Pseudocalliergon trifarium</i>	Moss	2		
<i>Racomitrium depressum</i>	Moss	2	Cascade-Siskiyou NM	BLM
<i>Rivulariella gemmipara</i>	Liverwort	1	Three Sisters WA, Mt Jefferson WA, Sky Lakes WA, Waldo Lake WA	FS
<i>Scapania gymnostomophila</i>	Liverwort	2	Elowah Falls SNA	PRD
<i>Scapania obscura</i>	Liverwort	2	Three Sisters WA	FS
<i>Schistidium cinclidodonteum</i>	Moss	2	Cascade-Siskiyou NM	BLM, FS
<i>Schistochilopsis laxa</i>	Liverwort	2		
<i>Schofieldia monticola</i>	Liverwort	2	Three Sisters WA, Waldo Lake WA	FS
<i>Tayloria serrata</i>	Moss	2		
<i>Tetraphis geniculata</i>	Moss	2	Salmon-Huckleberry WA, Mark O. Hatfield WA	FS
<i>Trematodon asanoi</i>	Moss	2	Three Sisters WA	FS
Fungi				
<i>Albatrellus avellaneus</i>	Fungus	1	Sky Lakes WA	FS
<i>Alpova alexsmithii</i>	Fungus	1	Mt Jefferson WA	FS
<i>Butyriboletus autumnregius</i>	Red-capped butter bolete	2	Cascade-Siskiyou NM	BLM
<i>Bryoglossum gracile</i>	Fungus	2		
<i>Chamonixia caespitosa</i>	Fungus	2	Sky Lakes WA	FS
<i>Choiromyces venosus</i>	Fungus	2	Mohawk ACEC/RNA	BLM
<i>Cortinarius barlowensis</i>	Fungus	2		
<i>Cystangium idahoensis</i>	Fungus	1		
<i>Gastroboletus vividus</i>	Fungus	1	Crater Lake NP	NPS
<i>Gymnomyces fragrans</i>	Fungus	1		
<i>Gymnomyces nondistincta</i>	Fungus	1		
<i>Helvella crassitunicata</i>	Fungus	2	Mt Hood WA, Mt Washington WA, Mt Jefferson WA	FS

WEST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Hypotrachyna revoluta</i>	Lichen	2		
<i>Hypotrachyna riparia</i>	Lichen	1	Cascadia State Park, Camas Prairie	PRD, FS
<i>Lobaria linita</i>	Lichen	2	Middle Santiam WA	FS
<i>Lyophyllum pallidum</i>	Fungus	1		
<i>Macowanites mollis</i>	Fungus	1	Mark O Hatfield WA	FS
<i>Microcalicium arenarium</i>	Lichen	2	Guy W. Talbot State Park	PRD
<i>Mythicomyces corneipes</i>	Fungus	2	McKenzie WSR	FS
<i>Octaviania cyanescens</i>	Fungus	1	Three Sisters WA, Lamb Butte SA	FS
<i>Pannaria rubiginella</i>	Lichen	2		
<i>Pannaria rubiginosa</i>	Lichen	2	Grassy Mountain ACEC	BLM
<i>Phaeocollybia oregonensis</i>	Fungus	1	Salmon-Huckleberry WA	FS
<i>Pilophorus nigricaulis</i>	Lichen	2	Carolyn's Crown-Shafer Creek RNA	BLM
<i>Pseudocyphellaria mallota</i>	Lichen	2	Middle Santiam WA	FS
<i>Pseudorhizina californica</i>	Fungus	2	Cherry Creek Basin, Sky Lakes WA	FS
<i>Ramalina pollinaria</i>	Lichen	2		
<i>Ramaria gracilis</i>	Fungus	2	Sky Lakes WA	FS
<i>Rhizopogon clavitisporus</i>	Fungus	2		
<i>Rhizopogon ellipsosporus</i>	Fungus	2		
<i>Rhizopogon inquinatus</i>	Fungus	2		
<i>Sarcodon fuscoindicus</i>	Violet hedgehog	2	Three Sisters WA	FS
<i>Stagnicola perplexa</i>	Fungus	2		
<i>Stereocaulon spathuliferum</i>	Chalk foam lichen	2	Carolyn's Crown – Shafer Creek RNA	BLM
<i>Tholurna dissimilis</i>	Arboreal urn lichen	2	Mt Hood WA, Quaking Aspen Swamp BA, Three Sisters WA, Waldo Lake WA	FS

CHAPTER 14. EAST CASCADES ECOREGION

The East Cascades Ecoregion is a transition zone that extends from below the crest of the Cascade Range east to where the ponderosa pine zone meets the sagebrush-juniper steppe. The ecoregion also extends north into Washington and south into California. In Oregon, the ecoregion is variable, including extensive lodgepole forests on deep Mazama ash, the montane and foothill Ponderosa pine forests, Klamath Basin lakes, wetlands, sagebrush and diverse montane forests.

The eastern slopes of the Cascades are drier than the Western Slopes, with annual rainfall ranging from 14-26 inches per year. It is less steep and cut by fewer streams than the west. The northern two-thirds of the East Cascades are drained by the Deschutes River system, which includes a series of large lakes and reservoirs near its headwaters. The southern third is drained by the Klamath River, which flows south and west into California. The Klamath Basin, which extends into the Modoc Plateau in California, is a broad, relatively flat mid-elevation valley that historically supported a vast expanse of lakes and marshes. Oregon's largest lake, Upper Klamath Lake, is the biggest remnant of this wetland system. Most of the basin's wetlands have been drained and converted to agriculture.

The mountains on the northern and eastern edges of the Klamath Basin lack a generally accepted name, but include a series of peaks and ridges extending from Paulina Peak near Bend southward through the headwaters of the Williamson, Sprague and Chewaucan rivers to the Warner Mountains east of Lakeview. These mountains are generally forested, but the valleys and flats between them include large marshes, irrigated meadows and pastures and arid juniper and sagebrush steppes. These habitats are a critical part of the Pacific flyway, supporting vast number of shorebirds and waterfowl, the densest wintering concentration of bald eagles in the world, and many other wildlife species.

Of special ecological significance is the ecological zone found at the northern end of this region in Oregon, where the Columbia River Gorge contains a wealth of diversity. This Columbia Gorge transition zone, the extensive Ponderosa pine forests and woodlands and the vast wetlands of the Klamath and upper Deschutes basin characterize this region.

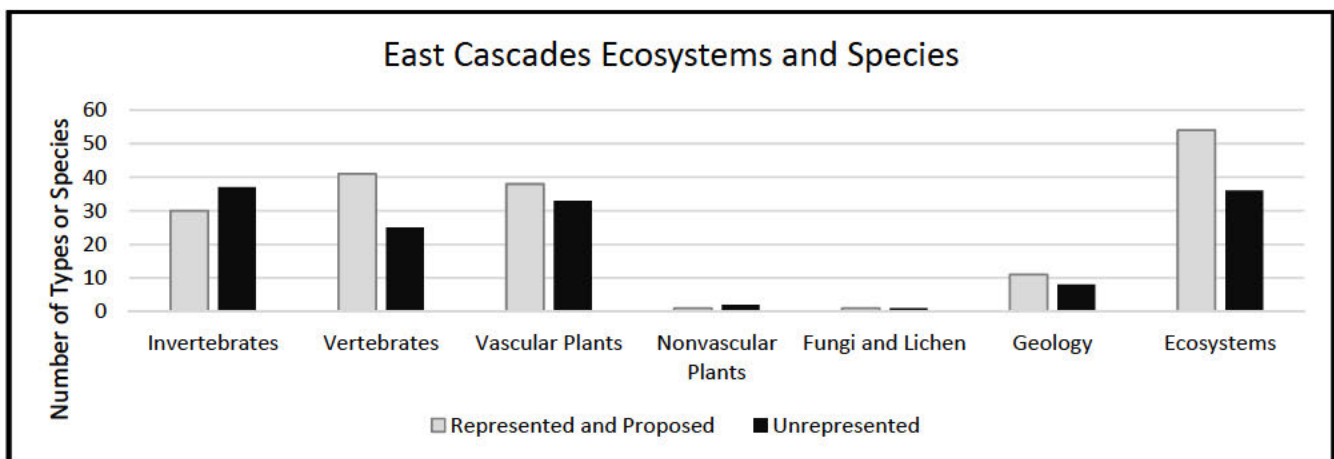


Figure 14. East Cascades Represented and Unrepresented Ecosystems and Species.

As can be seen in Figure 14, ecosystems types are not as well represented in this ecoregion than those of the West Cascades or the Blue Mountains ecoregions. And species are even more poorly represented. This is somewhat surprising given the large size of many of the natural areas occurring here. Hopefully, this can be improved in the future.

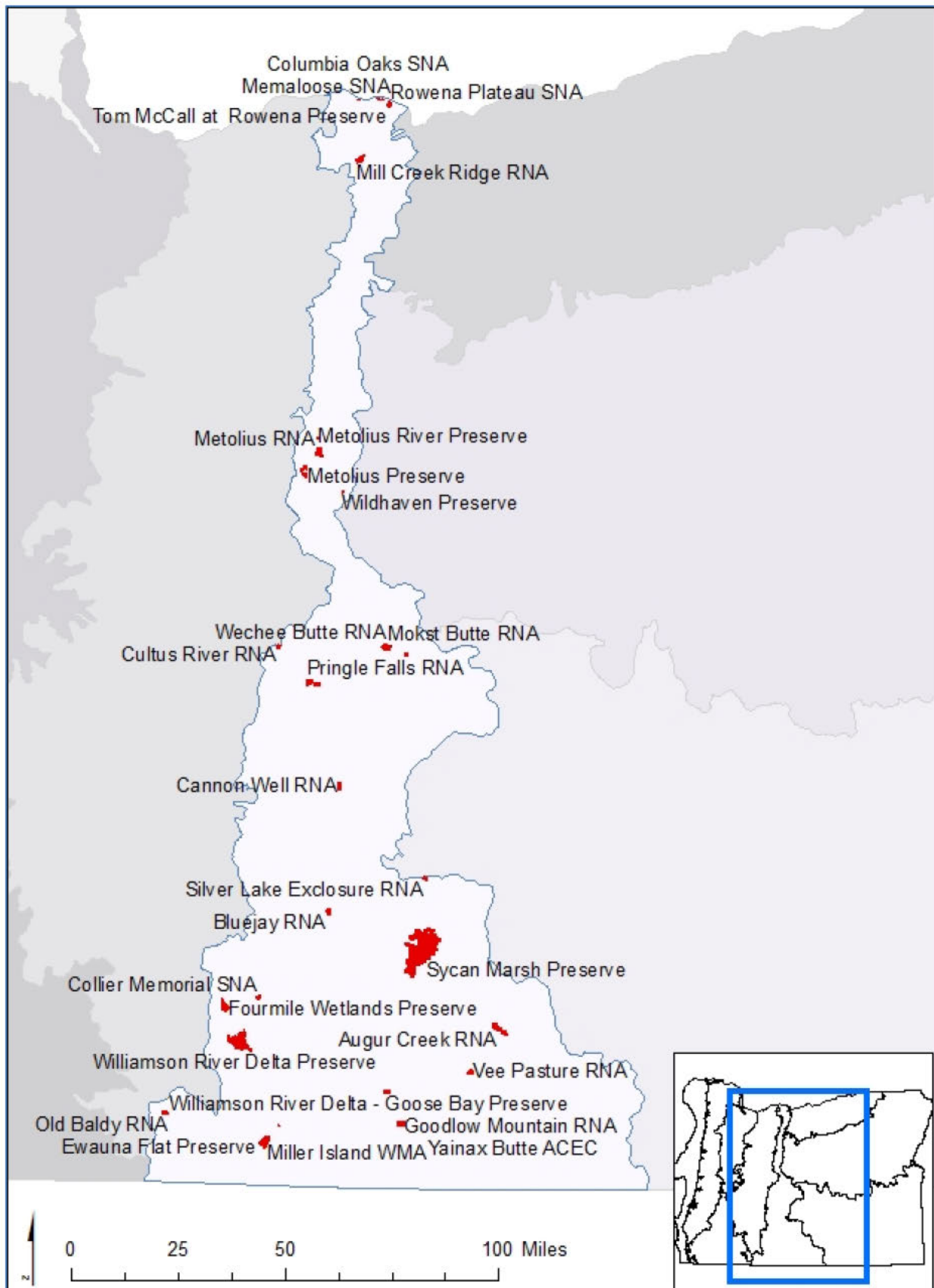


Figure 15. Map of protected areas in the East Cascades Ecoregion.

A total of 90 ecosystem types are included for in the East Cascades, of which 54 or 60% were adequately represented on natural areas. Of the 36 types not adequately represented, 19 are terrestrial forest types. These include all forested types: Ponderosa pine forests and woodlands, white fir mixed conifer forests, and the extensive longpole pine forests and woodlands found on the southern Deschutes and the Fremont and Winema Forests.

Ponderosa pine – oak ecosystem types are also not currently represented on natural areas. They are found only on the northern and extreme southwestern portions of the ecoregion, and because they represent an important ecotone, should be an important place for establishing climate change research. One, Ponderosa pine-Oregon white oak woodland, is best protected on the east side of the Mount Hood or in the Columbia Gorge. The Oak-Pine with California black oak can only be protected on BLM lands or Winema NF lands in southwestern Klamath County. There are sites in the Klamath River Canyon with rare species that can represent this type.

A total of 15 unrepresented ecosystem types are springs, wetland and riparian habitats, which are both extensive and well studied in this ecoregion. Since these types are important for many of the species found in the region, they should be a focus for identification of additional natural areas.



Sycan River, photo © Larry Olson.

EAST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Western Juniper			
	*	1. Western juniper/big sagebrush/Idaho fescue.	Goodlow Mountain RNA Silver Lake Exclosure RNA
FS, BLM	H	2. Western juniper/big sagebrush/bluebunch wheatgrass.	
	*	3. Western juniper/big sagebrush-bitterbrush/Idaho fescue-western needlegrass.	Peck's Milkvetch ACEC
	*	4. Western juniper/bitterbrush/bluebunch wheatgrass-Thurber's needlegrass.	Wildhaven Preserve TNC, Whychuss Canyon Preserve DLT
	*	5. Western juniper/low sagebrush/Idaho fescue and bluebunch wheatgrass communities.	Vee Pasture RNA
Ponderosa Pine			
	*	6. Ponderosa pine-western juniper/bitterbrush/Idaho fescue.	Silver Lake Exclosure RNA
	*	7. Ponderosa pine/bitterbrush/western needlegrass and long-stolon sedge communities.	Pringle Falls RNA Bluejay RNA
	*	8. Ponderosa pine/bitterbrush/Idaho fescue.	Metolius RNA and Preserve TNC
	*	9. Ponderosa pine/snowbrush-bitterbrush.	Goodlow Mountain RNA and Metolius River Preserve TNC
	*	10. Ponderosa pine/greenleaf manzanita-bitterbrush.	Metolius RNA and Preserve TNC Goodlow Mountain RNA
FS	H	11. Ponderosa pine/big sagebrush-bitterbrush.	
FS	H	12. Ponderosa pine/big sagebrush/bunchgrass.	
FS	H	13. Ponderosa pine/mounain big sagebrush/bunchgrass.	
Lodgepole Pine			
	*	14. Lodgepole pine/bitterbrush/western needlegrass.	Cannon Well RNA, Pringle Falls RNA
	*	15. Lodgepole pine/bitterbrush/long-stolon sedge	Cannon Well RNA, Bluejay RNA
	*	16. Lodgepole pine/bitterbrush/Idaho fescue.	Pringle Falls RNA
FS	M	17. Lodgepole pine/bitterbrush-squawcurrent.	
	*	18. Lodgepole pine/grouse huckleberry.	Cherry Basin RNA, Cache Mountain RNA
FS	M	19. Lodgepole pine/big sagebrush.	
FS	M	20. Lodgepole pine/pinemat manzanita.	
FS	M	21. Lodgepole pine/long-stolon sedge.	
FS	M	22. Lodgepole pine/western needlegrass.	
	*	23. Lodgepole pine/kinnikinnik.	Cultus River RNA Bluejay RNA
	*	24. Lodgepole pine/beargrass.	Cache Mountain RNA
	+	25. Whitebark pine-lodgepole pine forest.	Augur Creek RNA

EAST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Grand Fir			
	+ 26.	Englemann spruce bottomland with ponderosa and lodgepole pine.	Cultus River RNA
	* 27.	Grand fir-Englemann spruce/starry solomon seal.	Gumjuwac-Tolo RNA
	* 28.	Grand fir/skunkleaf polemonium.	Gumjuwac-Tolo RNA
FS	H 29.	Grand fir/vanilla leaf.	
FS, PRD	M 30.	Grand fir/elk sedge.	
FS	M 31.	Grand fir/twinflower	
FS, PRD	M 32.	Grand fir/snowberry, if possible with ridgetops containing oceanspray and other dry shrubs.	
Mixed Conifer			
	+ 33.	Ponderosa pine-white fir/snowberry.	Augur Creek RNA
	* 34.	Ponderosa pine-white fir/green manzanita/western needlegrass.	Goodlow Mountain RNA Pringle Falls RNA
	+ 35.	Ponderosa pine-white fir/snowbrush.	Augur Creek RNA
FS	H 36.	Ponderosa pine-white fir/snowbrush-greenleaf manzanita.	
FS	H 37.	Ponderosa pine-white fir/chinkquapin forest, with snowbrush and boxwood if possible.	
FS	H 38.	White fir/snowbrush-squawcarpet ceanothus.	
	* 39.	White fir-Douglas fir/snowbrush.	Cherry Basin RNA
	* 40.	White fir-Douglas fir/snowberry.	Cherry Basin RNA
FS	H 41.	Douglas fir-Pacific silver fir forest.	
	* 42.	White fir-Pacific silver fir/snowberry.	Cache Mountain RNA
	* 43.	White fir-red fir/long-stolon sedge or prince's pine forest with chinkapin if possible.	Cherry Basin RNA
	* 44.	Red fir-mountain hemlock/pinemat manzanita with mountain hemlock/grouseberry if possible.	Cherry Basin RNA
Grasslands and Shrubland Steppe			
	* 45.	Bluebunch wheatgrass-Sandberg bluegrass.	Mill Creek RNA
	* 46.	Idaho fescue-hawkweed.	Tom McCall Preserve at Rowena TNC
	* 47.	Mountain big sagebrush-bitterbrush/Idaho fescue.	Peck's Milkvetch ACEC
FS, BLM	L 48.	Mountain big sagebrush/bunchgrass.	
	* 49.	Low sagebrush vegetation complex, with Idaho fescue, bluegrass, and bluebunch wheatgrass.	Vee Pasture RNA
PVT	H 50.	Bitterbrush with bluebunch wheatgrass and Idaho fescue.	

EAST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
PVT, BLM	H	51. Big sagebrush, greasewood or meadow (Nevada bluegrass or basin wildrye) complex.	
		Special Types	
	*	52. Oregon white oak/bitterbrush/bluebunch wheatgrass.	Mill Creek RNA
FS, PRD	H	53. Ponderosa pine-Oregon white oak woodland.	<i>Mayer State Park</i>
BLM	M	54. Oak-Ponderosa pine woodland, with California black oak.	
FS	L	55. Dry site Douglas fir with oceanspray, western fescue, and snowberry.	
BLM FS	M	56. Oregon white oak canyon riparian with bittercherry, serviceberry or red-osier dogwood.	
	+	57. Entire undisturbed cinder cone at mid-elevations with ponderosa pine-lodgepole pine climax.	Wechee Butte RNA
	*	58. Entire undisturbed forested cinder cone, in white fir zone; pre-Mazama.	Moskt Butte RNA
	+	59. Entire forested cinder cone, in white fir zone; post-Mazama.	Katsuk Butte RNA
	*	60. Entire undisturbed cinder cone in mountain hemlock zone.	Moskt Butte RNA
		Lacustrine and Riverine	
	*	61. Mid-montane lake, with aquatic beds and marshy shore.	Cache Mountain RNA
	*	62. Upper montane lake, with aquatic beds and marshy shore.	Cherry Basin RNA
	+	63. Flowing and pooled cold springs.	Cultus River RNA
PVT, FS	U	64. Flowing and pooled hot springs.	
PVT, FS	U	65. Mare's egg springs.	
		Palustrine	
	*	66. Vernal pond at mid to high elevation	Sycan Marsh Preserve TNC
	*	67. Subalpine pond.	Cherry Basin RNA
	*	68. Bulrush-pondlily marsh with aquatic beds.	Sycan Marsh Preserve TNC
	*	69. Few flowered spikerush/brown moss fen.	Sycan Marsh Preserve TNC
	*	70. Forb flush on seepage slope (including shooting-star, bistort, arrowleaf groundsel and false hellebore).	Sycan Marsh Preserve TNC
FWS, FS	M	71. Beaked sedge marsh.	
	*	72. Slender wooly sedge marsh.	Big Marsh
	*	73. Creeping spikerush meadow.	Sycan Marsh Preserve TNC
	*	74. Cusick or Nevada bluegrass meadow.	Sycan Marsh Preserve TNC Bluejay RNA
	*	75. Tufted hairgrass meadow, with lodgepole pine and sedge at margin.	Sycan Marsh Preserve TNC

EAST CASCADES ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
FS	M	76. Undergreen willow-mountain willow shrub swamp.	
FS	M	77. Booth willow-Geyer willow shrub swamp.	
	*	78. Bog blueberry shrub-swamp, with lodgepole pine and tufted hairgrass.	Sycan Marsh Preserve TNC
	*	79. Silver sagebrush/Nebraska sedge-Cusick bluegrass playa.	Sycan Marsh Preserve TNC
BLM	H	80. Mountain alder-redosier dogwood riparian.	
FS	H	81. Black cottonwood/mountain alder riparian.	
FS	H	82. Mountain alder-Douglas spiraea riparian.	
FS	H	83. Mountain alder-snowberry riparian.	
PVT, FS	M	84. Geyer willow-Lemmon willow riparian.	
FS	H	85. Booth willow riparian with mountain willow or Lemmon willow.	
BLM	M	86. Pacific willow-coyote willow riparian.	
FS	M	87. Geyer willow and Lemmon willow riparian.	
FS	H	88. Black cottonwood riparian, with widefruit sedge if possible.	
FS	M	89. Engelmann spruce/widefruit sedge swamp.	
	*	90. Lodgepole pine-quaking aspen/Douglas spiraea woodland.	Bluejay RNA



Tule – Cattail Marsh at Lower Klamath Marsh Wildlife Refuge (USFWS photo).

EAST CASCADES GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
	M	1. Active Fault Plane	<i>Modoc Point</i>
	*	2. Ash-Dammed Marsh	Klamath Marsh NWR
FS	H	3. Metolius Springs	<i>Metolius Headwater Springs</i>
	*	4. Mazama Ash	Collier State Park
	*	5. Mima Mounds	Mayer State Park, Tom McCall Preserve at Rowena TNC
Pleistocene			
FS, PVT	M	6. Shevlin Park Tuff	<i>Bend</i>
	*	7. Tumalo Ash-Flow Tuff	Bull Flat ACEC
BLM, FS	M	8. Bend Air-Fall Pumice	<i>Bend</i>
FS	M	9. Desert Spring Tuff	
Pleistocene and Pliocene			
	*	10. Lava Butte Cinder Cone	Lave Butte SIA
	*	11. Newberry Shield Volcano	Newberry Crater NM
	*	12. Newberry Crater	Newberry Crater NM
	*	13. Newberry Lava Caves And Tubes	Newberry Crater NM
	H	14. Lava-Dammed Lake	<i>Sparks Lake</i>
	*	15. Hole-In-The-Ground Maar	Fort Rock State Park
Pliocene and Miocene			
FS	L	16. Yonna Formation	<i>Merrill</i>
	*	17. Deschutes Formation	Cove Palisades State Park
Miocene			
	*	18. Simtustus Formation	Cove Palisades State Park
FS	L	19. Palagonitic Tuff	<i>Devil's Garden</i>

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Agonum belleri</i>	Beller's ground beetle	2		
<i>Anodonta californiensis</i>	California floater (mussel)	2		
<i>Anodonta oregonensis</i>	Oregon floater (mussel)	2	Sycan Marsh Preserve, Sycan WSR	TNC
<i>Anodonta nuttalliana</i>	Winged floater (mussel)	2		
<i>Bombus occidentalis</i>	Western bumblebee	2	Klamath Marsh NWR, Metolius WSR	FS, FWS
<i>Bombus stuckley</i>	Studkley's cuckoo bumblebee	1	Whychus Creek WSR	FS
<i>Calliopsis barri</i>	A miner bee	2		
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	1		
<i>Chloealtis aspm</i>	Siskiyou short-horned grasshopper	2	Cascade-Siskiyou NM	BLM
<i>Cicindela columbica</i>	Columbia River tiger beetle	1-x		
<i>Colligyryus</i> sp. 4	Columbia duskysnail	1		
<i>Colligyryus</i> sp. 5	Klamath duskysnail	1	Williamson River	
<i>Colligyryus</i> sp. 7	Mare's egg duskysnail	1	Kimball State Park	ORPD
<i>Colligyryus</i> sp. 8	Nodose duskysnail	1	Ouxy Spring	
<i>Cryptomastix devia</i>	Puget oregonian (snail)	1		
<i>Cryptomastix hendersoni</i>	Columbia Gorge oregonian (snail)	1		
<i>Fluminicola modoci</i>	Modoc pebblesnail	1		
<i>Fluminicola multifarius</i>	Shasta pebblesnail	2	Cascade-Siskiyou NM, Upper Klamath River Addition ACEC	BLM
<i>Fluminicola</i> sp. 10	Metolius pebblesnail	1		
<i>Fluminicola</i> sp. 11	Nerite pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Fluminicola</i> sp. 12	Odessa pebblesnail	1		
<i>Fluminicola</i> sp. 13	Ouxy Spring pebblesnail	1	Ouxy Spring	
<i>Fluminicola</i> sp. 14	Tall pebblesnail	1	Harriman Spring	
<i>Fluminicola</i> sp. 15	Tiger lily pebblesnail	1		
<i>Fluminicola</i> sp. 16	Toothed pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Fluminicola</i> sp. 18	Wood River pebblesnail	1	Kimball State Park, Klamath State Fish Hatchery	PRD, OFW
<i>Fluminicola</i> sp. 19	Keene Creek pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Fluminicola</i> sp. 2	Casebeer pebblesnail	1		
<i>Fluminicola</i> sp. 20	Crooked Creek pebblesnail	1	Kimball State Park	PRD
<i>Fluminicola</i> sp. 3	Diminutive pebblesnail	1	Cascade-Siskiyou NM	BLM

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Fluminicola</i> sp. 4	Fall Creek pebblesnail	1	Cascade-Siskiyou NM	BLM
<i>Fluminicola</i> sp. 5	Klamath pebblesnail	1	Upper Klamath NWR	FWS
<i>Fluminicola</i> sp. 6	Klamath Rim pebblesnail	1	Upper Klamath NWR	FWS
<i>Fluminicola</i> sp. 7	Lake of the Woods pebblesnail	1		
<i>Fluminicola</i> sp. 8	Lost River pebblesnail	1		
<i>Fluminicola turbiniformis</i>	Turban pebblesnail	1		
<i>Gonidea angulata</i>	Western ridged mussel	2	Collier Memorial State Park	PRD
<i>Helisoma newberryi newberryi</i>	Great Basin ramshorn (snail)	1		
<i>Juga acutifilosa</i>	Scalloped juga (snail)	1	Cascade-Siskiyou NM	BLM
<i>Juga hemphilli dallesensis</i>	Dalles juga (snail)	1		
<i>Juga hemphilli</i> ssp. 1	Indian Ford juga (snail)	1		
<i>Juga</i> sp. 1	Basalt juga (snail)	1		
<i>Juga</i> sp. 2	Blue Mountains juga (snail)	1	Upper Klamath River WSR	BLM
<i>Juga</i> sp. 7	Three-band juga (snail)	1		
<i>Lanx alta</i>	Highcap lanx (snail)	1	Collier Memorial State Park	PRD
<i>Lanx klamathensis</i>	Scale lanx (snail)	1	Upper Klamath River WSR	BLM
<i>Margaritifera falcata</i>	Western pearlshell (mussel)	2	Sycan WSR, Klamath Marsh NWR, Sycan Marsh Preserve	
<i>Monadenia fidelis minor</i>	Oregon snail (Dalles sideband)	1	Badger Creek WA	FS
<i>Monadenia fidelis</i> ssp. 11	Modoc Rim sideband (snail)	1		
<i>Perdita accepta</i>	A miner bee	1		
<i>Perdita salicis sublaeta</i>	A miner bee	1		
<i>Philotiella leona</i>	Leona's little blue (butterfly)	1		
<i>Pisidium</i> sp. 1	Modoc peaclam	1	Upper Klamath NWR	FWS
<i>Pisidium ultramontanum</i>	Montane peaclam	1		
<i>Plebejus podarce klamathensis</i>	Gray blue (butterfly)	2		
<i>Pristiloma crateris</i>	Crater Lake tightcoil (snail)	1	Metolius WSR, Whychus Cr. WSR	FS
<i>Pristiloma wascoense</i>	Shiny tightcoil (snail)	2	White River WA, Badger Creek WA	FS, OFW
<i>Prophysaon</i> sp. 1	Klamath tail-dropper (slug)	1	Upper Klamath WSR	BLM
<i>Pyrgulopsis archimedis</i>	Archimedis springsnail	1	Klamath WMA, Upper Klamath NWR	FWS, OFW
<i>Pyrgulopsis</i> sp. 7	Lost River springsnail	1		
<i>Pyrgulopsis</i> sp. 9	Klamath Lake springsnail	1		

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Rhyacophila leechi</i>	A caddisfly	2	Cascade-Siskiyou NM, Spring Creek WSR	BLM, FS
<i>Vespericola sierranus</i>	Siskiyou hesperian (snail)	1	Cascade-Siskiyou NM	BLM
<i>Vorticifex effusa dalli</i>	Dall's ramshorn (snail)	1	Upper Klamath Lake	FWS
<i>Vorticifex effusa diagonalis</i>	Lined ramshorn (snail)	1	Collier State Park, Klamath State Fish Hatchery	PRD, OFW
<i>Vorticifex klamathensis klamathensis</i>	Klamath ramshorn (snail)	1	Upper Klamath NWR, Klamath WA	FWS
<i>Vorticifex klamathensis sinitsini</i>	Sinitsin ramshorn (snail)	1		
Fish				
<i>Catostomus microps</i>	Modoc sucker	1		FS
<i>Catostomus occidentalis lacusanserinus</i>	Goose Lake sucker	1		FS
<i>Catostomus rimiculus</i> pop. 1	Jenny Creek sucker	1	Cascade-Siskiyou NM	BLM
<i>Chasmistes brevirostris</i>	Shortnose sucker	1	Williamson River Delta Preserve, Miller Creek ACEC, Upper Klamath Lake NWR	TNC, BLM, FWS
<i>Cottus pitensis</i>	Pit sculpin	2		
<i>Deltistes luxatus</i>	Lost River sucker	1	Williamson River Delta Preserve, Upper Klamath NWR	TNC, FWS
<i>Entosphenus minimus</i>	Miller Lake lamprey	1	Klamath Marsh NWR, Sycan Marsh Preserve, Mount Thielsen WA	FS, TNC, FWS
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	Badger Creek WA, Fifteenmile Cr. WSR, Upper Klamath NWR	FWS, FS
<i>Entosphenus tridentatus</i> ssp. 1	Goose Lake lamprey	1		
<i>Siphateles bicolor oregonensis</i>	Oregon Lakes tui chub	1		FS
<i>Siphateles bicolor thalassina</i>	Goose Lake tui chub	1		
<i>Lavinia symmetricus mitrulus</i>	Pit roach	2		
<i>Oncorhynchus clarkii</i> pop. 2	Coastal cutthroat trout (Southwestern Washington /Columbia River ESU)	1	Hood River, Middle Fork WSR	FS
<i>Oncorhynchus kisutch</i> pop. 1	Coho salmon (Lower Columbia River ESU)	1	Hood River, Middle Fork WSR	FS
<i>Oncorhynchus mykiss</i> pop. 26	Steelhead (Lower Columbia River ESU, summer run)	1	Hood River, Middle Fork WSR	FS
<i>Oncorhynchus mykiss</i> pop. 27	Steelhead (Lower Columbia River ESU, winter run)	1	Hood River, Middle Fork WSR	FS
<i>Oncorhynchus mykiss</i> pop. 28	Steelhead (Middle Columbia River ESU, summer run)	1		

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Oncorhynchus mykiss</i> pop. 29	Steelhead (Middle Columbia River ESU, winter run)	1	Fifteen Mile Creek WSR	FS
<i>Oncorhynchus mykiss</i> pop. 4	Warner Valley redband trout	1		
<i>Oncorhynchus mykiss</i> pop. 6	Goose Lake redband trout	1		
<i>Oncorhynchus tshawytscha</i> pop. 18	Chinook salmon (Deschutes River ESU, summer/fall run)	1		
<i>Oncorhynchus tshawytscha</i> pop. 21	Chinook salmon (Lower Columbia River ESU, spring run)	1		
<i>Oncorhynchus tshawytscha</i> pop. 22	Chinook salmon (Lower Columbia River ESU, fall run)	1		
<i>Salvelinus confluentus</i> pop. 1	Bull trout (Klamath River population)	1	Sycan Marsh Preserve, Gearhart Mountain WA, Crater Lake NP	TNC, FS, NPS
<i>Salvelinus confluentus</i> pop. 18	Bull trout (Deschutes SMU)	1	Metolius River WSR	FS
<i>Salvelinus confluentus</i> pop. 21	Bull trout (Hood River SMU)	1	Hood River, Middle Fork WSR	FS
<i>Salvelinus confluentus</i> pop. 27	Bull trout (Klamath RU)	1	Crater Lake NP, Gearhart Mtn WA, Sycan Marsh Preserve	
<i>Salvelinus confluentus</i> pop. 28	Bull trout (Coastal RU)	1	Mt. Jefferson WA, Metolius River Preserve & WSR	FS, TNC
<i>Siphateles bicolor oregonensis</i>	Oregon Lakes tui chub	1	Chewaucan WSR	BLM
<i>Siphateles bicolor thalassina</i>	Goose Lake tui chub	1		BLM
Amphibians				
<i>Dicamptodon copei</i>	Cope's giant salamander	2	Badger Creek WA	FS
<i>Rana luteiventris</i>	Columbia spotted frog	2	Newberry Crater NM, Deschutes WSR	FS
<i>Rana pretiosa</i>	Oregon spotted frog	1	Upper Deschutes WSR, Klamath Marsh NWR, Crescent Creek WSR	FS, FWS
Reptiles				
<i>Actinemys marmorata</i>	Western pond turtle	2	Klamath River State Scenic Waterway, Klamath WMA, Miller Island WMA	BLM, OFW
Birds				
<i>Agelaius tricolor</i>	Tricolored blackbird	2	Miller Island WMA, Wood River ACEC	OFW, BLM
<i>Anser albifrons elgasi</i>	Tule goose	1		
<i>Bartramia longicauda</i>	Upland sandpiper	2	Sycan Marsh Preserve	TNC
<i>Bucephala albeola</i>	Bufflehead	2	Crane Prairie WMA	FS
<i>Centrocercus urophasianus</i>	Greater sage-grouse	2		

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Charadrius nivosus nivosus</i>	Western snowy plover	2	Lower Klamath NWR	FWS
<i>Coturnicops noveboracensis</i>	Yellow rail	2	Fourmile Wetlands Preserve, Sycan Marsh Preserve, Klamath Marsh NWR, Wood River ACEC, Upper Klamath NWR	FWS TNC BLM
<i>Cygnus buccinator</i>	Trumpeter swan	2		
<i>Dryobates albolarvatus</i>	White-headed woodpecker	2	Gearhart Mtn WA, Metolius RNA	FS
<i>Egretta thula</i>	Snowy egret	2	Upper Klamath NWR	FS
<i>Falco peregrinus anatum</i>	American peregrine falcon	2	Columbia Oaks State Natural Area	PRD
<i>Histrionicus histrionicus</i>	Harlequin duck	2		FS
<i>Melanerpes lewis</i>	Lewis's woodpecker	2	Klamath River State Scenic Waterway, Upper Klamath NWR, White River WMA	BLM, OFW, FWS
<i>Parkesia noveboracensis</i>	Northern waterthrush	2	Crescent Creek WSR, Upper Klamath WSR	FS, BLM
<i>Pelecanus erythrorhynchos</i>	American white pelican	2	Upper Klamath NWR, Klamath Marsh NWR	FS, FWS
<i>Picoides albolarvatus</i>	White-headed woodpecker	2	Gearhart Mountain WA, Metolius River WSR, Metolius RNA	FS
<i>Podiceps auritus</i>	Horned grebe	2	Sycan Marsh Preserve	TNC
<i>Podiceps grisegena</i>	Red-necked grebe	2	Klamath Marsh NWR, Upper Klamath NWR	FWS FS
<i>Progne subis</i>	Purple martin	2	Upper Klamath NWR, Rowena Plateau SNA	FWS, PRD
<i>Strix occidentalis caurina</i>	Northern spotted owl	1	Badger Creek WA, Mt. Jefferson WA, Sky Lakes WA, Pringle Falls RNA	FS, NPS
<i>Tympanuchus phasianellus columbianus</i>	Columbian sharp-tailed grouse	2		
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2	Memaloose SNA	PRD
<i>Brachylagus idahoensis</i>	Pygmy rabbit	2	Slide Mt SIA	FS
<i>Canis lupus</i>	Gray wolf	2	Crane Prairie WMA, Sycan Marsh Preserve, Sky Lakes WA, Cascade-Siskiyou NM	TNC, FS, BLM
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Columbia Gorge NSA, Lava River Caves SNA, Metolius River SSW	PRD, FS
<i>Gulo gulo</i>	Wolverine	2		
<i>Lynx canadensis</i>	Canada lynx	2		
<i>Myotis thysanodes</i>	Fringed myotis	2	Cascade-Siskiyou NM	BLM

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Pekania pennanti</i>	Fisher	2	Deschutes River SSW, Oregon Cascades Recreation Area, Three Sisters WA, Katsuk Butte RNA	FS
<i>Vulpes macrotis</i>	Kit fox	2		
<i>Vulpes vulpes necator</i>	Sierra Nevada red fox	1		
Vascular Plants				
<i>Agoseris elata</i>	Tall agoseris	2	Metolius River State Scenic Waterway, Mt Hood WA	FS
<i>Asplenium septentrionale</i>	Grass-fern	2		FS
<i>Astragalus applegatei</i>	Applegate's milk-vetch	1	Ewauna Flat Preserve, Klamath WMA	TNC, FWS
<i>Astragalus californicus</i>	California milk-vetch	2	Upper Klamath River WSA, Upper Klamath River ACEC	BLM
<i>Astragalus hoodianus</i>	Hood River milk-vetch	2	Columbia Gorge NSA, Mayer SNA, Tom McCall Preserve at Rowena	PRD, TNC
<i>Astragalus lemmonii</i>	Lemmon's milk-vetch	1		
<i>Astragalus misellus</i> var. <i>misellus</i>	Pauper milk-vetch	1		
<i>Astragalus peckii</i>	Peck's milk-vetch	1		
<i>Boechera atrorubens</i>	Sickle-pod rockcress	2	Mill Creek RNA	FS
<i>Botrychium montanum</i>	Mountain grape-fern	2	Badger Creek WA	
<i>Botrychium pumicola</i>	Pumice grape-fern	1	Three Sisters WA, Newberry NM	FS
<i>Calochortus greenei</i>	Greene's mariposa-lily	1	Soda Mt. WA	BLM
<i>Carex capitata</i>	Capitate sedge	2	Sycan Marsh Preserve	TNC
<i>Carex comosa</i>	Bristly sedge	2		
<i>Carex davyi</i>	Dry-spike sedge	2		
<i>Carex diandra</i>	Lesser panicled sedge	2	Jenny Creek WSR, Cascade- Siskiyou NM	FS, BLM
<i>Carex duriuscula</i>	Involute-leaved sedge	2-x	Sycan Marsh Preserve	TNC
<i>Carex lasiocarpa</i> var. <i>americana</i>	Slender wooly sedge	2	Big Marsh, Cascade-Siskiyou NM, Tunnel Creek ACEC	FS, BLM
<i>Carex vernacula</i>	Native sedge	2	<i>Drakes Peak</i>	
<i>Castilleja chlorotica</i>	Green-tinged paintbrush	1	Gearhart Mountain WA, Augur Creek RNA	FS
<i>Castilleja thompsonii</i>	Thompson's paintbrush	2	Badger Creek WA	FS
<i>Cicuta bulbifera</i>	Bulb-bearing water-hemlock	2-x	Upper Klamath NWR	FWS
<i>Cryptantha simulans</i>	Pine woods cryptantha	2	Crater Lake NP	NPS
<i>Cyperus acuminatus</i>	Short-pointed cyperus	2		
<i>Delphinium nuttallii</i>	Nuttall's larkspur	2		FS

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Diplacus tricolor</i>	Three-colored monkeyflower	2	Sycan Marsh Preserve	TNC
<i>Eleocharis bolanderi</i>	Bolander's spikerush	2		
<i>Erigeron oregonus</i>	Oregon daisy	1	Columbia Oaks SNA	PRD
<i>Eriogonum prociduum</i>	Prostrate buckwheat	1		BLM, FS
<i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>	Green buckwheat	1	Sycan River WSR, Gearhart Mt. WA	FS
<i>Erythranthe inflatula</i>	Disappearing monkeyflower	1	<i>Drews Reservoir</i>	
<i>Galium serpticum</i> ssp. <i>warnerense</i>	Warner Mountain bedstraw	1	<i>Drakes Peak</i>	FS
<i>Gentiana newberryi</i> var. <i>newberryi</i>	Newberry's gentian	2		FS
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	1		
<i>Helianthus bolanderi</i>	Bolander's sunflower	2	Cascade-Siskiyou NM, Jenny Creek WSR	BLM, FS
<i>Heliotropium curassavicum</i>	Salt heliotrope	2		
<i>Ivesia shockleyi</i>	Shockley's ivesia	2	<i>Drakes Peak</i>	FS
<i>Juncus tiehmii</i>	Tiehm's rush	2		
<i>Limnanthes floccosa</i> ssp. <i>bellingermana</i>	Bellinger's meadow-foam	1	Cascade-Siskiyou NM	BLM
<i>Lipocarpha aristulata</i>	Aristulate lipocarpha	2		
<i>Lobelia dortmanna</i>	Water lobelia	2	Metolius River SSW	
<i>Lomatium suksdorfii</i>	Suksdorf's lomatium	1		BLM
<i>Lomatium watsonii</i>	Watson's desert-parsley	2		BLM, FS
<i>Lycopodiella inundata</i>	Northern bog clubmoss	2		
<i>Meconella oregana</i>	White meconella	1	Memmaloose SMA, Tom McCall Preserve, Koberg Beach SNA, Meyer SNA,	TNC, PRD
<i>Melica stricta</i>	Nodding melic	2	Sycan WSR	FS
<i>Penstemon barrettiae</i>	Barrett's penstemon	1	Koberg Beach State Park	PRD
<i>Penstemon glaucinus</i>	Blue-leaved penstemon	1	Yainax Butte ACEC, Deadhorse Rim-Whitebark Pine RNA, Slide Mountain SIA	BLM, FS
<i>Penstemon peckii</i>	Peck's penstemon	1	Metolius River Preserve	TNC
<i>Perideridia erythrorhiza</i>	Red-root yampah	1		
<i>Phacelia inundata</i>	Playa phacelia	1		
<i>Pilularia americana</i>	American pillwort	2	Sycan WSR, Sycan Marsh Preserve	TNC
<i>Plagiobothrys salsus</i>	Desert allocarya	2		
<i>Pleuropogon oregonus</i>	Oregon semaphore grass	1		

EAST CASCADES SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Pogogyne floribunda</i>	Profuse-flowered pogogyne	2		
<i>Potamogeton diversifolius</i>	Rafinesque's pondweed	2		
<i>Potamogeton fibrillosus</i>	Fibrous pondweed	2-x		
<i>Ranunculus tritermatus</i>	Dalles Mt. buttercup	1	Mill Creek Ridge Preserve	BLM
<i>Rorippa columbiae</i>	Columbia cress	1	Williamson River Delta Preserve	TNC
<i>Rotala ramosior</i>	Toothcup	2		
<i>Scheuchzeria palustris</i>	Rannoch-rush	2		FS
<i>Schoenoplectus subterminalis</i>	Water clubrush	2	Big Marsh	FS
<i>Scirpus pendulus</i>	Drooping bulrush	2		
<i>Scolochloa festucacea</i>	Common rivergrass	2	Klamath Marsh NWR	FWS
<i>Sisyrinchium halophilum</i>	Nevada blue-eyed grass	2	Collier Memorial SNA	PRD
<i>Stuckenia filiformis ssp. alpine</i>	Northern slender-leaved pondweed	2	Newberry Crater NM	FS
<i>Suksdorfia violacea</i>	Violet suksdorfia	2	Columbia Gorge NSA, Mayer SNA, Memaloose SNA	FS, PRD
<i>Thelypodium brachycarpum</i>	Short-podded thelypody	2	Klamath WMA, Lower Klamath NWR, Miller Island WMA	FWS, OFW
<i>Thelypodium howellii ssp. howellii</i>	Howell's thelypody	1		
<i>Utricularia minor</i>	Lesser bladderwort	2	Cascade-Siskiyou NM, Tunnel Creek ACEC	BLM
<i>Wolffia borealis</i>	Dotted water-meal	2	Wood River Wetland ACEC	BLM
Nonvascular Plants				
<i>Cephaloziella spinigera</i>	Liverwort	2		
<i>Pseudocalliergon trifarium</i>	Moss	2	Sycan Marsh Preserve	TNC
<i>Schistidium cinclidodonteum</i>	Moss	2		
Fungi				
<i>Butyriboletus autumniregius</i>	Red-capped butter bolete	2	Cascade-Siskiyou NM	BLM
<i>Pseudorhizina californica</i>	Fungus	2		

CHAPTER 15. COLUMBIA BASIN ECOREGION

The Oregon portion of the Columbia Basin Ecoregion is sometimes referred to as the Umatilla Plateau. It extends from the eastern slopes of the Cascades Mountains south and east from the Columbia River to the Blue Mountains. The region continues northward throughout most of eastern Washington, including a small portion of west central Idaho. The region includes the Columbia Basin proper, and the Palouse, which is recognized by many geographers as a separate region.

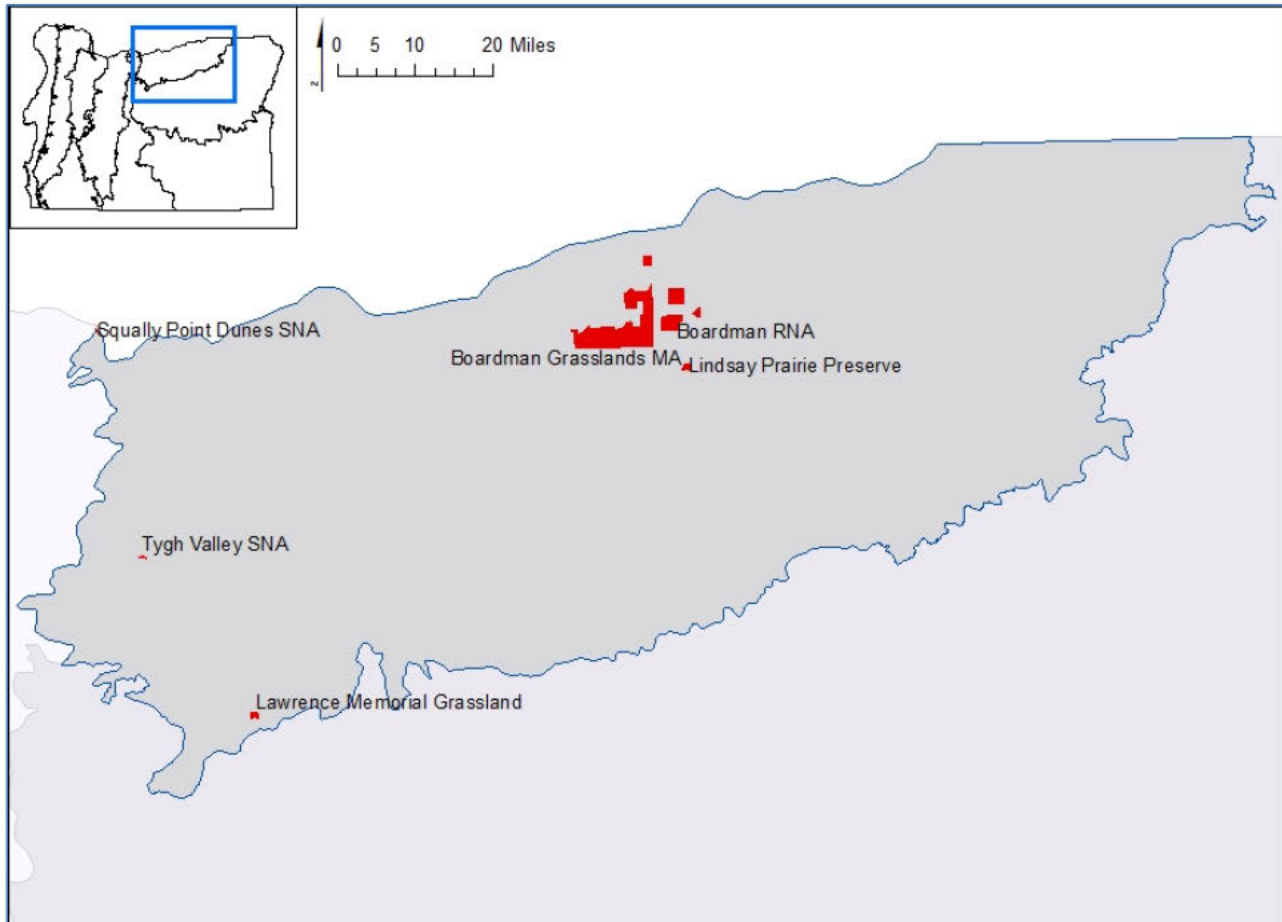


Figure 16. Columbia Basin Ecoregion Natural Areas Map.

The Columbia River, with its historic floods and large deposits of loess (wind-borne silt and sand) from the end of the last ice age, has greatly influenced the region. Most of the Oregon portion of the ecoregion is a lava plateau broken by basalt canyons carved out by the Deschutes, John Day and Umatilla Rivers and other streams that flow into the Columbia. The climate is arid, with cold winters and hot summers. Most of the ecoregion receives less than 15 inches of precipitation per year (some areas as little as eight inches), much of that in the form of snow.

The majority of the ecoregion's natural vegetation is native bunchgrass prairie, often called Palouse prairie because of the deep, loess soils and plentiful grass. The majority of the ecoregion in Washington was originally sagebrush steppe. Sandy deposits along the Columbia River support open dunes, bitterbrush and steppe and western juniper. A few species of ground-squirrel and plants (milkvetch species among others) adapted to these habitats. The rivers are characterized by riparian vegetation, with black cottonwood, willows, chokecherry and aspen dominating riverbanks. Less common are riparian areas dominated by black hawthorn and white alder.

Early travelers along the Oregon Trail found vast natural grasslands broken by brushy draws and tree- and rimrock-bordered streams with numerous springs. Because of the deep productive soils, mild climate (due to low elevations) and the presence of adequate water (either from wells or from the Columbia, Snake and Umatilla rivers), much of this region provided model farmland. The Columbia Basin Ecoregion is second only to the Willamette Valley in the percentage of landscape converted to non-native habitats and human uses. Protected areas and public lands are very limited in this region, with the only vegetation types that have not declined dramatically being found on lands that cannot be farmed: the steep canyon grasslands and scablands. As such, neither species nor ecosystems are well represented in the Columbia Basin natural areas.

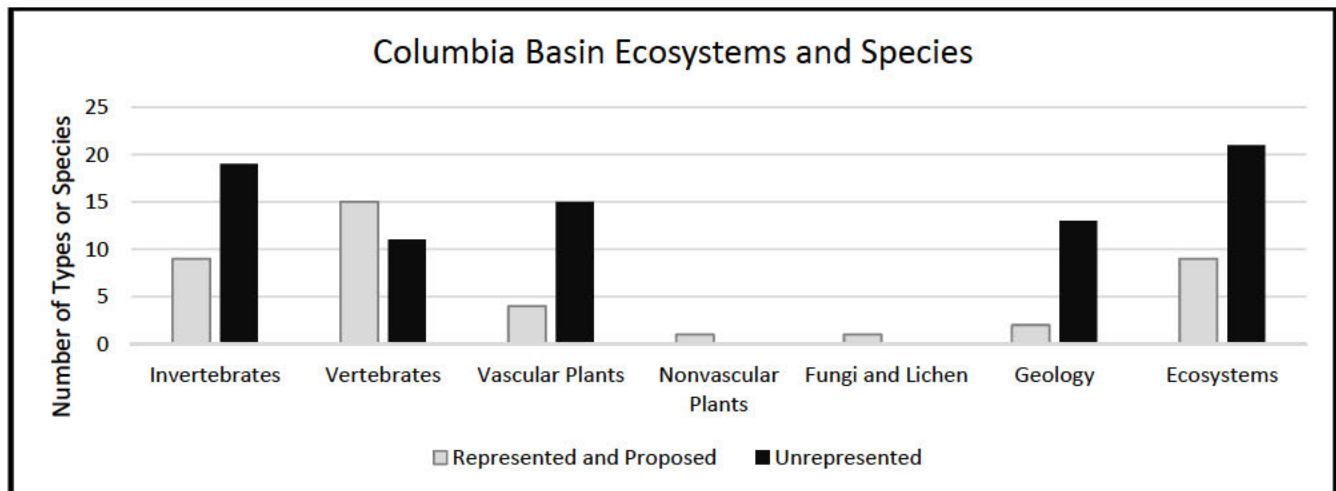


Figure 17. Columbia Basin Represented and Unrepresented Ecosystems and Species.



Sagebrush, bitterbrush, western juniper and grasslands in the Columbia Basin ecoregion..

COLUMBIA BASIN ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Ponderosa Pine and Western Juniper			
FS, BLM	H	1 Ponderosa pine/hawthorn grassland mosaic.	
	+	2 Western juniper/big sagebrush/bunchgrass.	Boardman pRNA addition Boardman Grasslands MA TNC
Shrub Steppe			
PRD, BLM	H	3 Big sagebrush/Idaho fescue.	<i>Cottonwood Canyon State Park</i>
PVT, BLM	H	4 Big sagebrush/needle-and-thread.	<i>Lindsay Prairie Preserve TNC</i>
	*	5 Big sagebrush/bluebunch wheatgrass-Sandberg bluegrass.	Boardman RNA
	*	6 Rigid sagebrush/Sandberg bluegrass.	Lawrence Memorial Grassland Preserve TNC
	+	7 Bitterbrush/needle-and-thread.	Boardman Grasslands MA TNC
PVT, FWS	H	8 Big sagebrush-bitterbrush/bunchgrass.	
	I	9 Black hawthorn, snowberry, rose shrubland mosaic.	CTUIR Umatilla Wildlife Lands
Grasslands			
	*	10 Sandy grasslands (Needle-and-thread-Sandberg bluegrass, downy wheatgrass-needle-and-thread).	Boardman RNA Boardman Grasslands MA TNC
	*	11 Bluebunch wheatgrass-Needle-and-thread-Sandberg bluegrass palouse.	Boardman RNA Lindsay Prairie Preserve TNC
BLM	H	12 Idaho fescue-bluebunch wheatgrass.	<i>Cottonwood Canyon State Park</i>
PVT	H	13 Idaho fescue-junegrass.	<i>Cottonwood Canyon State Park</i>
PVT, BLM	L	14 Sandberg bluegrass-serrate balsamroot scabland.	
PVT, BLM	L	15 Buckwheat-Sandberg bluegrass scabland.	<i>Cottonwood Canyon State Park</i>
PVT, BLM	H	16 Bunchgrass mounds/grassland scabland complex.	<i>White River Falls State Park</i>
	*	17 Bunchgrass mounds/rigid sagebrush scabland complex.	Lawrence Memorial Grassland Preserve TNC
PVT, BLM	M	18 Great Basin wildrye.	Possibly extirpated
Special Types			
FWS ACE	U	19 Unstabilized sand dune communities along the Columbia River.	<i>Umatilla NWR</i>
	*	20 Unstabilized, inland sand dune series, from active unvegetated dunes through partially stabilized dunes (with bitterbrush, big sagebrush, rabbitbrush, and Indian ricegrass).	Boardman RNA

COLUMBIA BASIN ECOSYSTEMS

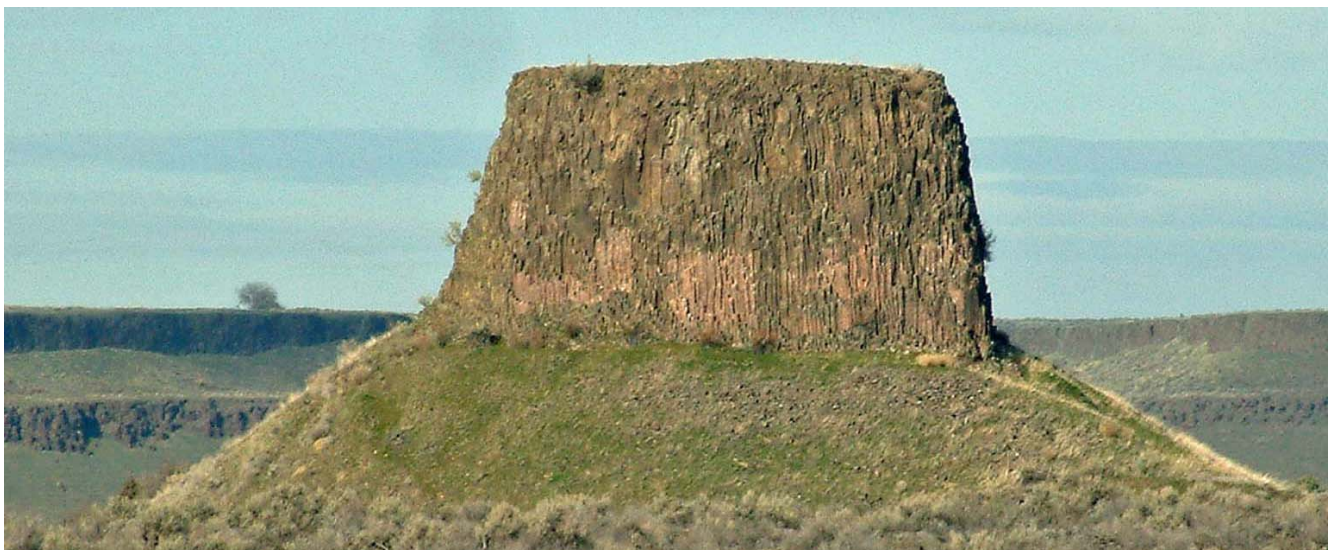
Agency	Priority	Ecosystem Name	Present Representation
Lacustrine			
PVT, BLM	U	21 Permanent Pond.	
Palustrine			
PVT, BLM	H	22 Bare playas with annual forbs and grasses including mousetail and annual foxtail.	
BLM	H	23 Greasewood flats with Great Basin wildrye.	
PVT, OFW	H	24 Riparian dominated by peachleaf willow, coyote willow, or Pacific willow.	<i>Umatilla River CTUIR Wildlife Area, Cottonwood Canyon State Park</i>
PVT, BLM	H	25 Riparian dominated by white alder.	
BLM	H	26 Riparian dominated by black hawthorn.	
BLM	H	27 Riparian dominated by western birch, with quaking aspen if possible.	
BLM, PVT	M	28 Black cottonwood/redosier dogwood or rose riparian.	
BLM, PVT	M	29 Black cottonwood/snowberry riparian.	
VT	M	30 Black cottonwood/black hawthorn riparian.	



White alder riparian, big sagebrush and bluebunch wheatgrass in the Columbia Basin.

COLUMBIA BASIN GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
ACE, BLM	H	1 Eolian Dunes	Boardman Grasslands MA TNC <i>Boardman Naval Training Center</i>
PVT	H	2 Mima Mounds	<i>Eight Mile Mounds</i>
Pleistocene			
	H	3 Flood Bar	<i>Umatilla Weapons Depot</i>
	*	4 Flood Scour	Hat Rock State Park
ACE, BLM	H	5 Bar and Crescentic Dunes	<i>Petersburg</i>
PVT	M	6 Scabland Topography	<i>Blalock</i>
	M	7 Rhythmites (Missoula floods)	<i>Arlington</i>
BLM, PVT	M	8 Mt. St. Helens Tephra	<i>Arlington</i>
Pliocene and Miocene			
PVT	L	9 Chenoweth Formation	<i>Chenoweth Creek</i>
BLM, FS	L	10 Tygh Valley Formation	<i>Tygh Valley</i>
PVT	M	11 Alkali Canyon Formation	<i>Alkali Canyon</i>
PVT	L	12 McKay Formation	<i>McKay Reservoir</i>
Miocene			
	*	13 Saddle Mountain Basalt	Hat Rock State Park
PVT	M	14 Wanapum Basalt Formation	<i>Umatilla River/Pendleton</i>
BLM, FS	L	15 Grande Ronde Basalt Formation	<i>Umatilla River/Pendleton</i>



Saddle Mountain Basalt at Hat Rock State Park.

COLUMBIA BASIN SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Anodonta californiensis</i>	California floater (mussel)	2	Deschutes Wild & Scenic River	BLM
<i>Calliopsis barri</i>	A miner bee	2		
<i>Colligyru</i> sp. 4	Columbia duskysnail	1		
<i>Cryptomastix hendersoni</i>	Columbia Gorge oregonian (snail)	1		
<i>Fisherola nuttalli</i>	Shortface lanx (=Giant Columbia River limpet)	1	Lower Deschutes River WSR, John Day River WSR	BLM
<i>Fluminicola fuscus</i>	Columbia pebblesnail / spire snail	1	Lower Deschutes River WSR	BLM
<i>Fluminicola</i> sp. 17	Tuscan pebblesnail	1		
<i>Gomphus lynnae</i>	Columbia clubtail (dragonfly)	2		
<i>Gonidea angulata</i>	Western ridged mussel	2		
<i>Juga bulbosa</i>	Bulb juga (snail)	1	Deschutes WSR	BLM
<i>Juga hemphilli dallesensis</i>	Dalles juga (snail)	1		
<i>Juga hemphilli maupinensis</i>	Purple-lipped juga (snail)	1	Deschutes WSR	BLM
<i>Juga newberryi</i>	A Freshwater Snail	1	Lower Deschutes WSR	OFW
<i>Juga</i> sp. 1	Basalt juga (snail)	1		
<i>Juga</i> sp. 4	Opal Springs juga (snail)	1	<i>Crooked River</i>	BLM
<i>Juga</i> sp. 6	Purple juga (snail)	1		
<i>Juga</i> sp. 7	Three-band juga (snail)	1		
<i>Monadenia fidelis minor</i>	Oregon snail (Dalles sideband)	1	Lower Deschutes WSR	BLM
<i>Monadenia fidelis</i> ssp. 1	Deschutes sideband (snail)	1		
<i>Ochlodes yuma</i>	Yuma skipper	2	Lower Deschutes WMA	OFW
<i>Oreohelix variabilis</i>	Dalles mountainsnail	1	<i>Columbia River</i>	BLM
<i>Oreohelix variabilis</i> ssp. 1	Deschutes mountainsnail	1		
<i>Osmia ashmeadii</i>	A mason bee	1		
<i>Perdita salicis sublaeta</i>	A miner bee	1		
<i>Pristiloma wascoense</i>	Shiny tightcoil (snail)	2		
<i>Pyrgulopsis robusta</i>	Jackson Lake springsnail	2		
<i>Vespericola depressa</i>	Columbia Gorge hesperian (snail)	1	Lower Deschutes WMA	OFW
<i>Vespericola</i> sp. 1	Oak Springs hesperian (snail)	1		
Fish				
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	Armstrong Canyon ACEC, Lower John Day River WA, John Day WSR	BLM

COLUMBIA BASIN SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Oncorhynchus mykiss</i> pop. 28	Steelhead (Middle Columbia River ESU, summer run)	1	Deschutes WSR, John Day WSR, Armstrong Canyon ACEC, Ferry Canyon ACEC, S Fork Walla Walla River ACEC	BLM
<i>Oncorhynchus mykiss</i> pop. 29	Steelhead (Middle Columbia River ESU, winter run)	1	Fifteen Mile Creek WSR	FS
<i>Oncorhynchus tshawytscha</i> pop. 18	Chinook salmon (Deschutes River ESU, summer/fall run)	1	Deschutes WA, Lower Deschutes River WSR	OFW, BLM
<i>Salvelinus confluentus</i> pop. 26	Bull trout (Mid-Columbia RU)	1	S. Fork Walla Walla River ACEC	BLM
<i>Salvelinus confluentus</i> pop. 18	Bull trout (Deschutes SMU)	1	Deschutes WSR	BLM
<i>Salvelinus confluentus</i> pop. 15	Bull trout (Umatilla SMU)	1		BLM
Amphibians				
<i>Anaxyrus woodhousii</i>	Woodhouse's toad	2		
<i>Lithobates pipiens</i>	Northern leopard frog	2		
<i>Rana luteiventris</i>	Columbia spotted frog	2		
Reptiles				
<i>Chrysemys picta</i>	Painted turtle	2	Wanaket Wildlife Area, Irrigon WMA, Umatilla NWR	CTUIR, OFW, FWS
Birds				
<i>Agelaius tricolor</i>	Tricolored blackbird	2	Umatilla NWR	FWS
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2	Boardman RNA, Horn Butte ACEC	BLM, DOD
<i>Bucephala albeola</i>	Bufflehead	2		
<i>Centrocercus urophasianus</i>	Greater sage-grouse	2		
<i>Falco peregrinus anatum</i>	American peregrine falcon	2		
<i>Melanerpes lewis</i>	Lewis's woodpecker	2	Tygh Valley State Wayside, White River WMA	
<i>Podiceps auritus</i>	Horned grebe	2		
<i>Tympanuchus phasianellus columbianus</i>	Columbian sharp-tailed grouse	2		
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2		
<i>Brachylagus idahoensis</i>	Pygmy rabbit	2		
<i>Canis lupus</i>	Gray wolf	2		
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2		

COLUMBIA BASIN SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Euderma maculatum</i>	Spotted bat	2		
<i>Lynx canadensis</i>	Canada lynx	2		
<i>Uroditellus washingtoni</i>	Washington ground squirrel	1	Boardman RNA, Horn Butte ACEC, Ferry Canyon ACEC, Lindsey Prairie Preserve, Boardman Grasslands MA	DOD, TNC, BLM
Vascular Plants				
<i>Achnatherum hendersonii</i>	Henderson ricegrass	1	Lawrence Memorial Grasslands Preserve TNC	TNC, BLM
<i>Artemisia campestris</i> var. <i>wormskioldii</i>	Northern wormwood	1-x	Squally Point Dunes SNA has a re-introduction of this species	PRD
<i>Astragalus collinus</i> var. <i>laurentii</i>	Laurence's milk-vetch	1		
<i>Astragalus geyeri</i> var. <i>geyeri</i>	Geyer's milk-vetch	2		
<i>Astragalus tyghensis</i>	Tygh Valley milk-vetch	1	White River WSR, White River Falls State Park	BLM, PRD
<i>Balsamorhiza rosea</i>	Rosy balsamroot	2		PVT
<i>Callitriche marginata</i>	Winged water-starwort	2		
<i>Carex retrorsa</i>	Retrorsed sedge	2		
<i>Eremothera pygmaea</i>	Dwarf evening-primrose	1		
<i>Heliotropium curassavicum</i>	Salt heliotrope	2	McNary NWR	FWS
<i>Leymus flavescens</i>	Sand wildrye	2	Irrigon Wildlife Area	OFW
<i>Lipocarpha aristulata</i>	Aristulate lipocarpha	2		
<i>Lomatium suksdorfii</i>	Suksdorf's lomatium	1	Columbia River Gorge	
<i>Lomatium watsonii</i>	Watson's desert-parsley	2		
<i>Erythranthe inflatula</i>	Disappearing monkeyflower	1		
<i>Myosurus sessilis</i>	Sessile mousetail	1	Shutler Canyon Playas	
<i>Penstemon deustus</i> var. <i>variabilis</i>	Hot-rock penstemon	1		
<i>Phemeranthus spinescens</i>	Spiny flame-flower	2		
<i>Rorippa columbiae</i>	Columbia cress	1		ACE
Nonvascular Plants				
<i>Aloina bifrons</i>	Moss	2	Boardman RNA and Grasslands Preserve TNC, Hat Rock State Park	TNC, PRD
Fungi				
<i>Texosporium sancti-jacobi</i>	Woven-spored lichen	2	Boardman RNA and Grasslands Preserve TNC, Lawrence Memorial Grassland Preserve TNC	DOD, TNC, PRD

CHAPTER 16. BLUE MOUNTAINS ECOREGION

The Blue Mountains Ecoregion occupies nearly all of northeastern Oregon and extends into small portions of southern Washington and western Idaho. It encompasses three major mountain ranges: the Ochoco, Blue and Wallowa mountains. It also includes the High Lava Plains, an ecoregion recognized in past versions of this plan, which occupies most of the non-forested lands at the western edge of the region.

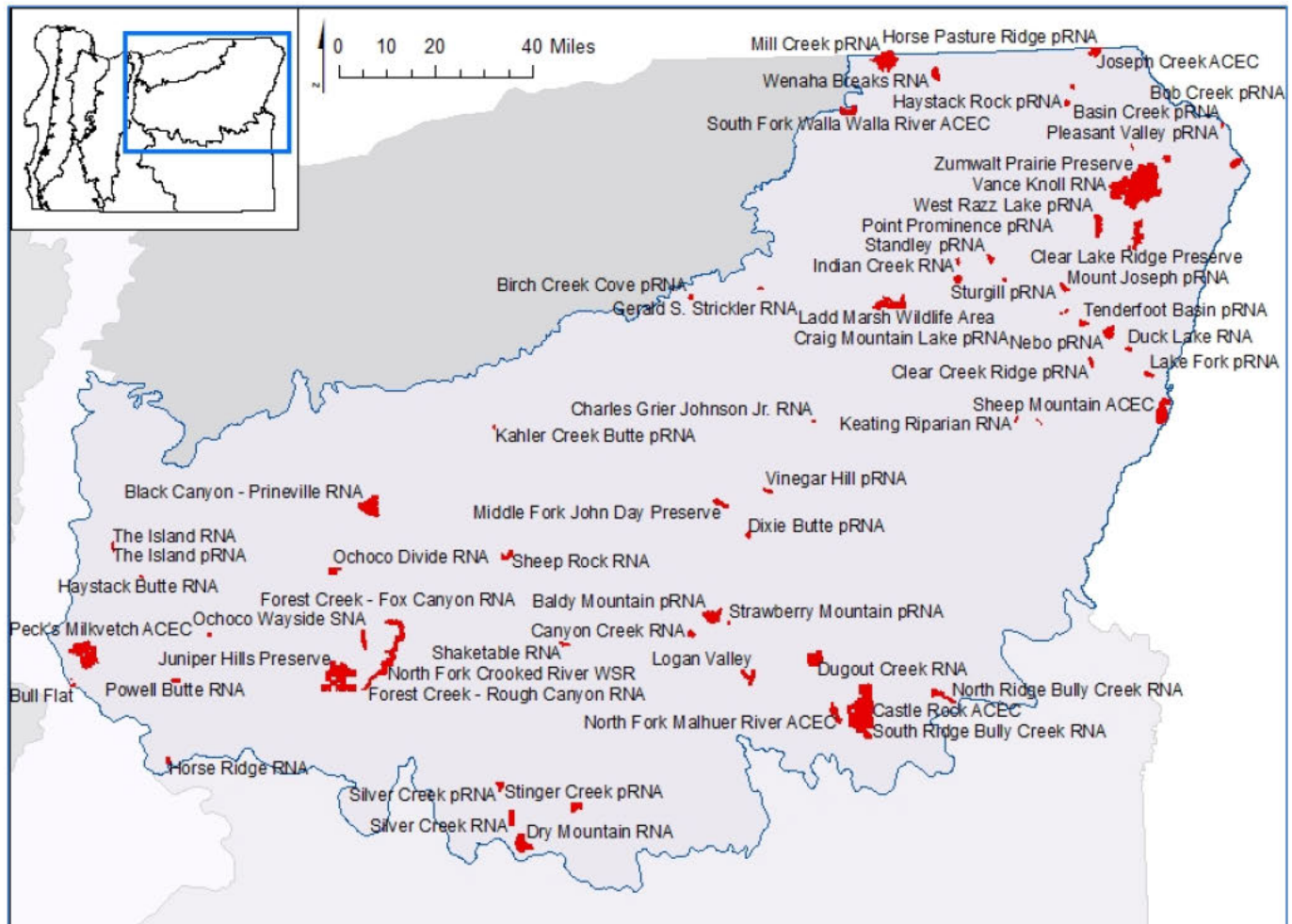


Figure 18. Blue Mountains Ecoregion Natural Areas Map.

Landscapes include deep, rocky-walled canyons, glacially cut gorges, dissected plateaus, broad alluvial river valleys and numerous mountain lakes, forests and meadows. Due to sharp elevational differences, the climate varies over broad temperature and precipitation ranges. Overall, the ecoregion is characterized by short, dry summers and long, cold winters.

The flora is intermediate between the east Cascades and the western Rocky Mountains of Idaho and Montana. Species composition changes with elevation and longitude. Western juniper dominates the western portion of the region, sagebrush and grassland steppes dominate the entire eastern length of the region, ponderosa pine woodlands are characteristic at mid-elevations and mixed coniferous forests dominate at higher altitudes. Extensive grasslands occur in and north of the Wallowa Mountains, while sagebrush steppe is prevalent in the southeastern and southwestern parts of the region.

Before European settlement, Ponderosa pine savannas, basin big sagebrush steppe, native grasslands and riparian woodlands were widespread in this region. Today, many bottomland habitats have been replaced by

irrigated alfalfa, juniper has expanded into many former shrub-steppe vegetation types, and ponderosa pine savannas have been cut or are being invaded by Douglas fir and grand fir.

The diversity in elevation, soils and climate yields diverse habitats and many endemic plant species. The Wallowa Mountains have more than 10 plants species found nowhere else. Bighorn sheep, elk and large mammal populations here are among the largest in the state. The variety in habitats, including low, mid- and high elevation grasslands, shrublands and forests results in this ecoregion having more habitat diversity than all but the Klamath Mountains Ecoregion. As a result, there are a correspondingly high number of ecosystem types.

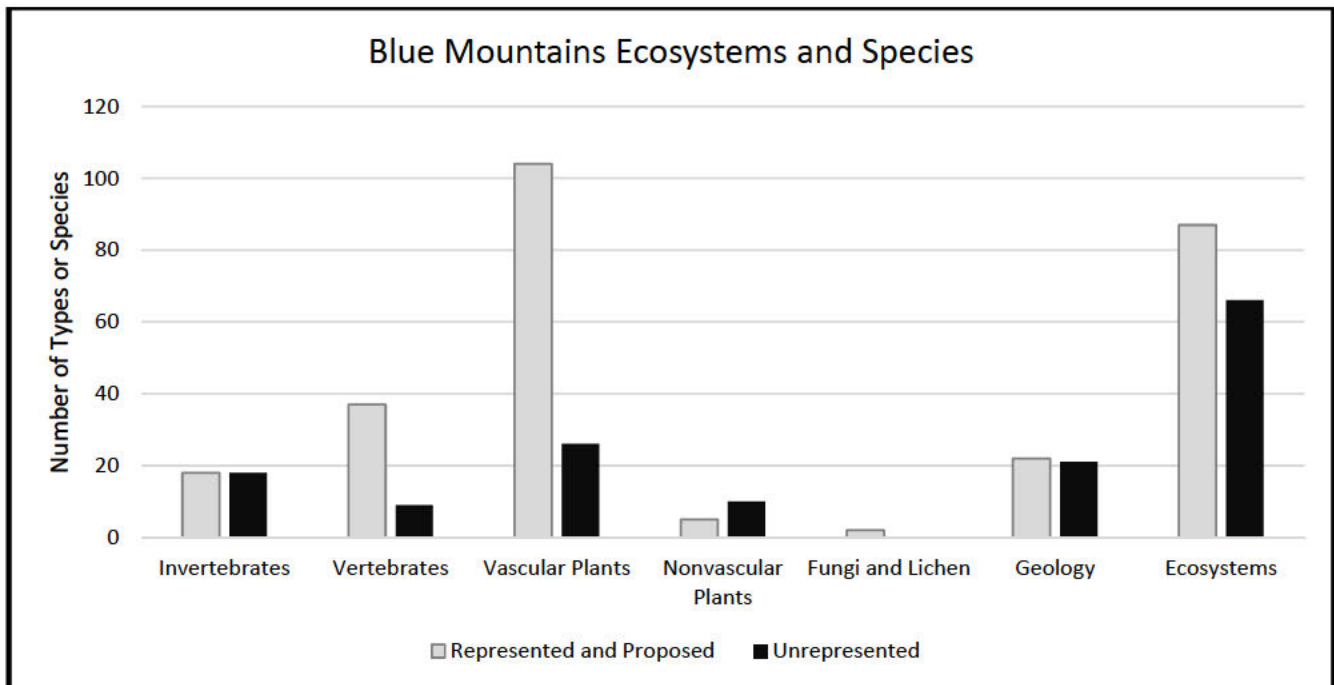


Figure 19. Blue Mountains Ecoregion Represented and Unrepresented Ecosystems and Species.

Because it is the most ecologically diverse ecoregion in the state, 153 ecosystem types are included in the Blue Mountains, by far the most of any ecoregion. Of these, 87 types (57%) are adequately represented on natural areas. Of the 66 types not adequately represented, only 19 are terrestrial forest and woodland types, including western juniper, Ponderosa pine, Douglas-fir, grand fir, western larch and subalpine forest types. There is only one forest type that is completely unrepresented in any ecoregion in Oregon that remains widely distributed in the ecoregion, and still has with significant opportunities (over 15,000 acres) of mature forest remaining: the Western Larch forests. There has to be a number of these, and they should definitely be a priority for establishing new RNAs, before the National Forest plans are finalized.

The majority of unrepresented ecosystem types are the diverse and extensive wetland, riparian and meadow ecosystems found across this ecoregion. These range from valley bottom alkaline wetlands to high elevation wet meadows, with diverse stream vegetation throughout. A total of 40 of the 66 unrepresented types (60%) fall into these categories. At-risk species, especially the vascular plants (73%) and vertebrates (69%), are exceptionally well represented in natural areas in this region.

BLUE MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation	
Western Juniper				
	+	1	Western juniper/low sagebrush/bunchgrass.	Shaketable RNA
FS, BLM	L	2	Western juniper/stiff sagebrush.	<i>Magpie Table</i>
FS, BLM	M	3	Western juniper/mountain shrub (bitterbrush, mountain snowberry, serviceberry or squawapple).	<i>Magpie Table</i>
	*	4	Western juniper/mountain mahogany.	Baldy Mountain pRNA Canyon Creek RNA
	*	5	Western juniper/big sagebrush/threadleaf sedge.	Horse Ridge RNA
	*	6	Western juniper/big sagebrush/bluebunch wheatgrass.	Sheep Rock RNA Powell Butte RNA The Island RNA
	*	7	Western juniper/big sagebrush/Idaho fescue.	Haystack Butte RNA Powell Butte RNA
	*	8	Western juniper/big sagebrush-bitterbrush/bluebunch wheatgrass & Idaho fescue vegetation.	The Island RNA Dry Mountain RNA
	*	9	Western juniper/big sagebrush-bitterbrush/needle-and-thread.	Badlands ACEC
	*	10	Western juniper/bluebunch wheatgrass.	Sheep Rock RNA Powell Butte RNA
	*	11	Western juniper/Thurber needlegrass on ash.	Sheep Rock RNA <i>Crooked River Ash Beds</i>
FS, BLM	H	12	Western juniper/Idaho fescue.	
Ponderosa Pine				
FS, BLM	M	13	Ponderosa pine-western juniper/big sagebrush-bitterbrush vegetation mosaic.	
FS, PVT	H	14	Ponderosa pine/bluebunch wheatgrass.	
FS	H	15	Ponderosa pine/Idaho fescue.	
	+	16	Ponderosa pine/pinegrass with elk sedge if possible.	Dugout Creek RNA
	+	17	Ponderosa pine/bitterbrush/Ross sedge with elk sedge if possible.	Silver Creek RNA
FS	M	18	Ponderosa pine/mountain snowberry.	<i>Soldier Creek</i>
	*	19	Ponderosa pine/mountain mahogany communities with elk sedge & bunchgrasses if possible.	Dry Mountain RNA Stinger Creek pRNA
FS	H	20	Ponderosa pine/common snowberry floodplain.	
Douglas Fir				
	*	21	Douglas fir/pinegrass.	Canyon Creek RNA, Ochoco Divide RNA, Stinger Creek pRNA
	+	22	Douglas fir/elk sedge.	Government Draw pRNA, Baldy Mountain pRNA

BLUE MOUNTAINS ECOSYSTEMS

Agency	Priority		Ecosystem Name	Present Representation
FS	M	23	Douglas fir/common snowberry, including riparian type.	<i>Mill Creek</i>
	*	24	Douglas fir/mountain snowberry.	Eagle Cap WA
	+	25	Douglas fir/mallow ninebark.	Pleasant Valley pRNA
FS	M	26	Douglas fir/Rocky Mountain maple-mallow ninebark bottomland.	
FS	M	27	Douglas fir/oceanspray.	
			Grand Fir	
		28	Grand fir/beadlily.	
FS	H	29	Grand fir/swordfern-wild ginger with grand fir/oakfern.	<i>Mill Creek</i>
FS	M	30	Grand fir/ladyfern.	
	+	31	Grand fir/twinflower forest.	Wenaha Breaks RNA, Birch Creek Cove pRNA
	+	32	Grand fir/pinegrass forest.	Dugout Creek RNA Canyon Creek RNA
	*	33	Grand fir/Columbia brome forest.	Ochoco Divide RNA
	+	34	Grand fir/big huckleberry forest.	Duck Lake RNA, Wenaha Breaks RNA
FS	L	35	Grand fir/grouse huckleberry	
		36	Grand fir/birchleaf spiraea.	Canyon Creek RNA
	+	37	Grand fir/Pacific yew communities.	Wenaha Breaks RNA
		38	Grand fir/common snowberry with grand fir/douglas maple.	Wenaha-Tucannon WA
		39	Grand fir/ninebark with grand fir/douglas maple if possible.	Wenaha-Tucannon WA
FS	H	40	Western larch – mixed conifer forest.	
			Subalpine Fir	
	+	41	Subalpine fir/big huckleberry forest.	Point Prominence pRNA
	*	42	Subalpine fir/grouse huckleberry.	Indian Creek RNA
FS	L	43	Subalpine fir/elk sedge.	
		44	Subalpine fir-Engelmann spruce/beadlily.	Eagle Cap WA
FS	L	45	Subalpine fir-Engelmann spruce/Labrador tea/mixed sedge.	<i>North Minam Meadows</i>
		46	Subalpine fir and Engelmann spruce with arrowleaf groundsel or skunk leaved polemonium.	Nebo pRNA
FS	M	47	Subalpine fir/ladyfern or Engelmann spruce/ladyfern.	
FS	M	48	Subalpine fir/bog blueberry/Holms sedge wetland.	<i>Elkhorn Mountains</i>
		49	Subalpine fir/Labrador tea/Holms sedge.	Eagle Cap WA
	*	50	Mountain hemlock/grouse huckleberry forest.	Indian Creek RNA

BLUE MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	+	51 Subalpine fir-whitebark pine.	Strawberry Mountain pRNA, Sturgill RNA, Nebo pRNA
FS	M	52 Limber pine forest or woodland.	<i>Slickrock Creek in Eagle Cap WA</i>
Grassland Communitites			
	+	53 Buckwheat-Sandberg bluegrass complex.	Pleasant Valley pRNA
	+	54 Buckwheat-bluebunch wheatgrass complex.	Lake Fork pRNA
	*	55 Bluebunch wheatgrass-Idaho fescue-silky lupine.	Zumwalt Prairie Preserve TNC, Horsepasture Ridge pRNA
	+	56 Bluebunch wheatgrass-Idaho fescue-arrowleaf balsamroot.	Basin Creek pRNA, Horsepasture Ridge pRNA
	*	57 Bluebunch wheatgrass-Sandberg bluegrass, Balsamroot canyon grassland.	Sheep Rock RNA, Alum Beds pRNA, Haystack Rock pRNA
	+	58 Biscuit scabland grasslands.	Vance Knoll RNA
	*	59 Sandberg bluegrass-onespike oatgrass.	Vance Knoll RNA, Clear Lake Ridge Preserve TNC
	+	60 Snake River grassland canyon mosaic including: sand dropseed, red threawn, Sandberg bluegrass, prickly pear cactus and bluebunch wheatgrass if possible.	Pleasant Valley pRNA, Bob Creek pRNA, Bills Creek pRNA
	*	61 Idaho fescue-junegrass high elevation and ridgetop communities.	Clear Lake Ridge Preserve TNC
	+	62 Low elevation, Idaho fescue-junegrass.	Basin Creek pRNA, Bob Creek pRNA
Shrubland Communities			
	*	63 Big sagebrush/Idaho fescue.	Silver Creek RNA, Sheep Rock RNA
	*	64 Big sagebrush/bluebunch wheatgrass.	Dry Mountain RNA, Sheep Rock RNA
DSL, BLM	H	65 Big sagebrush/needle-and-thread community.	
	*	66 Big sagebrush/Thurber needlegrass community.	Black Canyon-Prineville RNA
	+	67 Low sagebrush/Idaho fescue.	Shaketable RNA
	*	68 Low sagebrush/bluebunch wheatgrass.	Sutton Mountain WA
	+	69 Rigid sagebrush/Sandberg bluegrass scabland.	Kahler Creek Butte pRNA Government Draw pRNA Shaketable RNA
	+	70 Netleaf hackberry/bunchgrass canyon shrubland with mockorange-poison ivy terraces or toeslopes.	Pleasant Valley pRNA, Bob Creek pRNA, Alum Beds pRNA
	+	71 Mountain big sagebrush /Idaho fescue.	Vinegar Hill pRNA
	+	72. Mountain big sagebrush / elk sedge.	Dixie Butte pRNA
FS	M	73 Mountain big sagebrush/Cusick's bluegrass.	

BLUE MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	+	74 Smooth sumac/bluebunch wheatgrass.	Bobs Creek pRNA, Alum Beds pRNA
	+	75 Bitterbrush/bunchgrass.	Shaketable RNA
	+	76 Mountain mahogany/bunchgrass.	Pleasant Valley pRNA, Dry Mtn RNA, Baldy Mtn pRNA
PVT, BLM	H	77 Valley margin or bottomland shrubland/grassland with big sagebrush, threetip sagebrush, and bunchgrasses.	
PVT, BLM	L	78 Bitterbrush biscuit scabland.	<i>Warm Springs</i>
Subalpine and Alpine Meadows and Grassland			
	+	79 High elevation Idaho fescue grasslands.	Baldy Mountain pRNA
	+	80 Green fescue-spurred lupine with Parry rush and Hood sedge if possible.	Standley pRNA, Nebo pRNA, Tenderfoot Basin pRNA, Sturgill pRNA, Clear Creek Ridge pRNA
	+	81 Red mountain-heather communities.	Razz Lake pRNA
	+	82 Alpine vegetation mosaic, including fellfields, heaths, and tundra.	Mount Joseph pRNA Eagle Cap WA
	+	83 Alpine sedge communities.	Dixie Butte pRNA
Special Types			
FS, BLM	L	84 Rocky Mountain juniper shrubland.	<i>Slickrock Creek</i>
	*	85 Lodgepole pine/grouse huckleberry/pinegrass.	Indian Creek RNA
	+	86 Lodgepole pine/big huckleberry.	Wenaha Breaks RNA
FS	M	87 Lodgepole pine montane valley wetland with aquatic sedge, bluejoint reedgrass and tufted hairgrass if possible.	
FS	M	88 Lodgepole pine-quaking aspen/Douglas spiraea/forb.	
	+	89 Serpentine vegetation types.	Baldy Mountain pRNA
FS	M	90 Maidenhair fern cobble/boulder bank.	
	*	91 Annual forb communities on exposed ash beds.	Painted Hills NM
Lacustrine			
BLM	U	92 Low-elevation alkaline lake or pond.	
FS, BLM	U	93 Freshwater lake with aquatic beds and marshy shore.	
	+	94 Mid elevation pond, with aquatic beds and marshy shore.	Wenaha Breaks RNA
PVT, BLM	U	95 Vernal pond on loess or alluvium.	
PVT, BLM	U	96 Pond with aquatic beds and marshy shore.	
PVT, OFW	M	97 Low elevation vernal pond with saltgrass and cordgrass.	<i>Ladd Marsh</i>
	+	98 Subalpine pond, with aquatic beds and marshy shore including pondweeds and water lily if possible.	Craig Mountain Lake pRNA

BLUE MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	* 99	Mid to high elevation vernal pond.	Indian Creek RNA
	+ 100	Mid to high elevation lake, with aquatic beds and marshy shore.	Razz Lake pRNA
	+ 101	Alpine pond with quillworts if possible.	Razz Lake pRNA
		Palustrine	
	+ 102	Alpine laurel/black sedge and black sedge communities at high elevation.	Craig Mountain Lake pRNA
	* 103	Vernal seepage slopes on tabular basalt, with Cusick camas and California oatgrass.	Hells Canyon WA
FS	M 104	Shrubby cinquefoil/tufted hairgrass.	
	* 105	Seeps on avalanche slopes, with bluebells and nettle.	Eagle Cap WA
	* 106	Sitka alder with ladyfern, and mesic forbs if possible.	Eagle Cap WA
PVT, OFW	U 107	Hot springs.	
	+ 108	Bulrush-cattail marsh, with aquatic beds.	Ladd Marsh WMA
	+ 109	Forb flush on seepage slope (including marsh marigold, cowparsnip, shooting-star, bistort, tall larkspur, arrowleaf groundsel and false hellebore).	Eagle Cap WA
	* 110	Subalpine sphagnum mire, with floating mat and buckbean.	Duck Lake RNA
	+ 111	Subalpine sedge fen, with black and Holm sedge.	Eagle Cap WA
	+ 112	Small-fruit bullrush wetland with mannagrass if possible.	Birch Creek Cove pRNA
PVT, FS	M 113	Nebraska sedge meadow.	
PVT, FS	H 114	Cusick bluegrass meadow.	
FS	M 115	Devil's club/mixed forb seeps.	<i>Sheep Creek</i>
	* 116	Tufted hairgrass meadow.	Charles Grier Johnson Jr. RNA Elk Flats pRNA
PVT, FS	M 117	Geyer willow shrub swamp.	
FS	M 118	Undergreen willow-mountain willow swamp on organic soils.	
FS	M 119	Booth willow-Geyer willow shrub swamp on organic soils.	
	* 120	Prairie sage levee.	Eagle Cap WA
PVT, BLM OFW	H 121	Alkali playa and wetlands, including creeping wildrye, spikerush, Baltic rush, Nevada bulrush, alkali bluegrass and Lemmon alkaligrass.	
PVT, BLM	M 122	Sedge and rush fen, with grass meadows.	
PVT, BLM	L 123	Bulrush-cattail marsh with aquatic beds.	
BLM	H 124	Great Basin wildrye bottomland.	
BLM	M 125	Silver sagebrush/bunchgrass playa.	
PVT, BLM	M 126	Greasewood/saltgrass with basin wildrye if possible.	

BLUE MOUNTAINS ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation	
Riparian				
PVT, BLM	H	127	Low elevation riparian dominated by coyote willow, Pacific willow, or arroyo willow.	
FS, BLM	H	128	Red-osier dogwood-mockorange riparian. Hackberry/bluebunch wheatgrass riparian bench	Bob Creek pRNA Bob Creek pRNA
	+	129	Quaking aspen/bluejoint reedgrass forest.	Charles Grier Johnson Jr. RNA
FS	M	130	Quaking aspen/aquatic sedge wetland woodland.	
FS	M	131	Quaking aspen/wooly sedge woodland with wooly sedge meadows if possible.	
	+	132	Quaking aspen/common snowberry forest.	Elk Flats pRNA
	*	133	Mid elevation riparian forest, dominated by birch, mountain alder and mixed conifers.	South Fork Walla-Walla River ACEC, North Fork Crooked River ACEC
	+	134	Western birch-mixed shrub riparian.	Pleasant Valley pRNA, Alum Beds pRNA
	*	135	Mountain alder-redosier dogwood riparian.	Forest Creeks RNA
FS	M	136	Mountain alder/common horsetail riparian with ladyfern or tall mannagrass if possible.	
PVT, FS	M	137	Quaking aspen/mountain alder-snowberry.	
PVT, FS	M	138	Mountain alder-snowberry riparian.	
	*	139	Mountain alder-black hawthorn riparian.	Keating Riparian RNA
PVT, FS	M	140	Tall willow (Booth, Geyer, Lemmon, Bebb, or Missouri willow)/bladder sedge.	
PVT, FS	M	141	Tall willow willow/aquatic sedge.	
PVT, FS	M	142	Tall willow/wooly sedge.	
FS, BLM	M	143	Missouri willow-coyote willow riparian.	
FS, BLM	M	144	White alder/redosier dogwood, snowberry or rose.	
FS, BLM	H	145	White alder/mockorange.	
FS	H	146	White alder-black cottonwood riparian.	
FS	M	147	Black cottonwood/mountain alder-red-osier dogwood.	
FS, BLM	M	148	Black cottonwood/common snowberry.	
PVT, FS	M	149	Black cottonwood/red-osier dogwood.	
PVT, FS	M	150	Black cottonwood/Pacific willow, with coyote willow if possible.	
	*	151	Black cottonwood/black hawthorn.	Joseph Canyon RNA
	+	152	Black cottonwood – quaking aspen.	Birch Creek Cove pRNA
FS	M	153	Quaking aspen-lodgepole pine/Douglas spiraea forb.	

BLUE MOUNTAINS GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
BLM	M	1 Landslides	<i>Hole-in-the-Wall Slide</i> <i>Powder and Snake River confluence</i>
BLM, PVT	M	2 Alder Springs	<i>Deschutes Canyon</i> <i>Deschutes Formation Intersection</i>
	*	3 Deschutes Canyon	Cove Palisades State Park
	*	4 Hells Canyon Gorge	Hells Canyon NRA – WA
Pleistocene			
PVT	H	5 Glacial moraines	<i>Wallowa Lake</i>
	*	6 Glacial features – Horns, Cirques, Arêtes...	Matterhorn Mountain
	M	7 Entrenched meander	<i>Grande Ronde River/Perry</i>
Miocene			
	*	8 Mascall Formation	Picture Gorge RNA
	*	9 Picture Gorge Basalt	Picture Gorge RNA
	*	10 Grande Ronde Basalt	Hells Canyon WA
	*	11 Imnaha Basalt	Imnaha Canyon - Hells Canyon WA
Oligocene			
	*	12 John Day Formation	Sheep Rocks Unit - John Day Fossil Beds NM
Eocene			
	*	13 Clarno Formation	Clarno Unit-John Day Fossil Beds NM
Cretaceous			
	*	14 Gable Creek Formation	Painted Hills Unit - John Day Fossil Beds NM
	L	15 Hudspeth Shale	<i>Mitchell</i>
	L	16 Bernard Formation	<i>Suplee</i>
Jurassic			
	*	17 Coon Hollow Formation	Pittsburg Landing – Hells Canyon NRA
BLM, PVT	L	18 Lonesome Formation	<i>Suplee</i>
BLM, PVT	L	19 Trowbridge Formation	<i>Suplee</i>
BLM, PVT	L	20 Snowshoe Formation	<i>Suplee</i>
BLM, PVT	L	21 Hyde Formation	<i>Suplee</i>
BLM, PVT	L	22 Nicely shale	<i>Suplee</i>

BLUE MOUNTAINS GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
BLM, PVT	L	23 Suplee Formation	<i>Suplee</i>
BLM, PVT	L	24 Robertson Formation	<i>Suplee</i>
BLM, PVT	L	25 Weatherby Formation	<i>Huntington</i>
FS, PVT	L	26 Keller Creek Shale	<i>Seneca</i>
Jurassic and Triassic			
	L	27 Murder's Creek Graywacke	<i>Ingle Rock</i>
	*	28 Hurwal Formation	Hurwal Divide - Eagle Cap WA
Triassic			
	*	29 Martin Bridge Limestone	Big Bar – Hells Canyon NRA, Matterhorn
	*	30 Doyle Creek Formation	Hells Canyon WA, Cook Creek SR
	*	31 Wild Sheep Creek Formation	Cottonwood Cr. - Hells Canyon WA
	*	32 Laycock Graywacke	Aldrich Mountain SIA
	*	33 Fields Creek Formation	Aldrich Mountain SIA
	*	34 Vester Formation	Aldrich Mountain SIA
BLM	M	35 Huntington Formation	<i>Huntington</i>
Triassic and Permian and Pennsylvanian			
BLM, FS	L	36 Burnt River schist	<i>Bridgeport</i>
	*	37 Canyon Mountain Ophiolite	Strawberry Mountains WA
FS	L	38 Elkhorn Ridge Argillite	<i>Sumpter</i>
Permian			
	*	39 Coyote Butte Limestone	Strawberry Mountains WA
	*	40 Hunsaker Creek Formation	Oxbow (Snake River – Hells Canyon NRA)
	*	41 Windy Ridge Formation	Oxbow (Snake River – Hells Canyon NRA)
Pennsylvanian			
BLM, FS	M	42 Spotted Ridge Formation	<i>Suplee</i>
Mississippian			
BLM, FS	M	43 Coffee Creek Formation	<i>Suplee</i>
Devonian			
BLM, FS	M	44 Fossiliferous Limestone	<i>Suplee</i>

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Anodonta californiensis</i>	California floater (mussel)	2	Smith Rock State Park	PRD
<i>Ashmeadiella sculleni</i>	A leaf-cutter bee	2		
<i>Boloria bellona</i>	Meadow fritillary (butterfly)	2		
<i>Boloria selene</i>	Silver-bordered fritillary (butterfly)	2		
<i>Bombus occidentalis</i>	Western bumblebee	2	Ladd Marsh WMA, Indian Creek RNA, Glass Hill Preserve, Zumwalt Prairie Preserve	OFW TNC, BMT
<i>Calliopsis barri</i>	A miner bee	2		
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	1		
<i>Colias christina pseudochristina</i>	Intermountain sulphur (butterfly)	2		
<i>Colligyrus depressus</i>	Harney Basin duskysnail	1		
<i>Colligyrus sp. 3</i>	Blue Mountains duskysnail	1		
<i>Cryptomastix populi</i>	Poplar oregonian (snail)	1		
<i>Cryptomastix hendersoni</i>	Columbia Gorge oregonian (snail)	1	S Fork Walla Walla R ACEC, Wenaha, Wild & Scenic River	FS, BLM
<i>Euphydryas gillettii</i>	Gillett's checkerspot (butterfly)	2	Hells Canyon NRA	FS
<i>Fisherola nuttalli</i>	Shortface lanx (Giant Columbia River limpet)		Snake River WSR, Deschutes Canyon WSA	FS, BLM
<i>Fluminicola fuscus</i>	Columbia pebblesnail or spire snail	1	Snake River WSR, Grande Ronde ACEC, Wenaha WMA	FS BLM OFW
<i>Gomphus lynnae</i>	Columbia clubtail (dragonfly)	2	John Day River WSR	BLM
<i>Gonidea angulata</i>	Western ridged mussel	2	Snake River WSR, North Fork John Day ACEC, WSR,	FS
<i>Juga bulbosa</i>	Bulb juga (snail)	1	Deschutes River St. Scenic Waterway	
<i>Juga hemphilli maupinensis</i>	Purple-lipped juga (snail)	1	Deschutes River St. Scenic Waterway	
<i>Juga newberryi</i>	A Freshwater Snail	1	Lower Deschutes River WSR	BLM
<i>Juga sp. 2</i>	Blue Mountains juga (snail)	1		
<i>Juga sp. 4</i>	Opal Springs (Crooked River) juga (snail)	1		
<i>Margaritifera falcata</i>	Western pearlshell (mussel)	2	N Fork John Day River ACEC, WSR, Middle Fork John Day River Preserve	TNC, FS BLM
<i>Megomphix lutarius</i>	Umatilla megomphix (snail)	1	North Fork John Day WSR	FS
<i>Monadenia fidelis ssp. 1</i>	Deschutes sideband (snail)	1		
<i>Ochlodes yuma</i>	Yuma skipper (butterfly)	2	Zumwalt Prairie Preserve	TNC

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Ogaridiscus subrupicola</i>	Southern tightcoil (snail)	1		
<i>Oreohelix</i> sp. 29	Hells Canyon mountainsnail	1		
<i>Oreohelix strigosa delicata</i>	Blue mountainsnail	1	S. Fork Walla Walla R	ACEC BLM
<i>Perdita accepta</i>	A miner bee	1		
<i>Polygyrella polygyrella</i>	Humped coin (snail)	2		
<i>Pristiloma wascoense</i>	Shiny tightcoil (snail)	2		
<i>Radiodiscus abietum</i>	Fir pinwheel (snail)	2	N. Fork Umatilla R	WA FS
<i>Scaphinotus manni</i>	Mann's mollusk-eating beetle	2	Grande Ronde River	WSR FS
<i>Taylorconcha insperata</i>	A freshwater snail	1	Snake River WSR, Hells Canyon WA,	FS
Fish				
<i>Entosphenus tridentatus</i>	Pacific lamprey	2	N Fork John Day WA, Sheep Rocks RNA, Middle Fork John Day River preserve	BLM, NPS, TNC
<i>Oncorhynchus clarkii lewisi</i>	Westslope cutthroat trout	1	Strawberry Mountain WA, North Fork John Day WA	FS
<i>Oncorhynchus mykiss gairdneri</i>	Inland Columbia Basin redband trout	2	Snake River WSR	FS
<i>Oncorhynchus mykiss</i> pop. 13	Steelhead (Snake River ESU)	1	Minam River WSR, Wenaha-Tucannon WA	FS
<i>Oncorhynchus mykiss</i> pop. 28	Steelhead (Middle Columbia River ESU, summer run)	1	John Day WSR, Lower Deschutes River WSR	BLM
<i>Oncorhynchus mykiss</i> pop. 29	Steelhead (Middle Columbia River ESU, winter run)	1		
<i>Oncorhynchus nerka</i> pop. 1	Sockeye salmon (Snake ESU)	1-x		
<i>Oncorhynchus tshawytscha</i> pop. 18	Chinook salmon (Deschutes River ESU, summer/fall run)	1	Lower Deschutes River WSR	BLM
<i>Oncorhynchus tshawytscha</i> pop. 2	Chinook salmon (Snake River ESU, fall run)	1	Hells Canyon NRA, Eagle Cap WA, Grande Ronde WSR	FS
<i>Oncorhynchus tshawytscha</i> pop. 8	Chinook salmon (Snake River ESU, spring/summer run)	1	Eagle Cap WA, Wenaha Tucannon WA	FS
<i>Salvelinus confluentus</i> pop. 13	Bull trout (Malheur SMU)	1	North Fork Malheur River WSR	FS
<i>Salvelinus confluentus</i> pop. 15	Bull trout (Umatilla SMU)	1	North Fork Umatilla River	WA FS
<i>Salvelinus confluentus</i> pop. 18	Bull trout (Deschutes SMU)	1	Lower Deschutes River WSR	BLM
<i>Salvelinus confluentus</i> pop. 19	Bull trout (Grande Ronde SMU)	1	Eagle Cap WA, Wenaha Tucannon WA	FS
<i>Salvelinus confluentus</i> pop. 20	Bull trout (Hells Canyon SMU)	1	North Powder River WSR	FS
<i>Salvelinus confluentus</i> pop. 22	Bull trout (Imnaha SMU)	1	Eagle Cap WA, Imnaha River WSR	FS

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Salvelinus confluentus</i> pop. 23	Bull trout (John Day SMU)	1	North Fork John Day WA	FS
<i>Salvelinus confluentus</i> pop. 25	Bull trout (Upper Snake RU)	1	N Fk Malheur River ACEC, Logan Valley CA, Dugout Creek RNA	BLM, Burns Paiute
<i>Salvelinus confluentus</i> pop. 26	Bull trout (Mid Columbia RU)	1	Eagle Cap WA, Lake Fork RNA, Mill Creek RNA, Baldy Mtn RNA	FS
Amphibians				
<i>Ascaphus montanus</i>	Rocky Mountain tailed frog	2	Eagle Cap WA, Hells Canyon NRA, Wenaha Tucannon WA	FS
<i>Lithobates pipiens</i>	Northern leopard frog	2		
<i>Rana luteiventris</i>	Columbia spotted frog	2	Schneider WMA, Starkey Experimental Forest, North Fork John Day WA	OFW FS
Reptiles				
<i>Chrysemys picta</i>	Painted turtle	2	John Day Fossil Beds NM, Ladd Marsh WMA	NPS OFW
Birds				
<i>Agelaius tricolor</i>	Tricolored blackbird	2	John Day Fossil Beds NM	NPS
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2		
<i>Bartramia longicauda</i>	Upland sandpiper	2	Bridge Creek WMA	OFW
<i>Bucephala albeola</i>	Bufflehead	2		
<i>Centrocercus urophasianus</i>	Greater sage-grouse	2	North and South Ridge Bully Creek RNAs	BLM
<i>Cygnus buccinator</i>	Trumpeter swan	2		
<i>Dolichonyx oryzivorus</i>	Bobolink	2	Ladd Marsh WMA	
<i>Falco peregrinus anatum</i>	American peregrine falcon	2	Eagle Cap WA, Hells Canyon NRA	FS
<i>Histrionicus histrionicus</i>	Harlequin duck	2	Eagle Cap WA, Hilgard Junction State Recreation Area	FS, PRD
<i>Leucosticte tephrocotis wallowa</i>	Wallowa rosy-finch	1	Eagle Cap WA	FS
<i>Melanerpes lewis</i>	Lewis's woodpecker	2	Grande Ronde River State Scenic Waterway, Hells Canyon WA, Ladd Marsh WMA	FS
<i>Parkesia noveboracensis</i>	Northern waterthrush	2		
<i>Picoides albolarvatus</i>	White-headed woodpecker	2		
<i>Podiceps auritus</i>	Horned grebe	2	Clear Lake Ridge Preserve, Eagle Cap WA	TNC FS

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Tympanuchus phasianellus columbianus</i>	Columbian sharp-tailed grouse	2	Clear Lake Ridge Preserve	BLM
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2	John Day Fossil Beds NM	NPS
<i>Brachylagus idahoensis</i>	Pygmy rabbit	2	Sand Hollow WSA, South Ridge Bully Creek RNA	BLM
<i>Canis lupus</i>	Gray wolf	2	Wenaha-Tucannon WA, Eagle Cap WA, Hells Canyon WA	FS
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Deschutes River State Recreation Area, Hells Canyon NRA, John Day Fossil Beds NM	FS NPS
<i>Euderma maculatum</i>	Spotted bat	2	Crooked River National Grassland, Hells Canyon NRA, John Day Fossil Beds NM	FS NPS BLM
<i>Gulo gulo</i>	Wolverine	2	Hells Canyon WA, Strawberry Mountain WA, North Fork John Day WA	FS
<i>Myotis thysanodes</i>	Fringed myotis	2	Hells Canyon NRA, John Day Fossil Beds NM	FS NPS
<i>Ovis canadensis nelsoni</i>	Desert bighorn sheep	2-x		
Vascular Plants				
<i>Achnatherum hendersonii</i>	Henderson ricegrass	1	Forest Creek-Rough Canyon RNA, North Fork Crooked Creek WSR, North Crooked River ACEC	BLM
<i>Achnatherum wallowaensis</i>	Wallowa ricegrass	1	Clear Lake Ridge Preserve TNC, Zumwalt Prairie Preserve TNC	TNC
<i>Allium dictuon</i>	Blue Mt. onion	1	Wenaha-Tucannon WA	FS
<i>Allium geyeri</i> var. <i>geyeri</i>	Geyer's onion	2	Imnaha River WSR	FS
<i>Asplenium viride</i>	Green spleenwort	2	Eagle Cap WA	FS
<i>Astragalus diaphanus</i> var. <i>diurnus</i>	South John Day milk-vetch	1	Phillip W. Schneider WMA	OFW
<i>Astragalus misellus</i> var. <i>misellus</i>	Pauper milk-vetch	1	Deschutes WSR, Peck's Milkvetch ACEC	BLM
<i>Astragalus peckii</i>	Peck's milk-vetch	1	Bull Flat ACEC, "Innes Market Road" ACEC	BLM
<i>Astragalus tegetarioides</i>	Bastard kentrophyta	1		FS, BLM
<i>Boechea davidsonii</i>	Davidson's rockcress	2	Hunt Mountain ACEC, Wenaha-Tucannon WA	FS, BLM
<i>Bochera hastatula</i>	Hells Canyon rockcress	1	Eagle Cap WA, Hells Canyon WA, Strawberry Mtn WA	FS

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Botrychium ascendens</i>	Upward-lobed moonwort	1	Eagle Cap WA	FS
<i>Botrychium campestre</i>	Prairie moonwort	2	Eagle Cap WA	FS
<i>Botrychium crenulatum</i>	Crenulate grape-fern	1	Eagle Cap WA	FS
<i>Botrychium hesperium</i>	Western moonwort	2	Eagle Cap WA	FS
<i>Botrychium lineare</i>	Skinny moonwort	1	Eagle Cap WA	FS
<i>Botrychium lunaria</i>	Moonwort	2	Eagle Cap WA	FS
<i>Botrychium montanum</i>	Mountain grape-fern	2	Eagle Cap WA	FS
<i>Botrychium paradoxum</i>	Twin-spike moonwort	1	Eagle Cap WA	FS
<i>Botrychium pedunculatum</i>	Stalked moonwort	1	Eagle Cap WA	FS
<i>Bupleurum americanum</i>	Bupleurum	2	Eagle Cap WA	FS
<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Peck's mariposa-lily	1	North Fork Crooked River RNA, Bridge Creek WA	FS
<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Green-band mariposa-lily	1	Wenaha Tucannon WA, Hells Canyon WA	FS
<i>Calyptridium roseum</i>	Rosy pussypaws	2		
<i>Carex atosquama</i>	Blackened sedge	2	Eagle Cap WA	FS
<i>Carex capillaris</i>	Capillary sedge	2	Eagle Cap WA	FS
<i>Carex concinna</i>	Low northern sedge	2	Eagle Cap WA	FS
<i>Carex cordillerana</i>	Cordilleran sedge	2	Hells Canyon NRA, Wenaha Tucannon WA, Lake Fork RNA, Mill Creek RNA	FS
<i>Carex gynocrates</i>	Yellow bog sedge	2	Eagle Cap WA	FS
<i>Carex idahoensis</i>	Idaho sedge	1		
<i>Carex lasiocarpa</i> var. <i>americana</i>	Slender sedge	2		
<i>Carex media</i>	Intermediate sedge	2	Eagle Cap WA	FS
<i>Carex micropoda</i>	Small-footed sedge	2	Eagle Cap WA	FS
<i>Carex nardina</i>	Spikenard sedge	2	Eagle Cap WA	FS
<i>Carex pelocarpa</i>	A sedge	2	Eagle Cap WA	FS
<i>Carex retrorsa</i>	Retorse sedge	2	Eagle Creek WSR	FS
<i>Carex saxatilis</i>	Russet sedge	2	Eagle Cap WA	FS
<i>Carex scirpoidea</i> ssp. <i>stenochlaena</i>	Alaskan single-spiked sedge	2	Strawberry Mountain WA, Baldy Mountain RNA	FS
<i>Carex subnigricans</i>	Dark alpine sedge	2	Eagle Cap WA	FS
<i>Carex tahoensis</i>	Tahoe sedge	2	Mt. Howard-East Peak NNL, Eagle Cap WA	FS
<i>Carex vernacula</i>	Native sedge	2	Eagle Cap WA	FS

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Castilleja chlorotica</i>	Green-tinged paintbrush	1	Horse Ridge RNA	BLM
<i>Castilleja flava</i> var. <i>rustica</i>	Rustic paintbrush	2	Eagle Cap WA, Zumwalt Prairie Preserve	FS, TNC
<i>Castilleja fraterna</i>	Fraternal paintbrush	1	Eagle Cap WA	FS
<i>Castilleja rubida</i>	Purple alpine paintbrush	1	Eagle Cap WA	FS
<i>Castilleja viscidula</i>	Sticky paintbrush	2	Eagle Cap WA	FS
<i>Caulanthus pilosus</i>	Hairy wild cabbage	2		
<i>Cheilanthes feei</i>	Fee's lipfern	2	Hells Canyon WA, Eagle Cap WA	FS
<i>Chlorocrambe hastata</i>	Spearhead	1		
<i>Cryptantha gracilis</i>	Narrow-stem cat's-eye	2	Sutton Mountain WA	BLM
<i>Cryptantha grandiflora</i>	Clearwater cryptantha	1		
<i>Cryptantha simulans</i>	Pine woods cryptantha	2	Zumwalt Prairie Preserve	TNC
<i>Cryptogramma stelleri</i>	Steller's rock-brake	2		FS
<i>Cymopterus nivalis</i>	Snowline cymopterus	2	Strawberry Mountain WA, Baldy Mountain RNA	FS
<i>Cyperus lupulinus</i> ssp. <i>lupulinus</i>	Great Plains flatsedge	2	Hells Canyon NRA	FS
<i>Cyripedium fasciculatum</i>	Clustered lady's-slipper	2		
<i>Elatine brachysperma</i>	Short-seeded waterwort	2		
<i>Eleocharis bolanderi</i>	Bolander's spikerush	2		
<i>Epilobium palustre</i>	Swamp willow-herb	2	Eagle Cap WA	FS
<i>Eremothera pygmaea</i>	Dwarf evening-primrose	1	John Day River WSR	BLM
<i>Erigeron. davisii</i>	Engelmann's daisy	2	Hells Canyon NRA	FS
<i>Erigeron disparipilus</i>	White cushion erigeron	2	Hells Canyon NRA, Wenaha Tucannon WA	FS
<i>Eriogonum cusickii</i>	Cusick's eriogonum	1		
<i>Geum rossii</i> var. <i>turbinatum</i>	Slender-stemmed avens	2	Eagle Cap WA	FS
<i>Ipomopsis tenuituba</i>	Rydberg's gilia	2	Vinegar Hill-Indian Rock Scenic Area	FS
<i>Isoetes minima</i>	Midget quillwort	1	Hells Canyon WA	FS
<i>Heliotropium curassavicum</i>	Salt heliotrope	2		
<i>Juncus triglumis</i> var. <i>albescens</i>	Three-flowered rush	2	Eagle Cap WA	FS
<i>Kobresia bellardii</i>	Bellard's kobresia	2	Eagle Cap WA	FS
<i>Kobresia simpliciuscula</i>	Simple kobresia	2	Eagle Cap WA	FS
<i>Lipocarpha aristulata</i>	Aristulate lipocarpha	2	Hells Canyon	FS
<i>Listera borealis</i>	Northern twayblade	2	Eagle Cap WA	FS

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Lomatium erythrocarpum</i>	Red-fruited lomatium	1	<i>Cougar Saddle</i>	FS
<i>Lomatium filicinum</i>	Basalt desert parsley	1	Hells Canyon WA	FS
<i>Lomatium greenmanii</i>	Greenman's lomatium	1	Eagle Cap WA	FS
<i>Lomatium ochocense</i>	Ochoco lomatium	1	North Fork Crooked River ACEC, North Fork WSA	BLM
<i>Lomatium pastorale</i>	Meadow lomatium	1	North Fork John Day WA, Wenaha-Tucannon WA	FS
<i>Lomatium tarantulooides</i>	Spider biscuitroot	1	North Fork John Day WA	FS
<i>Luina serpentina</i>	Colonial luina	1	Strawberry Mountain WA	FS
<i>Lupinus lepidus</i> var. <i>cusickii</i>	Cusick's lupine	1	<i>Denny Flat</i>	BLM
<i>Luzula orestra</i>	Sierra woodrush	2	Eagle Cap WA	FS
<i>Lycopodium complanatum</i>	Ground cedar	2		FS
<i>Erythranthe inflatula</i>	Disappearing monkeyflower	1		FS
<i>Erythranthe hymenophylla</i>	Membrane-leaved monkeyflower	1	<i>Horse Creek</i> , Hells Canyon NRA	FS
<i>Melica smithii</i>	<i>Smith's melicgrass</i>	2	Mill Creek RNA	FS
<i>Mirabilis macfarlanei</i>	Macfarlane's four-o'clock	1	Pleasant Valley RNA, Hells Canyon WA	FS
<i>Myosurus sessilis</i>	Sessile mousetail	1		
<i>Ophioglossum pusillum</i>	Adder's tongue	2	Eagle Creek WSR	FS
<i>Packera porteri</i>	Porter's butterweed	2-x	Eagle Cap WA	FS
<i>Pellaea bridgesii</i>	Bridges' cliff-brake	2	Eagle Cap WA	FS
<i>Penstemon deustus</i> var. <i>variabilis</i>	Hot-rock penstemon	1	Sutton Mt. WSA	BLM
<i>Penstemon peckii</i>	Peck's penstemon	1	Deschutes Canyon WSA	FS
<i>Penstemon pennellianus</i>	Blue Mtn. penstemon	1	Eagle Cap WA, Wenaha- Tucannon WA	FS
<i>Persicaria punctata</i>	Dotted smartweed	2	Wenaha-Tucannon WA	FS
<i>Phacelia minutissima</i>	Least phacelia	1	Hells Canyon NRA	FS
<i>Phemeranthus spinescens</i>	Spiny flame-flower	2		
<i>Phlox hendersonii</i>	Henderson phlox	2		
<i>Phlox multiflora</i>	Many-flowered phlox	2	<i>Starkey Experimental Forest</i>	BLM, FS
<i>Pinus flexilis</i>	Limber pine	2	Eagle Cap WA	FS
<i>Piptatheropsis exiguum</i>	Little ricegrass	2	Eagle Cap WA	FS
<i>Platanthera obtusata</i>	Small northern bog-orchid	2	Eagle Cap WA	FS
<i>Pleuropogon oregonus</i>	Oregon semaphore grass	1		

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
<i>Poa reflexa</i>	Nodding bluegrass	2	Eagle Cap WA	FS
<i>Potamogeton praelongus</i>	White-stem pondweed	2	Duck Lake RNA	FS
<i>Potentilla versicolor</i> var. <i>darrachii</i>	Darrach's cinquefoil	1	Baldy Mtn. RNA, N. Fk John Day WA, Strawberry Mt WA	FS
<i>Primula cusickiana</i>	Wallowa primrose	2	Hells Canyon NRA, Eagle Cap WA	FS
<i>Pyrocoma radiata</i>	Snake River goldenweed	1		
<i>Pyrocoma scaberula</i>	Rough pyrocoma	1	Grande Ronde ACEC, Precious Lands WMA	BLM
<i>Rhodiola integrifolia</i> ssp. <i>integrifolia</i>	Alpine sedum	2	Steens Mountain WA	BLM
<i>Rorippa columbiae</i>	Columbia cress	1		
<i>Rubus bartonianus</i>	Bartonberry	1	Hells Canyon WA, Snake River WSR	FS
<i>Salix farriar</i>	Farr's willow	2	Eagle Cap WA, Mt. Joseph RNA	FS
<i>Salix wolfii</i>	Wolf's willow	2	Eagle Cap WA	FS
<i>Saxifraga adscendens</i> ssp. <i>oregonensis</i>	Wedge-leaf saxifrage	2	Eagle Cap WA	FS
<i>Scirpus pallidus</i>	Pale bulrush	2	Zumwalt Prairie Preserve	TNC
<i>Silene spaldingii</i>	Spalding's campion	1	Clear Lake Ridge Preserve, Zumwalt Prairie Preserve, Imnaha WSR	FS, TNC
<i>Stanleya confertiflora</i>	Biennial stanleya	1		
<i>Stuckenia filliformis</i> ssp. <i>alpine</i>	Northern slender-leaf pondweed	2	Eagle Cap WA	FS
<i>Suksdorfia violacea</i>	Violet suksdorfia	2	Minam State Recreation Area	PRD
<i>Swertia perennis</i>	Felwort	2	North Fork John Day WA	FS
<i>Thalictrum alpinum</i>	Alpine meadow-rue	2	Eagle Cap WA	FS
<i>Thelypodium eucosmum</i>	Arrow-leaf thelypody	1	Sutton Mountain WSA	FS
<i>Thelypodium howellii</i> ssp. <i>howellii</i>	Howell's thelypody	2		
<i>Thelypodium howellii</i> ssp. <i>spectabilis</i>	Howell's spectacular thelypody	1	Powder River Easement, Rodeo Grounds Easement	FWS
<i>Townsendia montana</i>	Mountain townsendia	2	Eagle Cap WA	FS
<i>Townsendia parryi</i>	Parry's townsendia	2	Eagle Cap WA	FS
<i>Trifolium douglasii</i>	Douglas clover	1	Glass Hill Preserve	PVT
<i>Triglochin palustris</i>	Slender bog arrowgrass	2	Strawberry Mountain WA	FS
<i>Trollius laxus</i> ssp. <i>albiflorus</i>	American globeflower	2	Hells Canyon NRA, Hells Canyon WA	FS
<i>Utricularia minor</i>	Lesser bladderwort	2	Duck Lake RNA	FS

BLUE MOUNTAINS SPECIAL SPECIES

Species Name	Common Name	List	Present Representation	Agency
Nonvascular Plants				
<i>Anastrophyllum minutum</i>	Liverwort	2		
<i>Anthelia julacea</i>	Liverwort	2		
<i>Barbilophozia lycopodioides</i>	Liverwort	2		
<i>Bryum calobryoides</i>	Moss	2		
<i>Calliergon richardsonii</i>	Richardson's water moss	2	Bridge Creek WA	FS
<i>Campylium stellatum</i>	Yellow starry fen moss	2	Baldy Mt. RNA, N. Fork John Day WA, Strawberry Mt WA	FS
<i>Harpanthus flotovianus</i>	Liverwort	2	North Fork John Day WA, Eagle Cap WA	FS
<i>Jungermannia polaris</i>	Liverwort	2		
<i>Mesoptychia gillmannii</i>	Liverwort	2	North Fork John Day WA	FS
<i>Peltolepis quadrata</i>	Liverwort	2		FS
<i>Preissia quadrata</i>	Liverwort	2	Strawberry Mountain WA	FS
<i>Ptilidium pulcherrimum</i>	Liverwort	2		
<i>Schistidium cinclidodonteum</i>	Moss	2		
<i>Splachnum sphaericum</i>	Moss	1		
<i>Tortula mucronifolia</i>	Moss	2		
Fungi				
<i>Albatrellus avellaneus</i>	Fungus	1	Eagle Creek Wild and Scenic River	FS
<i>Texosporium sancti-jacobi</i>	Woven-spored lichen	2	Crooked River National Grassland, The Island RNA	BLM, FS

CHAPTER 17. NORTHERN BASIN & RANGE ECOREGION

The Northern Basin and Range Ecoregion includes much of southeastern Oregon's high desert and extends south into Nevada and extreme northeastern California. The ecoregion's name reflects its topography and geology, with numerous flat basins separated by isolated, generally north-south mountain ranges. Many of the mountains are fault blocks, with gradual slopes on one side and precipitous basalt rims on the other. In Oregon, elevations range from 2,500 feet in the lowest parts of the Owyhee and Malheur Rivers to more than 9,700 feet on Steens Mountain. Soils are generally rocky and thin, low in organic matter and high in minerals.

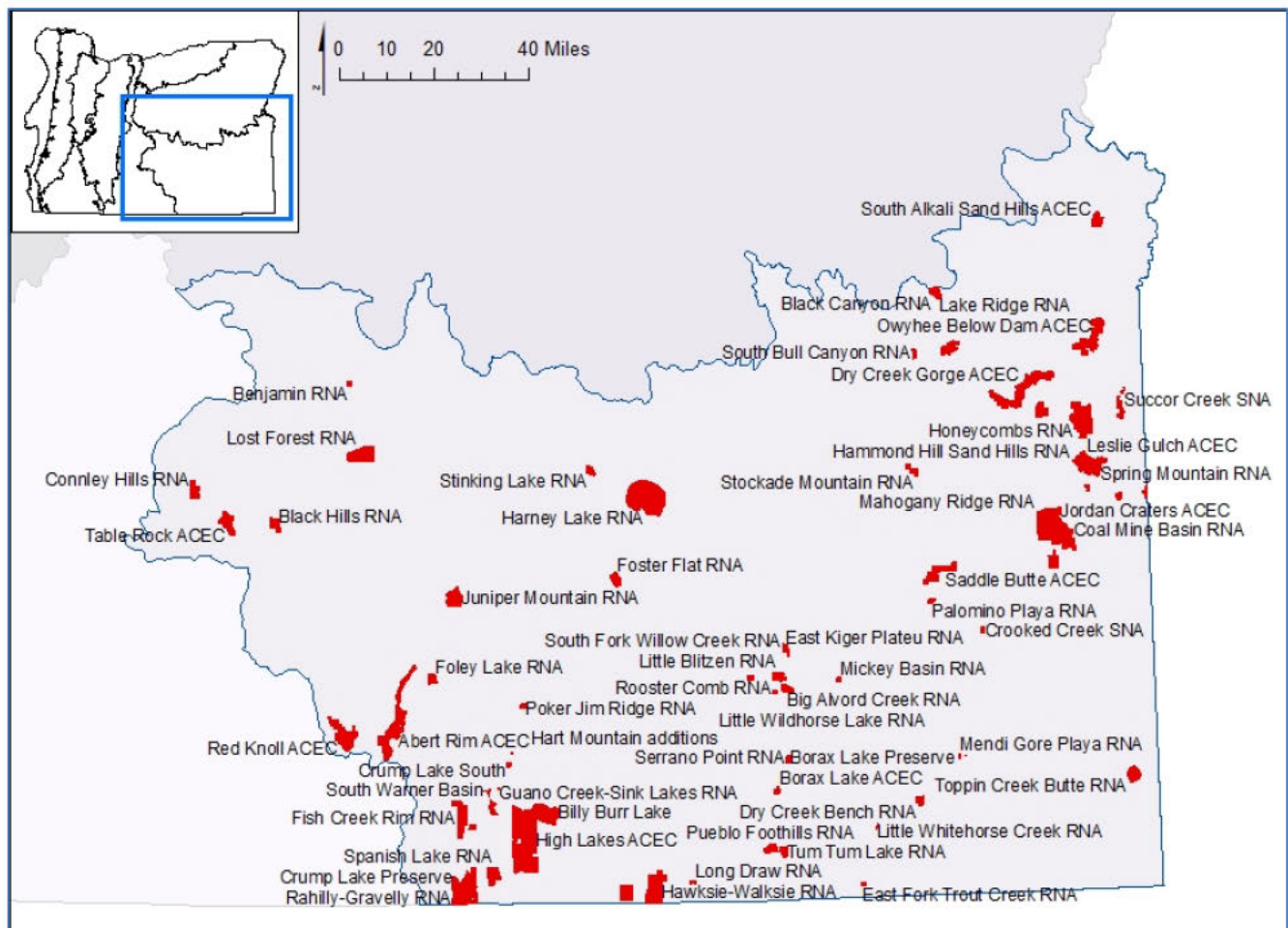


Figure 20. Northern Basin & Range Ecoregion Natural Areas Map.

Another important influence in the ecoregion is the geology, which is mostly of volcanic origin. Over large portions of the landscape, soils have been derived from underlying layers of basalt and rhyolite or occasionally from sedimentary layers that have been exposed by erosion. Of more interest than these "normal soils" are soils derived from volcanic ash and welded tuffs, which are found in distinct sites such as Leslie Gulch and Succor Creek near the Idaho border, or the extensive young lava flows such as Devil's Garden, Diamond Craters, Jordan Craters and Saddle Butte Lava Field. The climate is arid with extreme ranges of daily and seasonal temperatures. Areas in the Alvord Desert (Oregon's driest location) receive as little as 7 inches of rain annually. Runoff from rainfall and mountain snowpack in the basins often flows into flat alkaline playas, forming seasonal shallow lakes and marshes.

Also known as the sagebrush desert or high desert, the Northern Basin and Range Ecoregion contains many diverse habitats. The most significant of these are the extensive sagebrush steppe areas, dominated primarily by Wyoming big sagebrush and low sagebrush, with many small but important silver sagebrush playas. The

ecoregion contains large, closed, alkaline basins, the largest of which is the Alvord Desert. These contain large areas of salt desert scrub characterized by alkaline flats, with Oregon's only populations of Mormon tea, iodine bush, and most of Oregon's winterfat, shadscale and spiny-hopsage alkaline shrublands. The large wildlife refuges, ACECs and Wilderness Areas, support some of the largest populations of pronghorn antelope, white pelicans, sage grouse and waterfowl, and are well known for their wildlife diversity. The refuges and protected areas also contain Oregon's only narrowleaf cottonwood riparian forests, and the majority of the state's alkaline wetlands, mountain mahogany and aspen woodlands.

Included within this section of the plan is a small inclusion of the Snake River Plain ecoregion. This is a major feature in southern Idaho, which extends into Oregon in northeastern Malheur County. It includes the lower Snake River valley from the county line to where the Snake leaves the state, and includes the lower valley of the Malheur River from Ontario to Harper. The Snake River Plain Ecoregion has similar vegetation as the adjacent Northern Basin and Range Ecoregion, but differs markedly in its terrain. The Snake River Plain is basically a broad river valley with low, adjacent foothills.

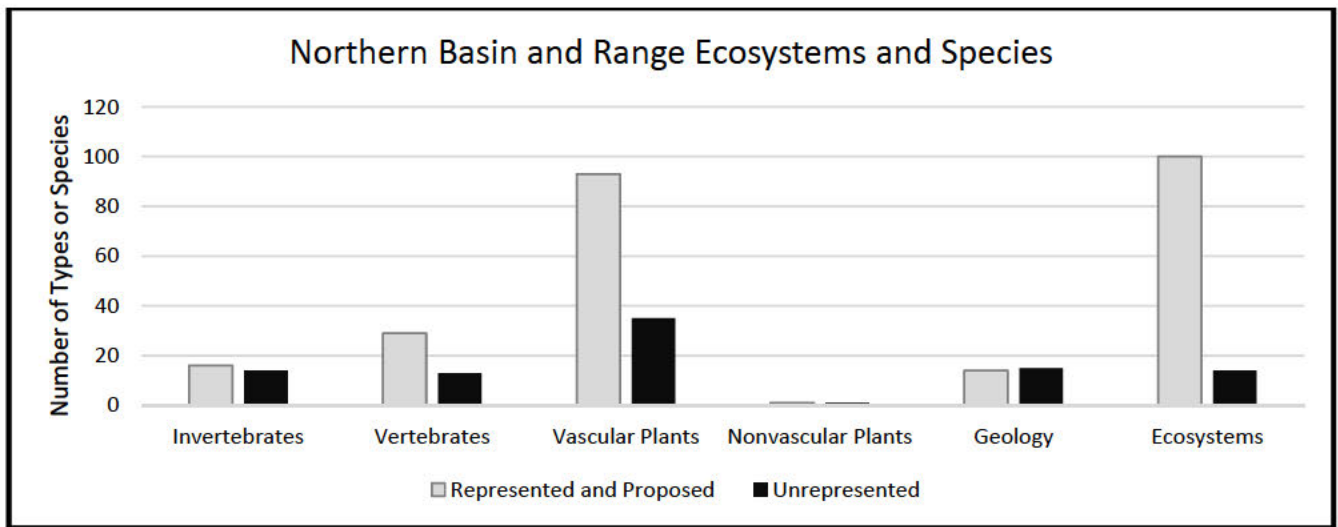


Figure 21. Represented and Unrepresented Ecosystems, Geologic Features and Formations, and Species for the Northern Basin and Range Ecoregion.



Cottonwood Riparian in the Pueblo Foothills RNA.
Photo by Elizabeth Crowe

NORTHERN BASIN AND RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Ponderosa Pine and Western Juniper			
*	1	Ponderosa pine/big sagebrush-bitterbrush, isolated stand within steppe.	Lost Forest RNA
*	2	Ponderosa pine-western juniper/big sagebrush/ needle-and-thread.	Lost Forest RNA
+	3	Ponderosa pine-western juniper/sagebrush-bitterbrush vegetation mosaic.	Castle Rock RNA Ott Mountain RNA Sheep Mountain RNA
*	4	Ponderosa pine-western juniper/low sagebrush vegetation mosaic.	Silver Creek RNA Benjamin RNA
+	5	Western juniper/big sagebrush/bluebunch wheatgrass.	Connley Hills RNA Stockade Mountain RNA Black Canyon – Vale RNA
*	6	Western juniper/big sagebrush/Idaho fescue.	Benjamin RNA
+	7	Western juniper/big sagebrush-bitterbrush.	Rahilly-Gravelly RNA Juniper Gulch RNA
+	8	Western juniper/bluebunch wheatgrass.	Connley Hills RNA
+	9	Western juniper/Idaho fescue.	Connley Hills RNA Vee Pasture RNA
*	10	Western juniper/low sagebrush/Idaho fescue.	Poker Jim Ridge RNA
+	11	Western juniper-mountain mahogany/mountain big sagebrush/bunchgrass.	Ott Mountain RNA
*	12	Western juniper/low sagebrush/Sandberg bluegrass.	Poker Jim Ridge RNA
Mixed Sagebrush and Mountain Big Sagebrush			
*	13	Big sagebrush-greasewood vegetation.	Stinking Lake RNA, Harney Lake RNA
+	14	Big sagebrush-bitterbrush/Idaho fescue.	Fish Creek Rim RNA
+	15	Mountain big sagebrush-bitterbrush-squawapple.	Rahilly-Gravelly RNA
+	16	Snowbrush and bittercherry shrub complex.	Fish Creek Rim RNA
+	17	Big sagebrush-bitterbrush/Idaho fescue.	South Bull Canyon RNA
+	18	Big sagebrush-bitterbrush/Indian ricegrass and big sagebrush/needle and thread mosaic on sandy soils.	Hammond Hill Sand Hills RNA South Alkali Sand Hills RNA
+	19	Wyoming big sagebrush-squawapple/bluebunch wheatgrass-Thurber needlegrass.	North Ridge Bully Creek RNA
+	20	Wyoming big sagebrush-squawapple/Idaho fescue.	South Ridge Bully Creek RNA
*	21	Mountain big sagebrush/Idaho fescue.	Spring Mountain RNA, Castle Rock RNA, East Fork Trout Creek RNA
*	22	Mountain big sagebrush/western needlegrass.	Little Blitzen RNA
+	23	Mountain big sagebrush/basin wildrye.	Warner Creek RNA
+	24	Mountain big sagebrush-mountain snowberry/Idaho fescue.	Spring Mountain RNA

NORTHERN BASIN AND RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	*	25 Mountain big sagebrush, bitterbrush, mountain snowberry/Thurber needlegrass mosaic.	Little Blitzen RNA Rahilly-Gravelly RNA
	+	26 Big sagebrush-threetip sagebrush/bunchgrass.	North Ridge Bully Creek RNA South Ridge Bully Creek RNA
	+	27 Threetip sagebrush/bluebunch wheatgrass.	North Ridge Bully Creek RNA South Ridge Bully Creek RNA
	+	28 Threetip sagebrush/Idaho fescue.	Jordan Crater RNA
	+	29 Silver sagebrush/Nevada bluegrass flat or playa.	Lake Ridge RNA, Toppin Butte RNA, Jordan Crater RNA
		Low and Black Sagebrush	
	+	30 Low sagebrush/bluebunch wheatgrass.	Poker Jim Ridge RNA, Lake Ridge RNA
	+	31 Low sagebrush/Idaho fescue.	Fish Creek Rim RNA, Toppin Butte RNA, Lake Ridge RNA
FWS, BLM	M	32 Low sagebrush/Thurber's needlegrass	<i>Sagehen Hills</i>
	*	33 Low sagebrush/Sandberg bluegrass scabland.	Sink Lakes-Guano Creek RNA Stockade Mountain RNA addition
BLM	M	34 Lahontan sagebrush/bunchgrass.	
	+	35 Montane low sagebrush/sheep fescue-Idaho fescue mosaic.	Warner Creek RNA
BLM	M	36 Early sagebrush/bunchgrass	
	+	37 Black sagebrush/bunchgrass community complex.	Foley Lake RNA, Mendi Gore Playa RNA
	+	38 Rigid sagebrush/bunchgrass (Sandberg bluegrass, bluebunch wheatgrass and/or Idaho fescue.	Black Canyon - Vale RNA
		Big Sagebrush	
	+	39 Wyoming big sagebrush/bluebunch wheatgrass.	Connley Hills RNA Big Alvord Creek RNA
	+	40 Wyoming big sagebrush/Idaho fescue.	Hawksie-Walksie RNA
	*	41 Wyoming big sagebrush/Thurber needlegrass.	North Ridge Bully Creek RNA South Ridge Bully Creek RNA Pueblo Foothills RNA
BLM	H	42 Wyoming big sagebrush/western needlegrass.	
	+	43 Wyoming big sagebrush/needle-and-thread.	Sink Lakes-Guano Creek RNA
	*	44 Wyoming big sagebrush/needle-and-thread on cinders.	Honeycombs RNA
	*	45 Wyoming big sagebrush/Indian ricegrass.	Long Draw RNA
	+	46 Wyoming big sagebrush/Indian ricegrass and Wyoming big sagebrush/needle and thread mosaic.	South Alkali Sand Hills RNA
	*	47 Basin big sagebrush/bluebunch wheatgrass.	Jordan Crater RNA
PVT, BLM	H	48 Basin big sagebrush/basin wildrye.	<i>Three Forks pRNA</i>

NORTHERN BASIN AND RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
Desert or Salt Desert Shrub			
	49	Big sagebrush-spiny hopsage salt desert scrub playa.	Harney Lake RNA Tum Tum Lake RNA
+	50	Big sagebrush-spiny hopsage-budsage mosaic on ash.	Coal Mine Basin RNA, Basin ACEC, Dry Creek Gorge ACEC
*	51	Shadscale-spiny hopsage-green mormon tea salt desert scrub.	Pueblo Foothills RNA
*	52	Black greasewood-shadscale/bunchgrass playa margin vegetation.	Harney Lake RNA Tum Tum Lake RNA
+	53	Shadscale-budsage/bunchgrass salt desert scrub.	Spanish Lake RNA, Pueblo Foothills RNA
*	54	Shadscale with open bunchgrass and forbs on tuff or ash.	Leslie Gulch ACEC, Honeycombs RNA
+	55	Black greasewood flat.	Hammond Hill Sand Hills RNA Crooked Creek SNA
+	56	Shadscale-big sagebrush mosaic.	Palomino Playa RNA Crooked Creek SNA
*	57	Winterfat playa.	Mickey Basin RNA Mendi Gore Playa RNA
*	58	Iodine bush playa.	Tum Tum Lake RNA
*	59	Davis' pepperweed playa.	Palomina Playa RNA
*	60	Sand dune series, from active unvegetated dunes through stabilized dunes (with shrubs, Indian ricegrass, and wildrye).	Harney Lake RNA Big Alvord Creek RNA
Mountain Mahogany			
+	61	Mountain mahogany/mountain big sagebrush community with bitterbrush if possible.	Fish Creek Rim RNA Mahogany Ridge RNA
+	62	Mountain mahogany/mountain big sagebrush- snowberry/bunchgrass.	Dry Creek Bench RNA Warner Creek RNA
+	63	Mountain mahogany-aspen-cherry snowbank.	Spring Mountain RNA Mahogany Ridge RNA Addition
*	64	Mountain mahogany/bluebunch wheatgrass canyon.	Rooster Comb RNA
Special Types			
+	65	White fir forest.	Hart Canyon pRNA Fir Groves ACEC
*	66	Aspen/blue wildrye.	Little Blitzen RNA
*	67	High elevation fescue grassland.	East Kiger Plateau RNA Little Blitzen RNA
*	68	Alpine upland vegetation including grasslands with alpine oatgrass, sedge and spikerush meadows, and alpine buckwheat.	Little Wildhorse Lake RNA, Little Blitzen RNA, Steens Mountain WA
*	69	Annual forb communities on exposed ash beds.	Leslie Gulch RNA, Honeycombs RNA

NORTHERN BASIN AND RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
		Lacustrine	
	*	70 Low elevation lake with aquatic beds and marshy shore.	Jordan Crater RNA
	*	71 Low elevation hot lake and associated elevated mineral springs.	Borax Lake Preserve TNC Micky Basin RNA
	*	72 Low elevation alkaline lake.	Harney Lake RNA, Stinking Lake RNA, Tum Tum Lake RNA
	*	73 Mid to high elevation lake.	Little Wildhorse Lake RNA
		Palustrine	
	*	74 Low elevation alkaline pond with aquatic beds and marshy shore.	Harney Lake RNA
	*	75 Freshwater pond with aquatic beds and marshy shore.	Little Wildhorse Lake RNA
	+	76 Low elevation vernal pond.	Sink Lakes-Guano Creek RNA Jordan Crater RNA
	*	77 Mid to high elevation vernal pond.	Little Blitzen RNA
	*	78 Large hot springs.	Borax Lake Preserve TNC Mickey Hot Springs RNA
	*	79 Running hot springs	Three Forks pRNA, <i>Harney Hot Springs</i>
	*	80 Cold springs.	Little Blitzen RNA
	*	81 Bulrush-cattail marsh, with aquatic beds.	Jordan Crater RNA
	+	82 Burreed marsh.	Crump Lake pSNA
	+	83 Reedgrass marsh.	Crump Lake pSNA South Warner Basin Preserve TNC
BLM, FWS	M	84 Nebraska sedge meadow.	
	*	855 Wet sedge meadow in alpine cirque.	Little Blitzen RNA South Fork Willow Creek RNA Little Wildhorse Creek RNA
	*	86 Alkaline marsh, with sedge, spikerush, rush and bulrush.	Harney Lake RNA, Stinking Lake RNA, Borax Lake ACEC/Preserve
	+	87 Silver sagebrush/Great Basin wildrye.	Guano Slough pRNA Sink Lakes-Guano Creek RNA
	*	88 Silver sagebrush/Nevada bluegrass	Foster Flat RNA
	*	89 Silver sagebrush/Nebraska sedge-Cusick bluegrass playa.	Foster Flat RNA
	*	90 Bare playa with playa margin communities, including Baltic rush, Nevada bulrush, alkali bluegrass & Lemmon alkaligrass	Harney Lake RNA Big Alvord Creek RNA
		91 Playa with greasewood and Great Basin wildrye.	Serrano Point RNA

NORTHERN BASIN AND RANGE ECOSYSTEMS

Agency	Priority	Ecosystem Name	Present Representation
	*	92 Greasewood/saltgrass playa.	Harney Lake RNA, Borax Lake ACEC and Preserve TNC, Stinking Lake RNA
	*	93 Greasewood/seablite playa.	Tum Tum Lake RNA Stinking Lake RNA
BLM PRD	H	94 Open basin valley bottom alkaline wetland mosaic, with greasewood/saltgrass and greasewood/Basin wildrye.	<i>Crooked Creek</i>
	+	95 Bare playa with Davis' peppergrass.	Palomino Playa RNA Toppin Butte RNA
	+	96 Bare playa with poverty weed.	Spanish Lake RNA
Riparian			
DSL, BLM	M	97 Intermittent stream dominated by mock orange, bitterbrush or serviceberry.	<i>Canyon south. of Namorf</i>
BLM	H	98 Missouri willow/golden currant.	
BLM	H	99 Booth willow-Lemmon willow riparian.	
BLM	H	100 Subalpine willow shrub swamp, with Booth and Drummond willows.	<i>Fish Creek Meadows</i>
	*	101 Lemmon willow, mid elevation riparian.	East Fork Trout Creek RNA
BLM	H	102 Low elevation riparian community dominated by coyote willow, Pacific willow and arroyo willow.	
	*	103 Mid elevation riparian community dominated by arroyo willow, red-osier dogwood and Woods rose.	Sink Lakes-Guano Creek RNA
	*	104 Riparian dominated by coyote willow and Pacific willow.	Black Canyon - Vale RNA Three Forks pRNA
BLM, FWS	M	105 Rigid willow/golden currant riparian.	
DSL, BLM	M	106 Geyer willow riparian.	
	+	107 Riparian community dominated by mountain alder and redosier dogwood or snowberry.	Little Whitehorse Exclosure RNA
		108 Quaking aspen - mountain alder riparian.	Little Blitzen RNA
		109 Quaking aspen and scouler willow riparian.	East Fork Trout Creek RNA
		110 Black cottonwood / redosier dogwood riparian.	Little Blitzen RNA, Rooster Comb RNA
	+	111 Black cottonwood / coyote willow riparian.	Big Alvord Creek RNA, Pueblo Foothills RNA
	+	112 Aspen/mountain snowberry woodland or forest with dwarf aspen-bittercherry-serviceberry snowbank communities.	Spring Mountain RNA
	+	113 White alder riparian.	Succor Creek pSNA
DSL, BLM	H	114 Bittercherry-coyote willow-rose riparian.	

NORTHERN BASIN AND RANGE GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
Holocene			
	* 1	Active fault scarp	Abert Rim ACEC
BLM	M 2	Landslides	<i>Winter Ridge</i>
	* 3	Eolian dunes	Alvord Dunes ACEC, Warner Lakes Dunes
	* 4	Playa Lakes	Alvord Lake - Alvord ACEC
	* 5	Typhoni Weathering	Leslie Gulch RNA
BLM	L 6	Pinnacles	<i>Sand Creek</i>
Pleistocene			
	* 7	Cinder cones and craters	Diamond Craters ONA, Jordan Craters RNA
	* 8	Desert deposits and features	Big Alvord Creek RNA
	* 9	Glacial valleys	Steens Mountains WA, Little Blitzen RNA
	* 10	Lake deposits and features	Fort Rock State Park, Harney Lake RNA
BLM	M 11	Landslides	<i>Rome</i>
BLM	H 12	Lava Tube Caves	<i>Saddle Butte</i>
	* 13	Lava Field	Jordan Craters RNA, Devils Garden ACEC
	* 14	Rhyolite pillars	Leslie Gulch ACEC, Lower Owyhee Gorge
	* 15	Tuff Ring	Fort Rock State Park
Pliocene			
BLM	L 16	Glenns Ferry Formation	<i>Malheur Butte</i>
BLM	L 17	Harney Formation	<i>Burns</i>
Miocene			
PVT	L 18	Rattlesnake Ash-Flow Tuff	<i>Burns</i>
	* 19	Jump Creek Rhyolite	Succor Creek State Park
BLM, PVT	L 20	Wildcat Creek Welded Ash-Flow Tuff	<i>Skull Springs</i>
BLM	L 21	Rhyolite and Rhyodacite of Dry Creek	<i>Skull Springs</i>
BLM	L 22	Prater Creek Ash-Flow Tuff	<i>Burns</i>
BLM	L 23	Devine Canyon Ash-Flow Tuff	<i>Burns</i>
BLM	L 24	Littlefield Rhyolite	<i>Namorf</i>
BLM, PRD	L 25	Owyhee Basalt	<i>Owyhee River Canyon</i>
	* 26	Sucker Creek Formation	Succor Creek State Park
	* 27	Steens Mountain Basalt	Steens Mountain WA

NORTHERN BASIN AND RANGE GEOLOGIC FORMATIONS AND FEATURES

Agency	Priority	Formation or Feature Name	Present Representation
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	*	28 Pike Creek Volcanics	Steens Mountain Cooperative Management and Protection Area
BLM	M	29 Alvord Creek Formation	



Owyhee River Canyon showing rhyolite, Tyfoni Weathering, and Ash-Flow Tuff

NORTHERN BASIN AND RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
Invertebrates				
<i>Amerigoniscus malheurensis</i>	Malheur isopod	1	<i>Malheur Cave</i>	
<i>Anodonta californiensis</i>	California floater (mussel)	2	Harney Lake RNA, Malheur NWR	FWS
<i>Anodonta oregonensis</i>	Oregon floater (mussel)	2	Summer Lake WMA, Malheur NWR	OFW, FWS
<i>Anodonta nuttalliana</i>	Winged floater	2		
<i>Apochthonius malheuri</i>	Malheur pseudoscorpion	1	<i>Malheur Cave</i>	
<i>Ashmeadiella sculleni</i>	A leaf-cutter bee	2		
<i>Calliopsis barri</i>	A miner bee	2		
<i>Colias occidentalis sullivanii</i>	Sullivan's sulphur (butterfly)	1	Biscuitroot ACEC	BLM
<i>Colligyrus depressus</i>	Harney Basin duskysnail	1		
<i>Fisherola nuttalli</i>	Shortface lanx (=Giant Columbia River limpet)	1	Lower Owyhee Canyon WSA	BLM
<i>Fluminicola insolitus</i>	Donner und Blitzen pebblesnail	1	Donner Und Blitzen WSR, Steens Mountain WA	BLM
<i>Fluminicola sp. 9</i>	Malheur pebblesnail	1		
<i>Fluminicola turbiniformis</i>	Turban pebblesnail	1	Hart Mountain NWR	FWS
<i>Gomphus lynnae</i>	Columbia clubtail (dragonfly)	2		
<i>Gonidea angulata</i>	Western ridged mussel	2	Lower Owyhee Canyon WSA, Malheur NWR, Owyhee River Canyon WSA	BLM, FS
<i>Helisoma newberryi newberryi</i>	Great Basin ramshorn (snail)	1		
<i>Kenkia rhynchida</i>	A flatworm (planarian)	1		
<i>Margaritifera falcata</i>	Western pearlshell (mussel)	2	Malheur NWR	FWS
<i>Monardella angustifolia</i>	Leslie Gulch Monardella	1		BLM
<i>Ochlodes yuma</i>	Yuma skipper (butterfly)	2	Summer Lake WMA	OFW
<i>Oncopodura mala</i>	Malheur Cave springtail	1	<i>Malheur Cave</i>	
<i>Petrophysa sp. 1</i>	Hotspring physa (snail)	1	Owyhee River WSR	BLM
<i>Physa megalochlamys</i>	Large-mantle physa (snail)	2		
<i>Planorbella oregonensis</i>	Borax Lake ramshorn (snail)	1	Borax Lake Preserve	TNC
<i>Pyrgulopsis fresti</i>	Owyhee hot springsnail	1	Owyhee River WSR	BLM
<i>Pyrgulopsis intermedia</i>	Crooked Creek springsnail	1	Crooked Creek SNA, Lower Owyhee Canyon WSA	PRD, BLM
<i>Pyrgulopsis owyheensis</i>	A springsnail	1	Owyhee River WSR	BLM
<i>Pyrgulopsis robusta</i>	Jackson Lake springsnail	2	Abert Rim WSA, Owyhee River Canyon WSA	BLM
<i>Stygobromus hubbsi</i>	Malheur Cave amphipod	1	<i>Malheur Cave</i>	

NORTHERN BASIN AND RANGE SPECIAL SPECIES

Scientific Name	Common Name	List	Present Representation	Agency
<i>Taylorconcha insperata</i>	A freshwater snail	1	Owyhee River Canyon WSA	BLM
Fish				
<i>Catostomus tahoensis</i>	Tahoe sucker	2		
<i>Catostomus warnerensis</i>	Warner sucker	1	Crump Lake South Wildlife Area	DSL
<i>Oncorhynchus anaden henshawi</i>	Lahontan cutthroat trout	2	Steens Mountain WA, Willow Creek WSA, Little Whitehorse Creek RNA	BLM
<i>Oncorhynchus mykiss</i> pop. 3	Catlow Valley redband trout	1	Hart Mountain	FWS
<i>Oncorhynchus mykiss</i> pop. 4	Warner Valley redband trout	1		
<i>Rhinichthys osculus</i> ssp. 3	Foskett Spring speckled dace	1	<i>Foskett Springs</i>	BLM
<i>Richardsonius egregius</i>	Lahontan redband	2		
<i>Salvelinus confluentus</i> pop. 13	Bull trout (Malheur River SMU)	1		
<i>Siphateles alvordensis</i>	Alvord chub	1	Borax Lake Preserve & Borax Lake ACEC	BLM, TNC
<i>Siphateles bicolor eurysona</i>	Sheldon tui chub	1	Guano Creek-Sink Lakes RNA	BLM
<i>Siphateles bicolor oregonensis</i>	Oregon Lakes tui chub	1		
<i>Siphateles bicolor</i> pop. 15	Warner Basin tui chub	1		
<i>Siphateles bicolor</i> ssp. 1	Hutton tui chub	1		
<i>Siphateles bicolor</i> ssp. 13	Summer Basin tui chub	1	Summer Lake WA	OFW
<i>Siphateles bicolor</i> ssp. 2	Catlow tui chub	1	Hart Mountain	FWS
<i>Siphateles boraxobius</i>	Borax Lake chub	1	Borax Lake Preserve	TNC
Amphibians				
<i>Anaxyrus woodhousii</i>	Woodhouse's toad	2	Owyhee Breaks WSA	BLM
<i>Lithobates pipiens</i>	Northern leopard frog	2		
<i>Rana luteiventris</i>	Columbia spotted frog	2	Malheur NWR, Steens Mountain, Dry Creek Gorge ACEC, Kiger Mustang ACEC	BLM
Reptiles				
<i>Chrysemys picta</i>	Painted turtle	2	Owyhee WSR	BLM
Birds				
<i>Ammodramus savannarum</i>	Grasshopper sparrow	2		
<i>Anser albifrons elgasi</i>	Tule goose	1		
<i>Bucephala albeola</i>	Bufflehead	2		

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<i>Centrocercus urophasianus</i>	Greater sage-grouse	2	Hart Mountain National Antelope Refuge, Jordan Craters RNA, Summer Lake WMA	BLM FWS
<i>Charadrius nivosus nivosus</i>	Western snowy plover	2	Borax Lake ACEC, Borax Lake Preserve, Harney Lake RNA, Malheur NWR, Summer Lake WA	BLM FWS OFW
<i>Cygnus buccinator</i>	Trumpeter swan	2	Malheur NWR	
<i>Dolichonyx oryzivorus</i>	Bobolink	2	Malheur NWR	FWS
<i>Egretta thula</i>	Snowy egret	2	Malheur NWR, Summer Lake WMA	FWS OFW
<i>Falco anadensis anatum</i>	American peregrine falcon	2	Fort Rock NA	PRD
<i>Leucophaeus pipixcan</i>	Franklin's gull	2	Malheur NWR	FWS
<i>Leucosticte atrata</i>	Black rosy-finch	2	High Steens WA	BLM
<i>Melanerpes lewis</i>	Lewis's woodpecker	2		
<i>Pelecanus erythrorhynchos</i>	American white pelican	2	Harney Lake RNA, Jordan Crater RNA, Malheur NWR, Summer Lake WMA	BLM OFW FWS
<i>Podiceps auritus</i>	Horned grebe	2	Malheur NWR	FWS
Mammals				
<i>Antrozous pallidus</i>	Pallid bat	2	Hart Mountain National Antelope Refuge, High Steens WA	FWS BLM
<i>Brachylagus idahoensis</i>	Pygmy rabbit	2	Fort Rock NA, Malheur NWR, Hart Mountain National Antelope Refuge, Blitzen River WSA, Sheldon NWR	PRD FWS BLM
<i>Canis lupus</i>	Gray wolf	2	Table Rock ACEC, Connley Hills RNA, Summer Lake WMA	BLM, OFW
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	2	Jordan Crater RNA, Saddle Butte Lava Flow ACEC	BLM
<i>Euderma maculatum</i>	Spotted bat	2	Diablo Mountain WSA	BLM
<i>Gulo gulo</i>	Wolverine	2	Little Blitzen RNA, Steens Mountain WA	FS
<i>Myotis thysanodes</i>	Fringed myotis	2	Cedar Mountain WSA, Lost Forest-Sand Dunes -Fossil Lake ACEC	BLM
<i>Vulpes macrotis</i>	Kit fox	2	Big Alvord Creek RNA, Saddle Butte Lava Flow ACEC, Palomino Playa RNA, Pueblo Foothills RNA, Alvord Desert WSA	BLM

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Vascular Plants				
<i>Abronia turbinata</i>	Trans montane abronia	2	Big Alvord Creek RNA, Mickey Basin RNA	BLM
<i>Agastache cusickii</i>	Cusick's giant-hyssop	2	Pueblo Mountains WSA	
<i>Allenrolfea occidentalis</i>	Iodine bush	2	Malheur NWR, Tum Tum Lake RNA	FWS, BLM
<i>Amsinckia carinata</i>	Malheur Valley fiddleneck	1		
<i>Antirrhinum kingii</i>	King snapdragon	2		
<i>Argemone munita</i>	Prickly-poppy	2		
<i>Artemisia papposa</i>	Owyhee sagebrush	2	Upper West Little Owyhee WSA	BLM
<i>Astragalus calycosus</i>	King's rattleweed	2	Lower Owyhee Canyon WSA	BLM
<i>Astragalus cusickii</i> var. <i>sterilis</i>	Sterile milk-vetch	1	Dry Creek Gorge ACEC, Leslie Gulch ACEC, Honeycombs RNA	BLM
<i>Astragalus geyeri</i> var. <i>geyeri</i>	Geyer's milk-vetch	2	Alvord Desert ACEC, Lower Owyhee Canyon WSA, Crooked River SNA	BLM, PRD
<i>Astragalus lemmonii</i>	Lemmon's milk-vetch	1		
<i>Astragalus mulfordiae</i>	Mulford's milk-vetch	1	South Alkali ACEC, Owyhee Below Dam ACEC	BLM
<i>Astragalus platytropis</i>	Broad-keeled milk-vetch	2		
<i>Astragalus tenellus</i>	Loose flower milk-vetch	2		
<i>Botrychium crenulatum</i>	Crenulate grape-fern	1	Steens Mountain WA	FS
<i>Botrychium lunaria</i>	Moonwort	2	Little Blitzen RNA, Steens Mt. WA	BLM
<i>Calyptridium roseum</i>	Rosy pussypaws	2		
<i>Camissonia pusilla</i>	Washoe suncup	2	Long Draw RNA	BLM
<i>Carex atosquama</i>	Blackened sedge	2	Steens Mountain WA	FS
<i>Carex capitata</i>	Capitate sedge	2	Steens Mountain WA	FS
<i>Carex cordillerana</i>	Cordilleran sedge	2	Steens Mountain WA, Little Blitzen RNA, Keiger Mustang ACEC	BLM
<i>Carex pelocarpa</i>	A sedge	2	Little Blitzen RNA, Little Wildhorse Lake RNA	BLM
<i>Carex saxatilis</i>	Russet sedge	2		
<i>Carex scirpoidea</i> ssp. <i>stenochlaena</i>	Alaskan single-spiked sedge	2	Steens Mountain WA	FS
<i>Carex subnigricans</i>	Dark alpine sedge	2	Little Wildhorse Creek RNA, Big Alvord RNA, Little Blitzen RNA	BLM
<i>Carex tajpemsos</i>	Tahoe sedge	2	Steens Mountain WA	BLM
<i>Carex tiogana</i>	Tioga Pass sedge	1	South Fork Willow Creek RNA, Steens Mountain WA	BLM

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<i>Carex vernacula</i>	Native sedge	2	Steens Mountain WA, S. Fork Willow Creek RNA, Little Blitzen RNA, Little Wildhorse Creek RNA	BLM
<i>Castilleja viscidula</i>	Sticky paintbrush	2	Steens Mountain WA	BLM
<i>Caulanthus crassicaulis</i> var. <i>glaber</i>	Smooth wild cabbage	2		
<i>Caulanthus major</i> var. <i>nevadensis</i>	Slender wild cabbage	2	Steens Mountain Cooperative Management and Protection Area, Oregon Canyon WSA	BLM
<i>Caulanthus pilosus</i>	Hairy wild cabbage	2	Owyhee River WSR, WSA	BLM
<i>Chaenactis xantiana</i>	Desert pincushion	2	Steens Mountain WA	FS
<i>Chaetadelpa wheeleri</i>	Wheeler's skeleton-weed	2	Big Alvord Creek RNA	BLM
<i>Collomia renacta</i>	Barren Valley collomia	1	Upper West Little Owyhee WSA	BLM
<i>Cryptantha gracilis</i>	Narrow-stem cat's eye	2	Alvord Desert ACEC, Honeycombs RNA	BLM
<i>Cryptantha simulans</i>	Pine woods cryptantha	2		
<i>Cymopterus acaulis</i> var. <i>greeleyorum</i>	Greeley's cymopterus	1	Blue Canyon WSA, Lower Owyhee Canyon WSA	BLM
<i>Cymopterus longipes</i> var. <i>ibapensis</i>	Ibapah wavewing	2	Owyhee River Canyon WSA	BLM
<i>Cymopterus nivalis</i>	Snowline cymopterus	2	Little Blitzen RNA, South Fork Willow Creek RNA	BLM
<i>Cymopterus purpurascens</i>	Purple cymopterus	2	Long Draw RNA	BLM
<i>Diplacus tricolor</i>	Three-colored monkeyflower	2		
<i>Dodecatheon pulchellum</i> var. <i>shoshonense</i>	Darkthroat shootingstar	2	Crooked Creek NA, N. Fork Owyhee River	PRD BLM
<i>Elatine brachysperma</i>	Short-seeded waterwort	2	Spaulding WSA	BLM
<i>Eleocharis bolanderi</i>	Bolander's spikerush	2	Upper West Little Owyhee WSA	BLM
<i>Eremothera pygmaea</i>	Dwarf evening-primrose	1		
<i>Erigeron latus</i>	Broad fleabane	2	Owyhee River Canyon WSA, Upper West Little Owyhee WSA	BLM
<i>Eriogonum brachyanthum</i>	Short-flowered eriogonum	2		
<i>Eriogonum chrysops</i>	Golden buckwheat	1	<i>Skull Springs</i>	
<i>Eriogonum crosbyae</i> var. <i>crosbyae</i>	Crosby's buckwheat	1	Basque Hills WSA, Guano Creek-Sink Lakes RNA, Piute Creek SNA	BLM
<i>Eriogonum crosbyae</i> var. <i>mystrium</i>	Pueblo Mountains buckwheat	1	Oregon Canyon WSA, Fifteenmile Creek WSA	BLM
<i>Eriogonum cusickii</i>	Cusick's eriogonum	1	Black Hills RNA, Table Rock ACEC	BLM
<i>Eriogonum hookeri</i>	Hooker's wild buckwheat	2	Owyhee Breaks WSA, Leslie Gulch ACEC	BLM

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<i>Eriogonum prociduum</i>	Prostrate buckwheat	1	Hart Mountain National Antelope Refuge	FWS
<i>Eriogonum salicornioides</i>	Playa buckwheat	2	Crooked Creek NA, Owyhee Breaks WSA, Succor Creek NA	PRD, BLM
<i>Erythranthe inflata</i>	Disappearing monkeyflower	1	West Little Owyhee WSR	BLM
<i>Erythranthe latidens</i>	Broad-toothed monkeyflower	2		
<i>Galium serpenticum</i> ssp. <i>warnerense</i>	Warner Mountain bedstraw	1	Table Rock ACEC, Black Hills RNA	BLM
<i>Gentiana prostrata</i>	Moss gentian	2	South Fork Willow Creek RNA, Steens Mountain WA	BLM, FS
<i>Gentianella tenella</i> ssp. <i>tenella</i>	Slender gentian	2	South Fork Willow Creek RNA	BLM
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	1		
<i>Hackelia cronquistii</i>	Cronquist stickseed	1	Oregon Trail-Keeney Pass ACEC, South Alkali Sand Hills ACEC	BLM
<i>Hackelia ophiobia</i>	Three Forks stickseed	2	North Fork Owyhee WSR	
<i>Heliotropium curassavicum</i>	Salt heliotrope	2	Lost Forest/Sand Dunes/Fossil Lake RNA, Sand Dunes WSA, Tum Tum Lake RNA, Warner Wetlands ACEC	BLM
<i>Hymenoxys cooperi</i> var. <i>canescens</i>	Cooper's goldflower	2	Rahilly-Gravelly RNA	BLM
<i>Ivesia rhypara</i> var. <i>rhypara</i>	Grimy ivesia	1	Leslie Gulch RNA	BLM
<i>Ivesia rhypara</i> var. <i>shellyi</i>	Shelly's ivesia	1	<i>Venator Canyon</i>	BLM, DSL
<i>Ivesia shockleyi</i>	Shockley's ivesia	2	West Little Owyhee River WSR	BLM
<i>Juncus bryoides</i>	Mosslike dwarf rush	2		
<i>Juncus hemiendytus</i> var. <i>abjectus</i>	Least rush	2	Steens Mountain WA	BLM
<i>Juncus tiehmii</i>	Tiehm's rush	2		
<i>Juncus uncialis</i>	Inch-high rush	2	Steens Mountain WA	BLM
<i>Kobresia bellardii</i>	Bellard's kobresia	2	Steens Mountain WA	BLM
<i>Lepidium davisii</i>	Davis' peppergrass	1	Palomino Playa RNA	BLM
<i>Lepidium dictyotum</i>	Alkali peppergrass	2	South & Upper Owyhee R WSR	BLM
<i>Lipocarpa aristulata</i>	Aristulate lipocarpa	2		
<i>Lomatium bentonitum</i>	Bentonite biscuitroot	1		
<i>Lomatium foeniculaceum</i> var. <i>fimbriatum</i>	Fringed desert-parsley	2		
<i>Lomatium roseanum</i>	Rose's lomatium	1	Heath Lake WSA	BLM
<i>Lupinus nevadensis</i>	Nevada lupine	2	Alvord Peak ACEC, Steens Mountain WA	BLM

NORTHERN BASIN AND RANGE SPECIAL SPECIES

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<i>Malacothrix sonchoides</i>	Sow-thistle desert-dandelion	2	Alvord Desert WSA, Lower Owyhee Canyon WSA, Table Mountain WSA	BLM
<i>Melica stricta</i>	Nodding melic	2	Hart Mountain National Antelope Refuge	
<i>Mentzelia congesta</i>	United blazingstar	2	Hawk Mountain WSA	BLM
<i>Mentzelia mollis</i>	Smooth mentzelia	1	Coal Mine Basin RNA	BLM
<i>Mentzelia packardiae</i>	Packard's mentzelia	1	Leslie Gulch RNA	BLM
<i>Mirabilis laevis</i> var. <i>retrorsa</i>	Bigelow's four-o'clock	2	Big Alvord Creek RNA, Borax Lake ACEC	BLM
<i>Muhlenbergia minutissima</i>	Annual dropseed	2	Jordan Crater RNA	BLM
<i>Oxytropis sericea</i> var. <i>sericea</i>	White locoweed	2		
<i>Pappostipa speciosa</i>	Desert needlegrass	2	Steens Mt WA, Steens Mt WSA, Winter Range WSA	BLM
<i>Penstemon deustus</i> var. <i>variabilis</i>	Hot-rock penstemon	1	Succor Creek State NA	PRD
<i>Penstemon perpulcher</i>	Beautiful penstemon	1		
<i>Phacelia inundata</i>	Playa phacelia	1	Warner Potholes ACEC, Silver Lake RNA	BLM
<i>Phacelia lutea</i> var. <i>calva</i>	Yellow scorpionweed	2	Coal Mine Basin RNA	BLM
<i>Phacelia lutea</i> var. <i>mackenzieorum</i>	Mackenzie's phacelia	1	Leslie Gulch RNA	BLM
<i>Phacelia tetramera</i>	Dwarf phacelia	2	Owyhee River WSR, Summer Lake WMA, Owyhee River Canyon WSA	BLM, OFW
<i>Phemeranthus spinescens</i>	Spiny flame-flower	2		
<i>Physaria chambersii</i>	Chambers' bladder-pod	2	Leslie Gulch ACEC, Lower Owyhee Canyon WSA	BLM
<i>Pilularia americana</i>	American pillwort	2	South of Hampton	BLM
<i>Plagiobothrys salsus</i>	Desert allocarya	2	Lake Abert ACEC	BLM
<i>Pleuropogon oregonus</i>	Oregon semaphore grass	1		
<i>Poa fendleriana</i> ssp. <i>longiligula</i>	Long-tongue muttongrass	2	Big Alvord Creek RNA, Little Blitzen RNA, South Fork Willow Creek RNA	BLM
<i>Poa glauca</i> ssp. <i>rupicola</i>	Timberline bluegrass	2	Steens Mountain WA	BLM
<i>Pogogyne floribunda</i>	Profuse-flowered pogogyne	1	Foley Lake RNA	
<i>Potamogeton diversifolius</i>	Rafinesque's pondweed	2	Steens Mountain Cooperative Management and Protection Area	BLM
<i>Potamogeton robbinsii</i>	Flatleaf pondweed	2	Owyhee River WSR	BLM
<i>Prenanthes exiguus</i>	Desert prenanthes	2	Lower Owyhee Canyon WSA	BLM
<i>Primula cusickiana</i>	Wallowa primrose	2	Upper West Little Owyhee WSA	BLM

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<i>Pyrocoma radiata</i>	Snake River goldenweed	1		
<i>Rafinesquia californica</i>	California chicory	2		
<i>Rhodiola integrifolia</i> ssp. <i>integrifolia</i>	Alpine sedum	2	Steens Mountain WA	BLM
<i>Rorippa columbiae</i>	Columbia cress	1	Diable Mt WSA, Malheur Lake Exclosures	BLM FWS
<i>Rotala ramosior</i>	Toothcup	2	Diamond Craters ONA/ACEC	BLM
<i>Salix nivalis</i>	Snow Willow	2	Steens Mountain WA, Little Blitzen RNA	BLM
<i>Saxifraga adscendens</i> ssp. <i>oregonensis</i>	Wedge-leaf saxifrage	2	Little Blitzen RNA	BLM
<i>Senecio ertterae</i>	Ertter's senecio	1	Leslie Gulch RNA	BLM
<i>Sesuvium verrucosum</i>	Verrucose sea-purslane	2	Hart Mountain National Antelope Refuge, Tum Tum Lake RNA	FWS, BLM
<i>Stanleya confertiflora</i>	Biennial stanleya	1	Oregon Trail Tub Mountain ACEC, Succor Creek SNA	BLM, PRD
<i>Stephanomeria malheurensis</i>	Malheur wire-lettuce	1	South Narrows ACEC	BLM
<i>Stuckenia filiformis</i> ssp. <i>alpine</i>	Northern slender-leaf pondweed	2	Lower Owyhee River WSR	BLM
<i>Stuckenia striata</i>	Nevada pondweed	2	North Fork Owyhee River WSR, Owyhee River WSR	BLM
<i>Swertia perennis</i>	Felwort	2	South Fork Willow Creek RNA	BLM
<i>Symphoricarpos longiflorus</i>	Long-flowered snowberry	2	Hart Mountain National Antelope Refuge, Whitehorse Basin ACEC	FWS, BLM
<i>Thelypodium brachycarpum</i>	Short-podded thelypody	2	Summer Lake WMA	OFW
<i>Thelypodium howellii</i> ssp. <i>howellii</i>	Howell's thelypody	2		
<i>Townsendia scapigera</i>	Tufted townsend daisy	2		
<i>Trifolium leibergii</i>	Leiberg's clover	1	Riverside WMA, <i>Drewsey</i>	OFW
<i>Trifolium owyheense</i>	Owyhee clover	1	Leslie Gulch RNA, Honeycombs RNA	BLM
<i>Utricularia minor</i>	Lesser bladderwort	2		
Nonvascular Plants				
<i>Ephemerum crassinervium</i>	Moss	2		
<i>Tortula mucronifolia</i>	Moss	2	Steens Mountain WA	FS

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Snowy plover (*Charadrius alexandrinus nivosus*),
Adam Kotaich photo



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APPENDIX 1. FORMS AND PROCEDURES USED IN THE NATURAL AREA PROGRAM

Comparative Analysis Format for Natural Area Designation

A. Introduction and Methods

B. Abstract of Each Site

- 1) Site Description - Brief descriptive sentences about the vegetation or species at the site, its relationship to the landscape and geomorphology.
- 2) List of the target and secondary ecosystem types or species present at the site and brief description as to the:
 - (a) size, (b) quantity, (c) quality and (d) natural variation represented for each.
- 3) Legal Considerations
 - a) Preserve Boundaries - Description of boundaries for entire proposed area.
 - b) Tract Ownership Summary - Names and addresses of owners or managers and legal description of property.
 - c) Protection Costs - Costs of buying, if privately owned, or taking out of production, if currently used or designated for commodity use. Includes property values (assessed and real, if applicable).
 - d) Stewardship Costs - Costs of executing any necessary management recommendations, e.g. fencing, burning, etc. Briefly states management needs.

C. Comparison of Sites

- 1) Physical Attributes - Size, aspects, soil, scenic qualities, etc.
- 2) Ecological Attributes - Quality in terms of species composition, absence of invaders, lack of sign of physical disturbance, general vigor, presence of indicator species (for communities), viability (for species).
- 3) Overall Attributes - Costs and ease of actual protection.
- 4) Tabular Summary of Ranking Considerations.

Model Dedication Agreement Form for State Natural Areas

The Oregon Parks and Recreation Commission and the [name of agency] hereby agree to the following provisions as they pertain to [name of site] located at [legal description of site location]. By virtue of this agreement, the above-described site is dedicated as a Natural Area as provided for in the Oregon Natural Areas Act, as amended.

This agreement is entered into for the purpose of promoting natural diversity of native species and ecosystems in Oregon, and specifically to protect the designated area as a representative site for the [name of ecosystem, or geologic type(s) or species] as identified in the Oregon Natural Areas Plan of [date].

This agreement includes as additional instruments of dedication the appended documents as follows:

- (a) A statement of management objectives for the site;
- (b) The Natural Heritage Registry Summary Form for the site;
- (c) Any other documents as needed.

Either party to this agreement may terminate it in accordance with the provisions of the Oregon Natural Areas Act upon 60 days written notice, including specific reasons for termination.

Approved and signed on [date].

Signatures.

Model Procedures for State Agency Dedication of Natural Areas

Model dedication procedures are included to assist natural resource state agencies in establishing natural areas on their lands. Agencies may wish to further refine these guidelines.

Oregon's Natural Areas Program has rules in force for dedicating and managing such areas (Oregon Administrative Rules 141-50-500 to 141-50-599). The procedures recommended here are designed to keep the process as simple as possible in conformity with these existing rules.

Step 1: Agency Receives Dedication Proposal from Natural Area Program Staff at OPRD or ORBIC.

A letter from staff to the agency includes reasons why the site is proposed for dedication, a general description of the site and its boundaries, and management considerations.

Step 2: Agency Evaluates Dedication Proposal

- 1) Within one month, the agency designates the person responsible for evaluating the proposal and preparing the dedication documents and communicates this information informally or in writing to OPRD or ORBIC.
- 2) Using staff or consultants and consulting with the OPRD or ORBIC staff, the agency evaluates the proposal to determine whether or not it is feasible.
- 3) The agency takes into account the Natural Area Program rules (referenced above), recognizing that the council is empowered to waive any of its own rules which would prevent dedication of a natural area due to conflict with agency statutes, rules, regulations, or policy.
- 4) The agency determines within six months after receiving the council proposal whether or not to go forward with dedication procedures for that site, and communicates this decision to the council in writing. The council recognizes that evaluations that depend on seasonal opportunities for study may take longer.

Step 3: Agency Draft Dedication Documents

The agency, in consultation with OPRD or ORBIC staff, drafts two dedication documents. One is a dedication agreement specifying the boundaries of the site, the natural heritage values the agreement is designed to protect, and any other considerations as needed.

The other document is a statement of management objectives for the site. This outlines major known threats to the resources in question, as well as the best and most realistic methods of protecting them. It includes activities to be encouraged, allowed or proscribed, and options for management agreements involving outside parties.

Additional documents to accompany the dedication agreement may also on occasion be required to meet the needs of the agency, the council, the State Land Board, or other parties.

Step 4: Public Notice, Hearing, and Agency Approval

The agency, according to its existing rules and procedures for public notice and hearing, publishes notice of intent to dedicate the site and places the matter on the agenda of the regular public meeting of the board or commission which oversees the agency. The meeting or meetings at which the dedication proposal is discussed and approved constitute the required public hearing.

After taking into account any public comment, the board or commission revises the dedication documents as needed and accords them final approval.

Step 5: Dedication by Oregon Parks and Recreation Commission

The agency, OPRD and ORBIC staff together bring the dedication agreement and accompanying documents before a regular Oregon Parks and Recreation Commission meeting for approval.

Step 6: Dedication Ceremony

This step is optional, and can include whatever ceremony and activities the agency and the council believe are appropriate.

Summary Form for Sites included in the Register of Natural Heritage Resources

OREGON REGISTER OF NATURAL HERITAGE RESOURCES
SUMMARY FORM

1. NATURAL AREA NAME:
 2. LOCATION:
 3. SIZE:
 4. REGISTER CATEGORY:
 5. PRINCIPAL ECOSYSTEM OR GEOLOGIC TYPES:
 6. SPECIAL SPECIES:
 7. EVALUATION OF CRITERIA FOR REGISTRATION
 - A. PRIORITY IN PLAN:
 - B. ADEQUATE REPRESENTATION:
 - C. DEGREE OF DISTURBANCE:
 - D. VIABILITY:
 - E. UNIQUE GEOLOGICAL VALUES:
 - F. PRIORITY FOR SPECIAL SPECIES:
 - G. SPECIAL SPECIES PROTECTION CAPABILITY:
 - H. MANAGEABILITY:
 8. SPECIAL REMARKS OR COMMENTS:
 9. OWNERSHIP:
 10. CONSENT OF OWNER (PRIVATE), DATE:
 11. DATE OF STAFF RECOMMENDATION:
 12. DATE OF COMMISSION APPROVAL:
 13. SOURCES OF ADDITIONAL INFORMATION:
 14. VALUE OF NATURAL AREA IN LAY TERMS:
-

APPENDIX 2. OREGON STATE REGISTER OF NATURAL HERITAGE RESOURCES AS OF 31 DECEMBER 2020

Name (Owner) – Year Registered

Ace Williams Mountain (BLM) - 2001
 Ainsworth (OPRD) - 1993
 Bald Hill (City of Corvallis) - 1991
 Bandon Marsh (USFWS) - 2002
 Beaver Creek (OPRD) – 2009
 Benson Addition, Multnomah Falls (OPRD) - 1991
 Billy Burr Lake (USFWS) - 1993
 Blacklock Point (OPRD) - 1988
 Blind Slough Swamp Preserve (NCC) - 1995
 Blowout Ponds (OPRD) - 1993
 Borax Lake Preserve (TNC) - 1994
 Bridal Veil Falls (OPRD) - 1993
 Bull Flat (DSL) – 1990
 Burlington Bottoms (ODFW) - 1991
 Camassia Preserve (TNC) - 2003
 Cape Arago Marine Gardens (OPRD) - 1992
 Cape Blanco (OPRD) – dedicated in 1991
 Cape Ferrelo (OPRD) - 1999
 Cape Lookout (OPRD) - 1988
 Cape Meares (OPRD) – dedicated in 1988
 Cape Sebastian (OPRD) - 1999
 Carl Washburn Blowout Ponds (OPRD) - 1993
 Cascade Head Preserve (TNC) - dedicated in 1985
 Clear Lake Ridge Preserve (TNC) - 1989
 Coburg Ridge Preserve (TNC) – 2008
 Collier State Park (OPRD) - 1992
 Columbia Oaks (Hood River Co, OPRD) - 1993
 Conley Lake (ODFW) - 1999
 Coopey Falls (OPRD) - 1993
 Courtney Creek (GLT) - 2018
 Crissey Field (OPRD) - 1999
 Crook Point (USFWS) -1998
 Crooked Creek (OPRD) - 1991
 Crump Lake Preserve (TNC) - 1993
 Crump Lake South (DSL) - 1990
 Davis Slough (DSL) - 1989
 Denman Vernal Pools (ODFW) - 1994
 Eight Dollar Mountain (OPRD, TNC) - 1988
 Elowah Falls (OPRD) - 1993
 Flagg Island (ODOT) - 1993
 Gary & Chatham Islands (Multnomah Co) - 1992
 Givan Park (Jackson Co.) – 1993
 Glass Hill (BMT) - 20
 Hart Mountain additions (USFWS) – 1991, 1994
 Horseshoe Lake (MRT) - 2020
 Humbug Mountain (OPRD) - 1999

Name (Owner) – Year Registered

Illinois River Forks (OPRD) - 1997
 Indian Sands (OPRD) - 1991
 Jackson-Frazier Wetlands (Benton County) - 1991
 Juniper Hills Preserve (TNC) - 1998
 Kingston Prairie Preserve (GLT) - 1997
 Knappa Slough Island (DSL) - 1999
 Ladd Marsh (ODFW) – 1988, 2004
 Latourell Falls (OPRD) - 1993
 Lindsay Prairie Preserve (TNC) - 1988
 Little North Santiam River (FS) - 1991
 Little Rock Island and Shore (PRD) - 1988
 Logan Valley (Burns Paiute Tribe) - 1999
 Luckiamute Landing (OPRD) - 1993
 Memaloose (OPRD) - 1993
 Middle Fork John Day River Preserve - Dunstan (CTWS) - 1990
 Middle Fork John Day River Preserve - Oxbow (CTWS) - 1999
 Mill Creek Ridge (USFS) - 1991
 Mill Creek Ridge Conservation Area (CLT) 2014
 Mill Creek Ridge Paintbrush Meadows (CLT) 2014
 Miller Island (ODFW) - 1992
 Multnomah Falls (OPRD, FS) - 1991
 Nehalem Bay (OPRD) - 1991
 Nesika Beach Preserve (WRC) -1998
 Nestucca Bay (DSL, FWS) - 1994
 Netarts Spit (OPRD) – dedicated in 1989
 North Fork Owyhee River (BLM) - 2004
 Ochoco State Wayside (OPRD) - 1990
 Onion Peak Preserve (DSL, ODF, NCC) – dedicated in 1988
 Ophir Dunes (ODOT) - 1988
 Otter Point (OPRD) – 1999
 Piute Creek (DSL) - 1992
 Pumpkin Ridge (Private - GROWISER) - 1994
 Rattlesnake Butte (CTGR) - 1986
 Rooster Rock (OPRD) – 1990
 Rough and Ready Creek Preserve (TNC) - 1994
 Rough and Ready State Wayside (OPRD) - 1989
 Round Top Butte Preserve (TNC) - 1986
 Rowena Plateau (OPRD) - 1993
 Saddle Mountain (OPRD) – dedicated in 2005
 Santiam – Kingston Hills (GLT) - 2019
 Scappoose Bay (OPRD) -1999
 Simpson Reef – Cape Arago (DSL) - 1992
 Skull & Little Wallace Island (DSL) - 1991

Smith Island (DSL) - 1989
 Snag Boat Bend (USFWS) - 1999
 South Grouse Gap (FS) - 1998
 South Slough (DSL) - 1991
 Succor Creek (PRD) – 1988
 Squally Point Dunes (OPRD) - 1993
 Starvation Creek and Warren Creek (OPRD, FS) -
 1990
 Steens Mountain – Ankle Creek (BLM) - 2001
 Steens Summit (BLM) - dedicated 1979
 Succor Creek (OPRD) - 1988
 Sycan Marsh Preserve (TNC) – 1988, 2013
 Table Rocks (TNC, BLM) – 1986, 2008
 Tillamook Bay Preserve (TNC) – 2011, 2017
 Tillamook Bay Additions - Kilches (TNC) - 2017
 Tillamook River Wetland (NCC) - 2020
 Tom McCall Preserve at Rowena (TNC) - 1986
 Twin Rocks Bluffs (OPRD) - 1999

Tygh Valley (OPRD) - 1991
 Umpqua Lighthouse (OPRD) – 2002
 Upper Klamath Lake (USFWS) – 2013, 2020
 Wallace and Anunde Islands (USFWS) – 1993
 Westport Slough (USFWS) - 1991
 West Sand Island (COE) - 1988
 Whalen Island (OPRD) – 2001
 Whetstone Savanna Preserve (CNLM) - 1995
 Willamette Confluence Preserve (TNC) – 2010
 Willamette Mission State Park (OPRD) - 1999
 Willamina Oaks (CTGR) – 2014, 2015
 Williamson River Delta Preserve (TNC) – 1997,
 2007
 Willow Creek Preserve (TNC) - 1998
 Winchuck Slope (DSL) - dedicated 1979
 Woodcock Creek (DSL) - 1990
 Yamhill Oaks Preserve (YSCD) – 2009, 2013
 Zumwalt Prairie Preserve (TNC) – 2001, 2006

BMT – Blue Mountains Land Trust
 CLT – Columbia Land Trust
 CNLM – Center for Natural Lands Management
 CTGR – Confederated Tribes of the Grand Ronde
 CTWS – Confederated Tribes of the Warm Springs
 DSL – Department of State Lands
 GLT – Greenbelt Land Trust, Trust
 ODF – Department of Forestry

NCC – North Coast Land Conservancy
 ODFW – Department of Fish and Wildlife
 ODOT – Department of Transportation
 OPRD – Parks and Recreation Department
 TNC – The Nature Conservancy
 TWC – The Wetlands Conservancy
 WRC – Wild Rivers Land Conservancy
 YSCD – Yamhill Soil & Water Conservatio

APPENDIX 3. OREGON'S NATURAL AREAS

The following pages contain the list of Oregon's Natural Areas. The list is generated from a spreadsheet which is available online at https://inr.oregonstate.edu/sites/inr.oregonstate.edu/files/2020_or_natural_areas_plan.pdf. The table is sorted by ecoregion and then by the name of the natural area, and includes additional columns reflecting ownership (which for public lands often refers to the managing or decision-making agency) as well as its size in acres. The ownership – management or natural area type columns have the following acroynms.

Owner - Manager	Owner - Manager Name	Owner - Manager	Owner – Manager Name
ACE	Army Corps of Engineers	Jackson	Jackson County
Benton	Benton County	Lane	Lane County
BLM	USDI Bureau of Land Management	MNA	Metro Natural Area
BMT	Blue Mountains Land Trust	NCC	North Coast Land Conservancy
BPT	Burns Piauete Tribe	NPS	USDI National Park Service
Clackamas	Clackamas County	NRCS	USDA Natural Resources Conservation Service
CLT	Columbia Land Trust	ODFW	Oregon Department of Fish and Wildlife
CNLM	Center for Natural Lands Management	ODOT	Oregon Department of Fish and Wildlife
Corvallis	City of Corvallis	OPAC	Oregon Ocean Policy Advisory Council- DSL
CTGR	Confereated Tribes of the Grand Ronde	OPRD	Oregon Parks and Recreation Department
CTWS	Confereated Tribes of the Warm Springs	PVT	Privately Owned Natural Area
DLT	Deschutes Land Trust	TNC	The Nature Conservancy
DOD	Department of Defense	TWC	The Wetlands Conservancy
DSL	Oregon Department of State Lands	USDA	United States Department of Agriculture
FS	USDA Forest Service	USDI	United States Department of Interior
FWS	USDI Fish and Wildlife Service	WRLT	Wild Rivers Land Trust
GLT	Greenbelt Land Trust	Yamhill	Yamhill County Soil & Water Conservation District

Type	Natural Area Type Name	Type	Natural Area Type Name
ACEC	BLM Area of Critical Environmental Concern	Preserve	NGO Preserve - Natural Area
MHR	ODFW Marine or Intertidal Habitat Refuge	RNA	Federal Research Natural Area
LNA	Local Government Natural Area	SNA	State Parks Natural Area
LGP	Local Government Park	SP	Oregon State Park lands
MRR	ODFW Marine or Intertidal Research Reserve	WSR	Federal Wild and Scenic River
NERR	NOAA National Estuarine Research Reserve	TCA	Tribal Conservation or Wildlife Area
NP	NPS National Park	WA	National Wilderness Area
NWR	USFWS National Wildlife Refuge	WSA	National Wilderness Study Area
ACEC	BLM Area of Critical Environmental Concern	WMA	ODFW Wildlife Management Area

In addition, the table includes columns indicating if the site is a Natural Area or Other, where other indicates other management types that can protect species indentified in the plan. There are columns identifying those sites that are included on the Natural Areas Register, or have been Designated as Natural Areas under the Oregon Natural Area Program rules. Lastly, there are columns that indicate whether the designation type has been completely established, or proposed; although only proposed sites actively managed as natural areas that are in the process of being dedicated or established by the owner or managing agency are included in the list.

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Bandon Marsh NWR	ME	FWS	1,918	X				X	
Boiler Bay RR	ME	OPAC	45	X				X	
Brookings RR	ME	OPAC	151	X				X	
Bull Island SNA	ME	DSL	60	X				X	
Cape Arago MG and Simpson Reef SNA	ME	OPRD	236	X				X	
Cape Arago RR	ME	OPAC	268	X				X	
Cape Falcon MR	ME	OPAC	7,919	X				X	
Cape Falcon WestMPA	ME	OPAC	4,720	X				X	
Cape Kiwanda MG	ME	ODFW	13		X			X	
Cape Lookout SNA - The Salt Marsh	ME	OPRD	531	X			X	X	
Cape Perpetua MG	ME	ODFW	37		X			X	
Cape Perpetua MR	ME	OPAC	9,008	X				X	
Cape Perpetua Seabird Protection Area	ME	OPAC	14,225	X				X	
Cascade Head MR	ME	OPAC	6,173	X				X	
Cascade Head SouthMPA	ME	OPAC	6,144	X				X	
Cascade Head WestMPA	ME	OPAC	827	X				X	
Cox Island Preserve	ME	TNC	196	X				X	
Davis Slough	ME	DSL	62	X			X	X	
Gregory Point RR	ME	OPAC	61	X				X	
Haystack Rock MG	ME	ODFW	75		X			X	
Knappa Slough Island	ME	DSL	5	X			X	X	
Nehalem Bay SNA	ME	OPRD	70	X			X	X	
Neptune State Park Intertidal RR	ME	OPAC	54	X				X	
Nestucca Bay NWR Estuaries	ME	FWS	362	X			X	X	
Netarts Spit SNA Reserve	ME	OPRD	385	X			X	X	
North Spit ACEC	ME	BLM	709	X				X	
Otter Rock MG	ME	OPAC	53	X				X	
Otter Rock MR	ME	OPAC	740	X				X	
Pirate Cove RR	ME	OPAC	8	X				X	
Redfish Rocks MR	ME	OPAC	1,683	X				X	
Redfish RocksMPA	ME	OPAC	3,266	X				X	
Simpson Reef - Cape Arago	ME	OPAC	40	X			X	X	
Smith Island	ME	DSL	11	X			X	X	
South Slough National Estuarine RR	ME	DSL	4,779	X			X	X	
Tenasillahe Island RNA	ME	FWS	1,937	X				X	
Tillamook Bay Preserve - Kilches	ME	TNC	60	X			X	X	
Tillamook River Wetlands	ME	NCC	70	X			X	X	
West Sand Island	ME	DOD	495				X		X
Whale Cove Habitat Refuge	ME	OPAC	32	X				X	
Whalen Island SNA	ME	OPRD	95	X			X	X	
William P. Keady pSNA	ME	OPRD	5	X					X
Yachats MG	ME	DSL	15		X			X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Yachats pSNA	ME	OPAC	23	X					X
Yaquina Estuary - McCaffery/Poole Sloughs	ME	TWC	1	X			X	X	
Yaquina Head MG	ME	ODFW	62	X			X	X	
Alfred A. Loeb State Park	CR	OPRD	319		X			X	
Beaver Creek SNA	CR	OPRD	377	X			X	X	
Big Creek Preserve	CR	OPRD	204	X				X	
Blacklock Point SNA	CR	OPRD	1,021	X			X	X	
Blind Slough Swamp	CR	NCC	801	X			X	X	
Blowout Ponds SNA (in Washburn State Park)	CR	OPRD	40	X			X	X	
Bradley Bog Preserve	CR	NCC	47	X				X	
Butterfield Fen Preserve	CR	TWC	56	X				X	
Cape Arago State Park	CR	OPRD	154		X			X	
Cape Blanco SNA Reserve	CR	OPRD	283	X			X	X	
Cape Blanco State Park	CR	OPRD	1,803		X			X	
Cape Ferrello SNA	CR	OPRD	19	X			X	X	
Cape Kiwanda pSNA	CR	OPRD	282	X					X
Cape Lookout SNA - The Cape	CR	OPRD	415	X			X	X	
Cape Lookout State Park	CR	OPRD	1,564		X			X	
Cape Meares SNA Reserve	CR	OPRD	233	X			X	X	
Cape Sebastian SNA	CR	OPRD	246	X			X	X	
Carl Washburne Blowout Ponds SNA	CR	OPRD	44	X			X	X	
Cascade Head Preserve	CR	TNC	309	X		X	X	X	
Cherry Creek RNA	CR	BLM	591	X				X	
Coquille River Falls RNA	CR	FS	530	X				X	
Crissey Field SNA	CR	OPRD	11	X			X	X	
Crook Point NWR	CR	FWS	155		X		X	X	
Cummins/Gwynn Creeks RNA	CR	FS	6,498	X				X	
Darlingtonia SNA	CR	OPRD	16	X				X	
Drift Creek WA	CR	FS	5,789		X			X	
Ecola State Park	CR	OPRD	1,354		X			X	
Flynn Creek RNA	CR	FS	649	X				X	
Grass Mountain RNA	CR	BLM	705	X				X	
Grassy Knob WA	CR	FS	17,176		X			X	
Harris Beach State Park	CR	OPRD	194		X			X	
Heceta Dunes ACEC	CR	BLM	211	X				X	
High Peak - Moon Creek RNA	CR	BLM	1,491	X				X	
Humbug Mountain SNA	CR	OPRD	735	X			X	X	
Humbug Mountain State Park	CR	OPRD	1,804		X			X	
Ian Peterson-Nedry Preserve (Woahink Bog)	CR	TWC	103	X				X	
Indian Sands SNA	CR	OPRD	98	X			X	X	
Jessie M. Honeyman State Park	CR	OPRD	504		X			X	
Keystone Preserve	CR	WRT	167	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
L. Presley and Vera C. Gill State Park	CR	OPRD	35		X			X	
Lake Marie - Umpqua Lighthouse pSNA	CR	OPRD	375	X					X
Lewis and Clark NHP	CR	NPS	1,229		X			X	
Lewis and Clark NWR	CR	FWS	6,846		X			X	
Little Wallace Island	CR	DSL	7	X				X	
Lost Prairie ACEC	CR	BLM	61	X				X	
Myrtle Island RNA	CR	BLM	23	X				X	
Nesika Beach Preserve	CR	WRT	46	X			X	X	
Neskowin Crest RNA	CR	FS	1,169	X				X	
Neskowin Marsh-Nestucca Bay NWR	CR	FWS	1,198		X			X	
New River ACEC	CR	BLM	1,136	X				X	
North Fork Chetco River ACEC	CR	BLM	423	X				X	
Onion Peak Preserve	CR	NCC	410	X			X	X	
Onion Peak SNA Reserve	CR	DSL	580	X			X	X	
Ophir Dunes	CR	ODOT	54	X			X	X	
Oregon Islands NWR	CR	FWS	95		X			X	
Oswald West State Park	CR	OPRD	2,603		X			X	
Otter Point SNA	CR	OPRD	72	X			X	X	
Pistol River State Scenic Viewpoint	CR	OPRD	59,400		X			X	
Port Orford Cedar RNA	CR	FS	1,100	X				X	
Port Orford Heads State Park	CR	OPRD	126		X			X	
Reneke Creek RNA	CR	FS	393	X				X	
Rogue River WSR	CR	FS	7,287		X			X	
Russian Island pRNA	CR	FWS	640	X					X
Saddle Bag Mountain RNA	CR	BLM	206	X				X	
Saddle Mountain SNA	CR	OPRD	3,192	X			X	X	
Sand Lake RNA	CR	FS	209	X				X	
Shore Acres State Park	CR	OPRD	722		X			X	
Skull Island	CR	DSL	25	X			X	X	
Smelt Sands State Park	CR	OPRD	28		X			X	
Sunset Beach pSNA	CR	OPRD	193	X				X	
Sutton Lake Swamp Preserve	CR	TNC	14	X				X	
Tenmile closure area	CR	FS	1,338		X			X	
Tenmile Creek RNA	CR	FS	161	X				X	
Twin Rocks SNA	CR	OPRD	44	X			X	X	
Umpqua Lighthouse State Park	CR	OPRD	375	X			X	X	
Umpqua R. WA - Brads Creek ACEC	CR	BLM	166	X				X	
Valley of the Giants ONA-ACEC	CR	BLM	1,661	X				X	
Walker Flat ACEC	CR	BLM	11	X				X	
Wassen Creek ACEC	CR	BLM	3,396	X				X	
Westport Slough	CR	FWS	98		X		X	X	
Wheeler Creek RNA	CR	FS	338	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
White Rock Fen ACEC	CR	BLM	66	X				X	
Wild Rogue WA	CR	FS	8,557		X			X	
William M. Tugman State Park	CR	OPRD	830		X				X
Winchuck Slope SNA Reserve	CR	DSL	189	X		X		X	
Ankeny NWR	WV	FWS	2,801		X			X	
Bald Hill Natural Area	WV	Corvallis	284	X			X	X	
Baskett Slough NWR	WV	FWS	2,517		X			X	
Beggars-Tick Wildlife Refuge	WV	MNA	21	X				X	
Burlington Bottoms	WV	ODFW	432		X		X	X	
Camas Swale RNA	WV	BLM	313	X				X	
Camassia Preserve	WV	TNC	27	X			X	X	
Champoeg State Heritage Area	WV	OPRD	599		X			X	
Coburg Ridge Preserve	WV	TNC	1,270	X			X	X	
Cogswell-Foster Preserve	WV	TNC	92	X				X	
Courtney Creek Preserve	WV	GLT	203	X			X	X	
Diamond Peak WA	WV	FS	52,460		X			X	
East Sand Island	WV	ACE	100		X				X
Elijah Bristow State Park	WV	OPRD	860		X			X	
Fern Ridge RNA	WV	DOD	298	X				X	
Flagg Island	WV	MNA	15	X			X	X	
Forest Peak RNA	WV	BLM	142	X				X	
Fox Hollow RNA	WV	BLM	161	X				X	
Gary Island	WV	MNA	49	X			X	X	
Goat Island pSNA	WV	DSL	40		X		X		X
Horseshoe Lake Preserve	WV	GLT	124	X			X	X	
Howard Buford Recreation Area	WV	Lane Co.	2,363		X			X	
Jackson-Frazier Wetland	WV	Benton Co.	147	X			X	X	
Killin Wetlands	WV	MNA	590	X				X	
Kingston Prairie Preserve	WV	GLT	148	X			X	X	
Little North Santiam River	WV	FS	202	X			X		X
Little Rock Island SNA	WV	OPRD	38	X			X	X	
Little Sink RNA	WV	BLM	80	X				X	
Long Tom ACEC	WV	BLM	8	X				X	
Luckiamute Landing SNA	WV	OPRD	291	X			X	X	
Maple Knoll RNA	WV	FWS	107	X				X	
Noble Oaks	WV	CTGR	471	X				X	
Peach Cove Fen Natural Area	WV	MNA	87	X				X	
Philomath Preserve	WV	TNC	120	X				X	
Pigeon Butte RNA	WV	FWS	75	X				X	
Ponderosa Pine pACEC	WV	BLM		X					X
Prescott Park	WV	Corvallis	1,712		X			X	
Rattlesnake Butte Preserve	WV	CTGR	51	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Santiam - Kingston Hills	WV	GLT	406	X			X	X	
Sauvie Island WMA	WV	ODFW	11,114		X			X	
Scappoose Bay SNA	WV	OPRD	300	X			X	X	
Seneca Fouts Memorial SNA	WV	OPRD	416		X			X	
Silver Falls State Park	WV	OPRD	8,875		X			X	
Snag Boat Bend	WV	FWS	344	X			X	X	
The Butte RNA	WV	BLM	40	X				X	
Wallace & Anunde Islands	WV	FWS	325		X		X	X	
Wilhoit Springs Park	WV	Clackamas Co.	16	X				X	
Willamette Confluence Preserve	WV	TNC	1,247	X			X	X	
Willamette Mission State Park	WV	OPRD	100		X		X	X	
William L. Finley NWR	WV	FWS	5,705		X		X	X	
Willimina Oaks	WV	CTGR	669		X		X	X	
Willow Creek Preserve	WV	TNC	514	X			X	X	
Wren Prairie Preserve	WV	TNC	9	X				X	
Yamhill Oaks Preserve	WV	Yamhill SWCD	300	X			X	X	
Ace Williams Mountain	KM	BLM	281	X			X		X
Agate Desert Preserve	KM	CNLM	49	X				X	
Ashland RNA	KM	FS	1,309	X				X	
Babyfoot Lake Botanical SIA	KM	FS	328	X				X	
Baker Cypress ACEC	KM	BLM	43	X				X	
Bear Gulch RNA	KM	BLM	353	X				X	
Beatty Creek RNA	KM	BLM	865	X				X	
Big Craggies SIA	KM	FS	3,932	X				X	
Bobby Creek RNA	KM	BLM	1,915	X				X	
Brewer Spruce RNA	KM	BLM	1,706	X				X	
Bushnell-Irwin Rocks RNA	KM	BLM	1,089	X				X	
Cascade-Siskiyou NM	KM	BLM	160,274		X			X	
Cedar Log Flat RNA	KM	FS	418	X				X	
Denman WMA	KM	ODFW	2,091		X		X	X	
Eight Dollar Mountain Preserve	KM	TNC	44	X			X	X	
Eight Dollar Mountain SNA	KM	OPRD	651	X			X	X	
French Flat ACEC	KM	BLM	654	X				X	
Givan Park	KM	Jackson Co.	169		X		X	X	
Grayback Glades RNA	KM	BLM	1,020	X				X	
Grayback Mountain SIA	KM	FS	826	X				X	
Hinckle Lake SIA	KM	FS	416	X				X	
Holton Creek RNA	KM	BLM	422	X				X	
Hoover Gulch RNA	KM	FS	1,311	X				X	
Hunter Creek Bog ACEC	KM	BLM	722	X				X	
Illinois River Forks SNA	KM	OPRD	271	X			X	X	
Illinois River Forks State Park	KM	OPRD	370						

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Kalmiopsis WA	KM	FS	180,153		X			X	
Lemmingsworth Gulch RNA	KM	FS	1,037	X				X	
Lost Lake RNA	KM	BLM	387	X				X	
Miller Lake SIA	KM	FS	1,354	X				X	
North Fork Chetco River ACEC	KM	BLM	603	X				X	
North Fork Hunter Creek ACEC	KM	BLM	1,926	X				X	
North Fork Silver Creek RNA	KM	BLM	499	X				X	
North Myrtle Creek RNA	KM	BLM	453	X				X	
Oliver Mathews / Craggy Peaks pRNA	KM	FS	1,106	X					X
Oregon Caves NM	KM	NPS	4,560		X			X	
Oregon Gulch RNA	KM	BLM	1,052	X				X	
Pipe Fork RNA	KM	BLM	517	X				X	
Popcorn Swale Preserve	KM	TNC	33	X				X	
Poverty Flat ACEC	KM	BLM	29	X				X	
Red Buttes WA	KM	FS	3,777		X			X	
Red Flat SIA	KM	FS	56	X				X	
Red Mountain pRNA	KM	FS	247	X				X	
Rogue River Plains Preserve	KM	CNLM	127	X				X	
Rough And Ready ACEC	KM	BLM	1,191	X				X	
Rough and Ready Creek Preserve	KM	TNC	112	X			X	X	
Rough And Ready SNA	KM	OPRD	30	X			X	X	
Round Top Butte Preserve	KM	TNC	140	X			X	X	
Round Top Butte RNA	KM	BLM	606	X				X	
Scotch Creek RNA	KM	BLM	1,781	X				X	
Soda Mountain WSA	KM	BLM	24,725		X				X
Sourgame SIA	KM	FS	440	X				X	
South Grouse Gap	KM	FS	514		X		X	X	
Table Rocks ACEC	KM	BLM	240	X				X	
Table Rocks Preserve	KM	TNC	1,248	X			X	X	
Touvelle State Recreation Site	KM	OPRD	57		X			X	
Whetstone Savanna Preserve	KM	CNLM	228	X			X	X	
Woodcock Bog RNA	KM	BLM	265	X				X	
Woodcock Creek	KM	DSL	640	X			X		X
Abbott Creek RNA	WC	FS	2,762	X				X	
Ainsworth State Park	WC	OPRD	179	X			X	X	
Bagby RNA	WC	FS	624	X				X	
Benson SNA	WC	OPRD	60	X			X	X	
Big Bend Mountain pRNA	WC	FS	4,829	X					X
Boulder Creek WA	WC	FS	19,913		X			X	
Bridal Veil Falls SNA	WC	OPRD	25	X				X	
Bull Run RNA	WC	FS	374	X				X	
Cache Mountain RNA	WC	FS	1,602	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Carolyns Crown RNA	WC	BLM	266	X				X	
Cherry Creek Basin RNA	WC	FS	9,592	X				X	
Coopey Falls SNA	WC	OPRD	13	X			X	X	
Cougar Butte RNA	WC	FS	2,646	X				X	
Crater Lake NP	WC	NPS	183,038		X			X	
Desert Creek RNA	WC	NPS	1,787	X				X	
Elowah Falls SNA	WC	OPRD	68	X			X	X	
Gold Lake Bog RNA	WC	FS	439	X				X	
Grassy Mountain ACEC	WC	BLM	65	X				X	
Gumjuwac-Tolo RNA	WC	FS	3,675	X				X	
Guy W. Talbot State Park	WC	OPRD	392		X			X	
Hagan RNA	WC	FS	1,097	X				X	
Horse Rock Ridge Preserve	WC	TNC	68	X				X	
Horse Rock Ridge RNA	WC	BLM	378	X				X	
Katsuk Butte RNA	WC	FS	883	X				X	
Latourell Falls SNA	WC	OPRD	90	X			X	X	
Limpy Rock RNA	WC	FS	1,981	X				X	
Llao Rock RNA	WC	NPS	415	X				X	
Many Lakes RNA	WC	FS	843	X				X	
Mckenzie Pass RNA	WC	FS	1,284	X				X	
Menagerie WA	WC	FS	4,965		X			X	
Middle Santiam River Terrace ACEC	WC	BLM	206	X				X	
Middle Santiam RNA	WC	FS	1,190	X				X	
Mohawk RNA	WC	BLM	289	X				X	
Mountain Lakes WA	WC	FS	23,036		X			X	
Mt. Hood WA	WC	FS	64,742		X			X	
Mt. Jefferson WA	WC	FS	109,082		X			X	
Mt. Thielsen WA	WC	FS	55,127		X			X	
Mt. Washington WA	WC	FS	54,409		X			X	
Multnomah Falls SNA	WC	FS	397	X			X	X	
Multorpor Fen	WC	FS	56		X			X	
North Umpqua WSR	WC	FS	8,183		X			X	
Olallie Ridge RNA	WC	FS	732	X				X	
Pumice Desert RNA	WC	NPS	2,884	X				X	
Red Pond RNA	WC	BLM	141	X				X	
Rigdon Point RNA	WC	FS	469	X				X	
Rogue-Umpqua WA	WC	FS	35,750		X			X	
Rooster Rock SNA	WC	OPRD	516	X			X	X	
Salmon-Huckleberry WA	WC	FS	62,188		X			X	
Sandy River Gorge MNA Preserve	WC	MNA	287	X				X	
Sandy River Gorge Preserve	WC	TNC	29	X				X	
Sandy River Gorge RNA	WC	BLM	74	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Sharon Fen Preserve	WC	TNC	1,649	X				X	
Sherwood Butte pRNA	WC	FS	1,485	X					X
Sky Lakes WA	WC	FS	113,571		X			X	
Sphagnum Bog RNA	WC	NPS	169	X				X	
Squaw Flat RNA	WC	FS	537	X				X	
Starvation Creek SNA	WC	FS	120	X			X	X	
Starvation Creek State Park	WC	OPRD	125		X			X	
Tater Hill RNA	WC	BLM	303	X				X	
Three Creek RNA	WC	FS	727	X				X	
Three Sisters WA	WC	FS	283,824		X			X	
Torrey Charlton RNA	WC	FS	660	X				X	
Upper Elk Meadows RNA	WC	BLM	223	X				X	
Viento State Park	WC	OPRD	293		X			X	
Waldo Lake WA	WC	FS	36,868		X			X	
Wickiup Springs pRNA	WC	FS	1,563	X					X
Wildcat Mountain RNA	WC	FS	1,495	X				X	
Augur Creek RNA	EC	FS	2,108	X				X	
Badger Creek WA	EC	FS	28,910		X			X	
Big Marsh Creek WSR	EC	FS	91		X			X	
Bluejay RNA	EC	FS	788	X				X	
Cannon Well RNA	EC	FS	664	X				X	
Collier Memorial SNA	EC	OPRD	186	X			X	X	
Columbia Oaks SNA	EC	OPRD	50	X			X	X	
Ewauna Flat Preserve	EC	TNC	7	X				X	
Fourmile Wetlands Preserve	EC	NRCS	1,855	X				X	
Goodlow Mountain RNA	EC	FS	1,240	X				X	
Headwaters of the Cultus River	EC	FS	315	X				X	
Klamath Marsh NWR	EC	FWS	41,567		X			X	
Klamath WMA	EC	ODFW	3,286		X			X	
Lower Klamath NWR	EC	FWS	1,130		X			X	
Mayer State Park	EC	OPRD	689		X			X	
Memaloose SNA	EC	OPRD	76	X			X	X	
Memaloose State Park	EC	OPRD	415		X			X	
Metolius River Preserve	EC	DLT	1,272	X				X	
Metolius RNA	EC	FS	1,343	X				X	
Mill Creek Ridge	EC	BLM	120		X		X		X
Mill Creek Ridge Paintbrush Meadows	EC	CLT	115	X			X	X	
Mill Creek RNA	EC	FS	831	X				X	
Miller Island WMA	EC	ODFW	2,422	X			X	X	
Mokst Butte RNA	EC	FS	1,323	X				X	
Old Baldy RNA	EC	BLM	521	X				X	
Pringle Falls RNA	EC	FS	1,343	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Rowena Plateau SNA	EC	OPRD	236	X			X	X	
Rowena, Tom McCall Preserve	EC	TNC	231	X			X	X	
Silver Lake Exclosure RNA	EC	FS	262	X				X	
Slide Mountain SIA	EC	FS	2,501	X				X	
Slide Mountain SIA	EC	FS	1,088	X				X	
Sycan Marsh Preserve	EC	TNC	30,060	X			X	X	
Upper Klamath Lake NWR	EC	FWS	23,272		X		X	X	
Vee Pasture RNA	EC	FS	623	X				X	
Wechee Butte RNA	EC	FS	357	X				X	
White River WMA	EC	ODFW	29,528		X			X	
Wildhaven Preserve	EC	TNC	161	X				X	
Williamson River Delta Preserve	EC	TNC	6,673	X			X	X	
Yainax Butte ACEC	EC	BLM	708	X				X	
Boardman Grasslands Managed Area	CB	CNLM	22,622	X				X	
Boardman RNA	CB	DOD	5,654	X				X	
Cold Springs NWR	CB	FWS	439		X			X	
Deschutes WSR	CB	BLM/DSL	7,398		X			X	
Hat Rock State Park	CB	OPRD	661		X			X	
Irrigon WA	CB	ODFW	827		X			X	
John Day WSR	CB	BLM	51,282		X				X
Lawrence Memorial Grassland	CB	CNLM	377	X				X	
Lindsay Prairie Preserve	CB	CNLM	353	X			X	X	
Squally Point Dunes SNA	CB	OPRD	39	X			X	X	
Tygh Valley SNA	CB	OPRD	57	X			X	X	
Umatilla NWR	CB	FWS	1,827		X			X	
Baldy Mountain pRNA	BM	FS	3,859	X					X
Basin Creek pRNA	BM	FS	754	X			X		X
Bills Creek pRNA	BM	FS	28	X					X
Birch Creek Cove pRNA	BM	FS	411	X					X
Black Canyon - Prineville RNA	BM	BLM	6,639	X				X	
Bob Creek pRNA	BM	FS	183	X				X	
Bull Flat pSNA	BM	DSL	256	X			X		X
Canyon Creek RNA	BM	FS	741	X				X	
Castle Rock ACEC	BM	BLM	22,803	X				X	
Charles Grier Johnson Jr. pRNA	BM	FS	131	X					X
Clarno - John Day Fossil Beds NM	BM	NPS	7,030		X			X	
Clear Creek Ridge pRNA	BM	FS	662	X					X
Clear Lake Ridge Preserve	BM	TNC	3,464	X			X	X	
Conley Lake WMA	BM	ODFW	160		X		X	X	
Craig Mountain Lake pRNA	BM	FS	172	X					X
Crane Prairie Reservoir WMA	BM	FS/ODFW	3,420		X			X	
Crooked River National Grassland	BM	FS	112,004		X			X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Dixie Butte pRNA	BM	FS	335	X					X
Dry Mountain RNA	BM	BLM/FS	4,400	X				X	
Duck Lake RNA	BM	FS	312	X				X	
Dugout Creek RNA	BM	FS	4,991	X				X	
Eagle Cap WA	BM	FS	355,487		X			X	
Forest Creek - Fox Canyon RNA	BM	BLM	131	X				X	
Forest Creek - Rough Canyon RNA	BM	BLM	239	X				X	
Gerald S. Strickler RNA	BM	FS	195	X				X	
Glacier Lake pRNA	BM	FS	102	X					X
Glass Hill	BM	BMT	1,230	X		X	X		X
Haystack Butte RNA	BM	FS	74	X				X	
Haystack Rock pRNA	BM	FS	425	X					X
Hells Canyon WA	BM	FS	131,343		X			X	
Hilgard Junction State Recreation Area	BM	OPRD	1,084		X			X	
Horse Pasture Ridge RNA	BM	FS	338	X				X	
Horse Ridge RNA	BM	BLM	609	X				X	
Hunt Mountain ACEC	BM	BLM	1,236	X				X	
Hurricane Creek-Eagle Cap WA	BM	FS	1,606		X			X	
Imnaha WSR	BM	FS	17,412		X			X	
Indian Creek RNA	BM	FS	1,003	X				X	
Joseph Creek ACEC	BM	BLM	1,374	X				X	
Juniper Hills Preserve	BM	TNC	14,045	X			X	X	
Kahler Creek Butte pRNA	BM	FS	84	X					X
Keating Riparian RNA	BM	BLM	206	X				X	
Ladd Marsh WMA	BM	ODFW	5,465	X	X		X	X	
Lake Fork pRNA	BM	FS	660	X					X
Logan Valley Wildlife Area	BM	BPT	1,769		X		X	X	
Middle Fork John Day Preserve	BM	CTWS	1,269	X			X	X	
Mill Creek Watershed pRNA	BM	FS	7,491	X					X
Minam State Park	BM	OPRD	608		X			X	
Mount Joseph pRNA	BM	FS	705	X					X
Nebo pRNA	BM	FS	2,340	X					X
North Fork Crooked River ACEC	BM	BLM	6,889	X				X	
North Fork Crooked River WSR	BM	BLM	10,778	X				X	
North Fork John Day WA	BM	FS	120,999		X			X	
North Fork Malheur River ACEC	BM	BLM	1,811	X				X	
North Ridge Bully Creek RNA	BM	BLM	1,568	X				X	
Ochoco Divide RNA	BM	FS	1,906	X				X	
Ochoco Wayside SNA	BM	OPRD	174	X			X	X	
Painted Hills - John Day Fossil Beds NM	BM	NPS	3,000		X			X	
Peck's Milkvetch ACEC	BM	BLM	10,081	X				X	
Phillip Schneider WMA (Murderers Cr.)	BM	ODFW	38,879		X			X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Pleasant Valley pRNA	BM	FS	1,492	X					X
Point Prominence pRNA	BM	FS	365	X					X
Powell Butte RNA	BM	BLM	510	X				X	
Prineville Reservoir WMA	BM	ODFW	3,030		X			X	
Pumpkin Ridge	BM	PVT	160	X			X	X	
Shaketable RNA	BM	FS	389	X				X	
Sheep Mountain ACEC	BM	BLM	5,292	X				X	
Sheep Rock RNA	BM	NPS	1,064	X				X	
Silver Creek pRNA	BM	FS	802	X					X
Silver Creek RNA	BM	BLM	1,933	X				X	
Smith Rock State Park	BM	OPRD	648		X			X	
Snake WSR	BM	FS	8,020		X			X	
South Fork Walla Walla River ACEC	BM	BLM	2,042	X				X	
South Ridge Bully Creek RNA	BM	BLM	620	X				X	
Standley pRNA	BM	FS	742	X					X
Stinger Creek pRNA	BM	FS	1,663	X					X
Strawberry Mountain pRNA	BM	FS	107	X					X
Strawberry Mountain WA	BM	FS	69,411		X			X	
Sturgill pRNA	BM	FS	139	X					X
Sutton Mountain WA	BM	BLM	28,866		X			X	
Tenderfoot Basin pRNA	BM	FS	891	X					X
The Island pRNA	BM	FS	82	X					X
The Island RNA	BM	BLM	199	X				X	
Vance Knoll RNA	BM	FS	188	X				X	
Vinegar Hill pRNA	BM	FS	424	X					X
Vinegar Hill-Indian Rocks SIA	BM	FS	35,068	X				X	
Warner Wetlands ACEC	BM	BLM	51,866	X				X	
Wenaha Breaks RNA	BM	FS	1,702	X				X	
Wenaha-Tucannon WA	BM	FS	9,592		X			X	
West Razz Lake pRNA	BM	FS	47	X					X
Zumwalt Prairie Preserve/NNL	BM	TNC	3,793	X	X		X	X	
Abert Rim ACEC	BR	BLM	18,047	X				X	
Alvord Desert ACEC	BR	BLM	21,651	X				X	
Alvord Desert WSA	BR	BLM	69,427		X				X
Benjamin RNA	BR	BLM	637	X				X	
Big Alvord Creek RNA	BR	BLM	1,677	X				X	
Billy Burr Lake (in Sink Lakes RNA)	BR	BLM	545	X			X	X	
Biscuitroot ACEC	BR	BLM	6,306	X				X	
Black Canyon - Vale RNA	BR	BLM	2,639	X				X	
Black Hills RNA	BR	BLM	3,048	X				X	
Borax Lake ACEC	BR	BLM	761	X				X	
Borax Lake Preserve	BR	TNC	319	X			X	X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
Bridge Creek WMA	BR	FWS	12,647		X			X	
Coal Mine Basin RNA	BR	BLM	756	X				X	
Connley Hills RNA	BR	BLM	3,599	X				X	
Crooked Creek SNA	BR	OPRD	564	X			X	X	
Crump Lake Preserve	BR	TNC	604	X				X	
Crump Lake South	BR	DSL	990	X			X	X	
Crump Lake South pSNA	BR	DSL	990	X			X		X
Diamond Craters ONA-ACEC	BR	BLM	17,033	X				X	
Dry Creek Bench RNA	BR	BLM	1,638	X				X	
Dry Creek Buttes WSA	BR	BLM	51,311		X				X
Dry Creek Gorge ACEC	BR	BLM	16,037	X				X	
East Alvord WSA	BR	BLM	22,146		X				X
East Fork Trout Creek RNA	BR	BLM	362	X				X	
East Kiger Plateau RNA	BR	BLM	1,217	X				X	
Fir Groves pACEC	BR	BLM	478	X					X
Fish Creek Rim RNA	BR	BLM	8,724	X				X	
Foley Lake RNA	BR	BLM	2,229	X				X	
Fort Rock SNA	BR	OPRD	349	X				X	
Foster Flat RNA	BR	BLM	2,686	X				X	
Guano Creek-Sink Lakes RNA	BR	BLM	11,194	X				X	
Hammond Hill Sand Hills RNA	BR	BLM	3,715	X				X	
Harney Lake RNA	BR	FWS	28,448	X				X	
Hart Mountain National Antelope Refuge	BR	FWS	270,967		X		X	X	
Hawksie-Walksie RNA	BR	BLM	17,317	X				X	
High Lakes ACEC	BR	BLM	38,974	X				X	
Honeycombs RNA	BR	BLM	15,864	X				X	
Jordan Craters ACEC	BR	BLM	31,394	X				X	
Juniper Mountain RNA	BR	BLM	6,331	X				X	
Lake Abert ACEC	BR	BLM	50,143	X				X	
Lake Ridge RNA	BR	BLM	3,858	X				X	
Leslie Gulch ACEC	BR	BLM	11,680	X				X	
Little Blitzen RNA	BR	BLM	2,256	X				X	
Little Whitehorse Creek RNA	BR	BLM	61	X				X	
Little Wildhorse Lake RNA	BR	BLM	241	X				X	
Long Draw RNA	BR	BLM	441	X				X	
Lost Forest RNA	BR	BLM	8,921	X				X	
Lower Owyhee Canyon WSA	BR	BLM	63,027		X				X
Mahogany Ridge RNA	BR	BLM	681	X				X	
Malheur NWR	BR	FWS	188,043		X			X	
Mendi Gore Playa RNA	BR	BLM	149	X				X	
Mickey Basin RNA	BR	BLM	560	X				X	
Mickey Hot Springs ACEC	BR	BLM	42	X				X	

Natural Area Name	Ecoregion	Ownership	Acres	Natural Area	Other	Dedicated	Registered	Established	Proposed
North Fork Owyhee River	BR	BLM	641		X		X	X	
Owyhee Below Dam ACEC	BR	BLM	11,221	X				X	
Owyhee Breaks WA	BR	BLM	10,322		X			X	
Owyhee River Canyon WA	BR	BLM	150,748		X			X	
Palomino Playa RNA	BR	BLM	643	X				X	
Piute Creek	BR	DSL	1,300		X		X	X	
Poker Jim Ridge RNA	BR	FWS	639	X				X	
Pueblo Foothills RNA	BR	BLM	2,426	X				X	
Rahilly-Gravelly RNA	BR	BLM	18,695	X				X	
Red Knoll ACEC	BR	BLM	11,128	X				X	
Rooster Comb RNA	BR	BLM	683	X				X	
Saddle Butte ACEC	BR	BLM	7,061	X				X	
Sagehen Hills WSA	BR	FWS	7,973		X				X
Sand Dunes WSA	BR	BLM	15,507		X				X
Serrano Point RNA	BR	BLM	679	X				X	
South Alkali Sand Hills ACEC	BR	BLM	3,522	X				X	
South Bull Canyon RNA	BR	BLM	789	X				X	
South Fork Willow Creek RNA	BR	BLM	186	X				X	
South Warner Basin	BR	BLM	1,236		X			X	
Spanish Lake RNA	BR	BLM	4,699	X				X	
Spaulding WSA	BR	BLM	68,459		X				X
Spring Mountain RNA	BR	BLM	1,003	X				X	
Steens Mountain WA (+ Steens Summit NA)	BR	BLM	174,287	X	X	X	X	X	
Stinking Lake RNA	BR	FWS	1,556	X				X	
Stockade Mountain RNA	BR	BLM	1,767	X				X	
Succor Creek SNA	BR	OPRD	2,244	X			X	X	
Summer Lake WMA	BR	ODFW	12,642		X			X	
Table Rock ACEC	BR	BLM	5,138	X				X	
Toppin Creek Butte RNA	BR	BLM	4,001	X				X	
Tum Tum Lake RNA	BR	BLM	1,691	X				X	
Upper West Little Owyhee WSA	BR	BLM	61,591		X				X

Susan Geer's Opening Testimony PCN 5

Exhibit 115

Email from David Giblin

re: new *Pyrrocomma* species

2022

From: [David E. Giblin](mailto:David.E.Giblin)
To: [Geer, Susan - FS](mailto:Geer.Susan@FS)
Subject: [EXTERNAL: Suspicious Link]Re: Pyrrocoma specimens are on their way
Date: Wednesday, October 26, 2022 4:45:34 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

CAUTION: This message triggered warnings of **potentially** malicious web content. Consider whether you are expecting the message, along with inspection for suspicious links, prior to clicking. Any concerns with known senders, use a good contact method to verify.

Send Questions or Suspicious messages to: Spam.Abuse@usda.gov

Susan,

I had a chance to look at the specimens yesterday, and I am confident that this is an undescribed species. Since there is no authority on this genus, I think the best thing to do would be to work on describing it and getting it published. Let me know if you would prefer to do that yourself or whether it is something that you'd like to collaborate on.

David

David Giblin, Ph.D.
Collections Manager and Research Botanist
University of Washington Herbarium (WTU)
Campus Box 355325
Room 30 Hitchcock Hall
Seattle, WA 98195-5325
(206) 543-1682 voice
(206) 685-1728 fax

<http://www.burkemuseum.org/research-and-collections/botany-and-herbarium>
<http://www.pnwherbaria.org/index.php>
<http://www.pnwherbaria.org/florapnw.php>

On Tue, Sep 20, 2022 at 1:20 PM David E. Giblin <dgiblin@uw.edu> wrote:

Susan,

Thanks for sending - I look forward to looking at another set of these plants. If they don't key out any better than the last set then I think it is time to consider whether this is an undescribed entity.

David

David Giblin, Ph.D.
Collections Manager and Research Botanist
University of Washington Herbarium (WTU)
Campus Box 355325

Room 30 Hitchcock Hall
Seattle, WA 98195-5325
(206) 543-1682 voice
(206) 685-1728 fax

<http://www.burkemuseum.org/research-and-collections/botany-and-herbarium>

<http://www.pnwherbaria.org/index.php>

<http://www.pnwherbaria.org/florapnw.php>

On Mon, Sep 19, 2022 at 11:16 AM Geer, Susan - FS <susan.geer@usda.gov> wrote:

Hi David,

I am sending specimens from both Gangloff Park and Morgan Lake Park. I had assumed they are the same—and probably are? The habitats are both remnant prairie but slightly different (as indicated by other plants present) and the Gangloff plants are overall taller with more flowering heads and sometimes serrate (serrulate) leaves that are larger. It is about 1700 ft. lower elevation there.

See what you think. Thanks for looking at them!



Susan Geer, Botanist/Ecologist
Forest Long-term Range Monitoring Co-ordinator
Forest Service

Wallowa-Whitman National Forest

c: 541-519-5815

f: 541-962-8580

susan.geer@usda.gov

3502 Highway 30

La Grande, OR 97850

www.fs.fed.us [fs.fed.us]

 [usda.gov]  [twitter.com]  [facebook.com]

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Susan Geer's Opening Testimony PCN 5

Exhibit 116

Importance of Matrix habitats

By Franklin and Lindenmayer 2009

Importance of matrix habitats in maintaining biological diversity

Jerry F. Franklin^{a,1} and David B. Lindenmayer^b

^aCollege of Forest Resources, University of Washington, Box 352100, Seattle, WA 98195-2100; and ^bFenner School of Environment and Society, Australian National University, Canberra, ACT 0200, Australia

The theory of island biogeography has been the central tenet of conservation biology for several decades, a tenet in which continental landscapes are viewed as islands of suitable habitat patches embedded in a matrix (i.e., surrounded by a sea) of unsuitable habitat. Patch size and isolation are predicted to be the critical variables in determining the efficacy of these habitat patches in preserving biological diversity, but this paradigm has never been broadly evaluated. In a recent issue of PNAS, Prugh *et al.* (1) analyze a large body of available data and make the unexpected discovery that the patch size and isolation are poor predictors of patch occupancy for the majority of species reviewed. This is an important result given the centrality of the patch size-isolation tenet to much of academic conservation biology and its wide application in conservation planning and resource management. In fact, the findings of Prugh *et al.* (1) are largely congruent with other analyses, such as the extensive assessment of fragmentation experiments by Debinski and Holt (2). Collectively these analyses raise significant questions about the merits of island biogeographic theory as a basis for conservation biology.

Issues with Island Biogeography

The weak relationship between patch occupancy and patch area and isolation should, perhaps, not be a surprise given two fundamental views that are basic to the island biogeography: the patch-matrix landscape paradigm and a black-and-white view of habitat suitability. In the classic patch-matrix (or island) model of landscape cover, habitat patches are defined from a human perspective and the matrix is considered nonhabitat. In fact, different elements of the biota are likely to differ in their perception of the same landscape (3). There are alternative conceptual models of landscapes available that are often better at predicting species responses to landscape change than the island model (4) and, also, in identifying what constitutes suitable habitat. Examples are the hierarchical patch dynamics model (5), the landscape variegation model (6), and species-specific gradient models (7, 8). Unfortunately, few ecologists and con-

servation biologists are aware of the richness of alternative conceptual landscape models (9).

Recognition of different models of, and perspectives on, landscapes is critically important because what humans define as a patch may differ significantly from the pattern that is perceived by another species. This will often blur the distinction between “habitat patches” and the surrounding “matrix” [*sensu* Forman (10)]; this, in turn, weakens the effect of patch size and isolation effects. Hence, it is not surprising that Prugh *et al.* (1) found that the type of land cover separating habitat patches most strongly affected sensitivity of species to patch

Matrix management matters because formal reserve systems will never cover more than a small fraction of the globe.

area and isolation. Many of these species may be responding to the overall suitability of landscapes because the landscape matrix surrounding the habitat patches is actually functioning as breeding or foraging habitat or both, rather than simply defining and isolating the patches.

The preceding comments segue to the second, significantly limiting view of island biogeography—a dichotomous division of the world into habitat and nonhabitat, regardless of the specific landscape model (11, 12). In fact, critical habitat for many species does not come at the level of the landscape but at the level of individual habitat features, which are not necessarily confined to any single patch type or landscape-level condition. Hence, conservation of biological diversity has to involve maintenance of habitat at multiple spatial scales, from the scale of centimeters to that of thousands of hectares. For example, critical habitat for some species may be the provision of an individual struc-

ture, such as a standing dead tree or a log on the forest floor, in an otherwise human-modified environment. For other species it may be the provision of a large natural reserve, with a diversity of habitat conditions.

Importance of the Matrix

We strongly agree with Prugh *et al.* (1) that resource management practices that maintain or improve the suitability of the matrix are fundamental to the conservation of biodiversity. Many studies have highlighted the importance of the matrix in agricultural areas (13), temperate forests (11), and tropical forests (e.g., 14 and 15), such as through work on countryside biogeography (16).

Many conservation biologists have largely overlooked the pivotal importance of the matrix and the habitat that it provides for enhanced biodiversity conservation—or could provide, if it were managed differently (11, 12). Rather, most conservation biologists have focused on such topics as retention of large patches of undisturbed habitat as reserves and intact habitat corridors as the primary strategy for providing for connectivity. Indeed, some biologists still assert that reserves are the only way to conserve biological diversity. In fact, approaches to matrix management have major implications for such fundamental tenets of conservation biology as reserve design, metapopulation processes (17), extinction proneness (15), and connectivity and species persistence in human-modified landscapes (11).

Matrix management matters because formal reserve systems will never cover more than a small fraction of the globe; human-modified land—the matrix—overwhelmingly dominates not just forests (11) but all of the world's terrestrial ecosystems (18). Of course, our freshwater ecosystems are also embedded in this same terrestrial landscape along with their constituent biodiversity (11).

Author contributions: J.F.F. and D.B.L. wrote the paper.

The authors declare no conflict of interest.

See companion article on page 20770 in issue 52 of volume 105.

¹To whom correspondence should be addressed. E-mail: jff@u.washington.edu.

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Hence, the future of the vast majority of the earth's species will depend on how the matrix is managed—including not only the human-perceived habitat patches, but also the extensive areas that surround them.

The analysis of effects of matrix type by Prugh *et al.* (1) underlines the importance of the matrix in conservation; we would have liked for she and her colleagues to report further on this analysis. As stated they “. . . did not expect to find consistent effects of matrix type across species” but they most certainly did. As forest ecologists, we were particularly interested in their finding that clearcutting had the strongest isolating effect among the 4 categories of matrix types, including urban matrices. It provides confirmation of the extremely hostile and unnatural state created by clearcutting. This strongly supports the need for timber harvesting practices that provide more favorable environments

for survival and movement of biota, a movement that is well underway in modern forest management (19, 20).

Conclusion

We agree strongly with the conclusion of Prugh *et al.* (1) that the “. . . patch/nonpatch dichotomy appears to be a gross oversimplification for many species in fragmented landscapes.” Conservation biologists and resource managers need to give major attention to the matrix if programs to conserve the world's biological diversity are to succeed. This includes recognizing and facilitating the multiple roles of the matrix in management programs, including provision of habitat and facilitation of movement. As Prugh and her colleagues conclude in their abstract (1), “Improving matrix quality may lead to higher conservation returns than manipulating the size and configuration of remnant patches for many of the species that persist in the

aftermath of habitat destruction.” We agree.

Conservation research and management programs must seriously reflect on the implications of this important analysis (1). Managers must realize that conservation of biological diversity is *not* primarily a set-aside issue that can be dealt with by reserving or modifying management on 10 or 20% of their landscape; rather, it is a pervasive issue that must be considered on every acre of land that they manage. Similarly, conservation scientists must reconsider the focus of their scientific endeavors if their goal is, truly, to retain the majority of the world's biodiversity. For example, what key questions need to be empirically addressed to flesh out the matrix-based conservation biology paradigm? We also think some introspection by conservation scientists may be in order about why it has taken so long for academic conservation biology to recognize and accept the importance of matrix.

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Susan Geer's Opening Testimony PCN 5

Exhibit 117

La Grande City Council Officially Opposes B2H

La Grande Observer

2019

Exhibit Text from on-line LaGrande Observer article:

<https://www.lagrandeobserver.com/news/7091249-151/lg-city-council-officially-voices-opposition-to-b2h>

LG City Council officially voices opposition to B2H

Dick Mason Apr 16, 2019 Updated Sep 10, 2019

The City of La Grande is weighing in on the Boardman to Hemingway debate.

The La Grande City Council has issued a proclamation declaring its opposition to the proposed 300-mile Boardman to Hemingway 500-kilovolt transmission power line, which would pass through Union County and the La Grande area.

"I am very pleased that the city council is advocating for the citizens," said Peter Barry, a member of the Stop B2H Coalition and resident of La Grande. "(The proclamation) makes the citizens feel like they are being listened to by their representatives."

Idaho Power is leading the effort to get the B2H line built with help from partners PacifiCorp and the Bonneville Power Administration. It will cost about \$1 billion. Idaho Power is considering two routes through La Grande, both in the Morgan Lake area. The Mill Creek route would be highly visible while passing through La Grande, whereas the Morgan Lake route would be much less visible.

The council's proclamation stated that if the B2H project does go forward, the route known as the Bureau of Land Management Preferred Route is also the city's preferred route through the La Grande area. Barry said a study by the BLM indicates its preferred route would cause less environmental damage and the B2H's power lines would be less visible than the Mill Creek or Morgan Lake routes.

The BLM's preferred route is also known as the Glass Hill Alternate Route. It would come out of Ladd Canyon and run south of the proposed Mill Creek and Morgan Lake routes.

"The City believes the BLM Preferred Route is a viable option that would not impact the City of La Grande," the proclamation states.

City Manager Robert Strobe said the City of La Grande will have no official influence on whether the B2H line will eventually be approved or on which route it would take through Union County because none of the routes under consideration would pass through La Grande city limits. He said if a portion of the proposed route was within the city limits, the City of La Grande could ask the Oregon Department of Energy that the B2H project meet certain city standards.

La Grande Mayor Steve Clements said city officials have told B2H officials at every meeting they have had in recent years that the city does not want the transmission line to come through here. He cited the visual impact of transmission lines and the damage to the environment their construction and presence would cause.

Clements noted if the Morgan Lake route were used, the power lines would not be visible from La Grande, but at Morgan Lake they would be easy to see, harming the area's view shed.

The Mill Creek and Morgan Lake routes are now being examined by the state's Energy Siting Council. Should the siting council determine both proposed routes meet state standards, Idaho Power will select one, Sven Berg of Idaho Powder told The Observer in early April. Final approval of the route would later have to be given by the Oregon Department of Energy.

See complete story in Monday's Observer

Susan Geer's Opening Testimony PCN 5

Exhibit 118

City of La Grande

Proclamation Against B2H

2019

CITY OF LA GRANDE PROCLAMATION

Declaring and Clarifying Opposition to the Boardman to Hemingway Powerline Project 2019

Whereas, the City of La Grande is the only community of its size along the entire route of the proposed Boardman to Hemingway (B2H) Powerline where view shed and infrastructure impacts would be direct; and

Whereas, the over 13,000 citizens of La Grande will not receive any direct benefit of any nature from the B2H Powerline; and

Whereas, the City of La Grande has repeatedly expressed concerns that the most impactful route to the City of La Grande was selected as the Proposed Route despite the fact that it would have the most adverse impacts to the City of La Grande including but not limited to view shed; reduced property values of homes in the vicinity of the Proposed Route; environmental impacts during construction and when the transmission line becomes operational; and proximity to City water infrastructure; and

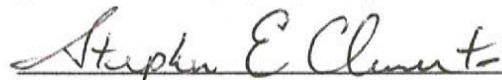
Whereas, the Morgan Lake Alternative would adversely impact the view shed of the City's Morgan Lake Park and could adversely impact the experience of visitors to this unique Park; and

Whereas, during construction, certain residential and arterial streets within La Grande City limits used to access property outside the City limits could experience damage from hauling loads that may exceed road standards; and

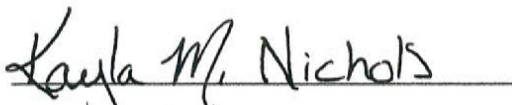
Whereas, the City believes the BLM Preferred Route is a viable option that would not impact the City of La Grande;

Now Therefore, I, Mayor Stephen E. Clements, on behalf of the City Council of La Grande, Union County, Oregon, do hereby declare we oppose the construction of the B2H Powerline, and further request that Idaho Power and its collaborators withdraw their application to construct the powerline. If the application is not withdrawn, we request the application be revised to include the BLM Preferred Route as the only route in the vicinity of La Grande; or at worst, the application be modified to remove the Proposed Route from consideration. The City Council also recognizes the ultimate decision regarding placement and construction of the B2H powerline lies solely with the State of Oregon, and recognizing such, will continue to request that if the Oregon Department of Energy ultimately approves the application, that they impose conditions of approval that address the actual and potential impacts to the City of La Grande to mitigate those impacts.

IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the official Seal of the City of La Grande, Union County, Oregon, this Third (3rd) day of April, 2019.


Stephen E. Clements
Mayor

ATTEST:


Kayla M. Nichols
City Recorder



Susan Geer's Opening Testimony PCN 5

Exhibit 119

County B2H Advisory Committee Minutes

and two letters

2016



UNION COUNTY B2H Advisory Committee

Scott Hartell, Planning Director

1001 4th Street, Suite C La Grande, OR 97850 PHONE (541)963-1014 FAX (541)963-1039 TTY 1-800-735-1232

Union County B2H Advisory Committee Meeting Minutes- July 28th, 2016

ATTENDANCE: Ted Taylor-Chair, Brad Allen, Terry Edvalson, Anna Baum, Irene Gilbert, Joel Goldstein, Ray Randall, George Mead, Scott Hartell & Darcy Carreiro

Members Absent: Norm Paullus

I. CALL TO ORDER:

Chairman, Ted Taylor opened the meeting at 6:29 p.m.

II. APPROVAL OF AGENDA:

The Agenda was approved as submitted by the Committee.

III. APPROVAL OF MINUTES- June 30th meeting

George Mead made a motion to approve the minutes from June 30th 2016 as submitted. Irene Gilbert seconded the motion and the June Minutes were approved unanimously.

IV. STAFF REPORT:

Scott did not have any new information to share with the Committee.

V. COMMITTEE & ADMINISTRATIVE BUSINESS:

A. "Consideration of topics discussed at June 30th meeting", regarding relevance to the Purpose of the Advisory Committee.

Members had different interpretation of The Purpose and there was discussion among the Committee trying to define this. There was still confusion and need for clarification from the Commissioners of the Purpose of this Committee. Joel stated that Ted Taylor's letter in the Observer was too technical and that he wouldn't be able to understand it if he was general public. The Committee had discussion regarding each of the topics listed. The Committee voted on each topic one at a time by show of hands.

VI. COMMITTEE MEMBER UPDATES:

Irene Gilbert shared what she has been doing with the "Stop B2H Committee" as a member. Specifically she spoke regarding contacting land owners within 1 mile of the possible transmission line.

She shared that the DOE Oversight Committee will meet again August 20th and would like any comments submitted by August 15th. The EFSC is having an emergency meeting July 29th because they would like help reviewing wind energy applications.

Irene has also been trying to determine the dollar amount that Oregon rate payers will be charged with the installation of this line. ODF&W is asking for mitigation details regarding endangered species in the supplemental EIS.

Irene stated that people are asking for Hanley Jenkin's to recuse from any decision making at the EFSC level regarding B2H.

Ray worked on 2 motions that he will submit at the appropriate portion of the meeting. No other Committee members had anything to report at this time.

VII. PUBLIC COMMENT PERIOD:

VIII. OTHER COMMITTEE BUSINESS:

A. Consideration of process for review of Public Comments submitted to the Advisory Committee.

B. Ray proposed and read into record a motion (labeled as #2) to the Committee. Terry Edvalson seconded the motion. The motion passed unanimously by the B2H Advisory Committee.

Ray proposed a second motion (labeled #1) to the Committee. George Mead seconded it. There was brief discussion. The B2H Advisory Committee voted unanimously on this motion.

Scott will notify the Board of Commissioners on August 1st asking to add these motions to their agenda for the August 3rd meeting. Ted will prepare a cover letter for the motions, sign it as Chair and submit that to the Planning Department.

C. Irene made a motion to "Request that the County Commissioners ask Bonneville Power and Idaho Power for a projection of impacts of rates to be assumed by consumers." With the recommendation of the Committee, Irene moved to table this motion until the next meeting. Ted asked that Irene place the draft motion in writing and submit it to Darcy prior to the next meeting for review of the Committee.

IX. PUBLIC COMMENT PERIOD:

Bernice Webster: Concerned with the history of her families property which would be directly affected by the placement of the line. She gave us history of her portion of land, and how the Oregon Trail goes through her land. That there is a Pioneer camp ground and natural springs that make it possible for her to rent some as pasture. Her late husband was very proud of this piece of land. He personally took hundreds of hikers on their portion of this property to see the Oregon Trail. After her husband passed away, she found a list of all of the people he took for hikes and planned to take in the future. She stated that her family continues to hike, camp and enjoy it often. The Bonneville Power line already runs through her property. Bernice thinks that we owe it to her family, county, state and nation. She thinks that this property should be preserved. She did give Idaho Power permission to survey her land and she regrets that decision now. Her property is between Morgan Lake Road and Deal Canyon Rd.

Charlie Gillis 601 N Avenue, LaGrande, OR 97850: He wants everyone to know that Idaho Power destroyed the Idaho salmon run and grossly diminished the Oregon

salmon runs significantly by the development of the fish lattice. He wants everyone to know who we are dealing with.

Irene asked Charlie about his research on FERC regarding protection. He is in contact with the Senators office librarians and is currently working on this. He is still struggling to contact an actual person at the State. He will bring any information he receives to the next meeting.

Tom Thompson: Land owner that already has the 230 route on his property up Ladd Canyon. He shares Ray's concerns that alternative routes are still on the table that we are not aware of publically. He deals with heavy equipment damage to his property when the current 230 line is serviced. He deals with noxious weed issues already. The power company has introduced forms of cheat grass and other weeds. He could lose some bunch grass sights that are in good shape in the next 10-15 years if this continues or increases. Tom would like the Glass Hill alternative to be added back into consideration. He would like the Committee to narrow the scope on 2-3 that they are considering. He asked for clarification from the Committee with the NEPA process. Terry asked if he was asked to survey Tom's property, Tom said yes. Terry asked Scott what lines are still being considered. Scott said that any line that they are studying/surveying. Scott said as a co-operating agent; there is certain information that he can release and some information that he cannot. Tom doesn't understand how a Federal group can be the "decision maker" on private land. He told Idaho Power that they couldn't survey the property.

Lois Barry, 60688 Morgan Lake Road LaGrande, OR 97850; Lois provided clarification to Terry, that she had requested information from Idaho Power for conservation statistics. She clarified that she had offered, at the last meeting, that she had submitted a request letter to Jeff at Idaho Power, he responded respectfully that they did not have time to respond to this. So she simplified her query and sent a letter to Scott as well. She then received a link that directed her to a 12 page report, 5 pages of statistics from Idaho Power. She stated that Energy Trust has a 128 page annual report, meaning, in summary, Idaho Power is doing about 1/3 of the conservation work that Energy Trust does. She encourages this Advisory Committee to review these portfolios available online. She will reach out and do more research and report back to this Committee with any information she collects. She thinks that Idaho Power is doing business the "same ole" way and other energy utilities are changing and elaborating. Terry asked if dam removal was in any of the Idaho Power portfolios. She said no there was actually mention of another dam being placed. She feels like this line does not need to be built and if it is, it will cost rate payers a significant amount of money. Lois thanked Terry for asking for citations to be attached with her bullet point letters she has submitted.

X. NEXT COMMITTEE MEETING DATE

The next regular Committee meeting will be September 22nd, 2016 at 6:30 pm in the Earl C. Misener Conference Room.

The Following items will be on the Agenda, under Committee Business for the next meeting.

XI. ADJOURN

Ted adjourned the Union County B2H Advisory Committee meeting of July 28th, 2016 at 8:48 pm.

Respectfully submitted,

Darcy Johnson Carreiro
Senior Department Specialist II

Consideration of Topics Discussed at June 30, 2016 Meeting Regarding Relevance to the Purpose of the Advisory Committee

Tabulation of Votes Taken at the July 28, 2016 Meeting of the B2H Advisory Committee

Topic	Relevant to Purpose		
	YES	NO	ABSTAIN
Request statistics on energy conservation from IPC	3	4	1
Become more familiar with content of DEIS	6	0	2
Assess appropriateness of routing any transmission line through Union County, given there is an established transmission corridor in Oregon	6	1	1
Understand protections given to landowners by federal agencies for economic and other loss	1	4	3
Develop more comprehensive ways to announce and provide information on Committee meetings	4	0	4
Request our Board of Commissioners to coordinate fully with Boards in other affected counties	5	2	1
Become familiar with City of La Grande's plans for new water storage facility, hydropower generation, and transmission of electricity into the city	4	4	0
Review Google map from IPC that shows access roads, laydown areas, and other features of the B2H line	6	1	1
Send recommendation to our Board of Commissioners requesting a Supplemental EIS be issued by BLM before the current DEIS is finalized	4	2	2
Send letters to landowners on and one mile either side of the agency proposed route to provide better notice of BLM/IPC plans and their impacts	0	2	6

Boardman to Hemingway (B2H) Advisory Committee
Union County Planning Department
1001 4th Street, La Grande, OR 97850
541-963-1014

An Advisory Committee to the Union County Board of Commissioners
Brad Allen, Anna Baum, Terry Edvalson, Irene Gilbert, Joel Goldstein
George Mead, Norm Paullus, Ray Randall, Ted Taylor (Chairman)

July 29, 2016

Honorable Jack Howard, Chairman
Union County Board of Commissioners
1106 K Ave.
La Grande, OR 97850

Dear Chairman Howard:

At a scheduled meeting on July 28, 2016 the Advisory Committee on the Boardman to Hemingway (B2H) Transmission Line Project approved the following Recommendation and Statement. The votes on both actions were unanimous, with eight members present and voting. Given the time sensitive nature of these matters, we request that the Board of Commissioners consider them at your next meeting.

Recommendation on Supplemental Environmental Impact Statement

We recommend that the Union County Board of Commissioners contact the Bureau of Land Management (BLM) to request that BLM initiate a Supplemental Environmental Impact Statement (EIS). This Supplemental EIS is needed because there are transmission route segments on two routes in Union County that have not yet been analyzed by the BLM through the Draft EIS (DEIS) process. It is imperative that the new segments of routes receive the same scrutiny as all other portions of the proposed B2H route. It is the only way to permit the opportunity to inform the public and allow for public response and testimony. This must be done prior to the release of the Final EIS (FEIS). We further recommend that our Board of Commissioners notify the other counties who could be impacted by B2H to inform them of this Union County action and notify our two U.S. Senators.

SEE ATTACHED
LETTER → BLM
SENT AUG 7/11

Statement on Work Session with Other Affected Counties

We encourage the Union County Board of Commissioners to contact the County Commissioners of Malheur, Baker, Umatilla, and Morrow counties to propose a joint work session to determine if there are mutual concerns or mutual interests that may arise from the proposed B2H transmission line.

Honorable Jack Howard, Chairman
July 29, 2016

-2-

Please contact me by phone at 541-963-9397 or 541-786-7146 or by email at jayhawkted@gmail.com if you have questions, comments, or concerns.

Sincerely,

Original signed by Ted Taylor

Ted Taylor
Chairman

Cc:

- S. Burgess, Union County Administrator
- S. Hartell, Union County Planning Director
- ✓ D. Carreiro, Union County Planning Department (official file)
- B2H Advisory Committee Members

WILLIAM 0-7 16



UNION COUNTY BOARD OF COMMISSIONERS

STEVE McCLURE, Commissioner
MARK D. DAVIDSON, Commissioner
JACK HOWARD, Commissioner

1106 "K" AVENUE LA GRANDE, OR 97850 PHONE (541) 963-1001 FAX (541) 963-1079 TTY 1-800-735-1232

August 4, 2016

Bureau of Land Management
Vale District Office
Attn: Don Gonzales
100 Oregon St.
Vale, OR 97918

Dear Mr. Gonzales:

Members of the Union County Advisory Committee on the Boardman to Hemingway (B2H) Transmission Line are unsure that all potential routes through Union County and their environmental impacts have been analyzed in the Draft Environmental Impact Statement (DEIS). They believe it is possible that some effects of these routes are not bounded in the analysis supporting the DEIS.

Please assure us that, even though potentially new routes could be considered, all of the environmental impacts have been included in the DEIS analysis, and therefore no supplemental analysis needs to be conducted.

WHAT ? !

Since our B2H Advisory Committee does not have cooperating agency statutes please keep this in mind when responding.

Sincerely,

Jack Howard
Chairman

Susan Geer's Opening Testimony PCN 5

Exhibit 120

McAllister letter and attachments to

Todd Cornett

2020

Michael McAllister, 60069 Morgan Lake Road, La Grande, Oregon, 97850, (541) 786-1507.

April 26, 2020

Todd Cornett, Energy Facility Siting Division Administrator, Energy Facility Siting Division, Oregon Department of Energy, 550 Capitol Street NE, 1st Floor, Salem, OR, 97301, todd.cornett@oregon.gov .

Dear Mr. Cornett,

On June 23, 2019, I delivered to you a letter, included here as Attachment 1, in which I point out the inappropriateness of Idaho Power Corporation's (IPC) "incomplete" application for siting the Boardman to Hemingway Transmission Line. Previously, January 14, 2019, I sent you a letter (included as Attachment 2) in which I explained how the U.S. Bureau of Land Management's (BLM) **Agency Selected Route** is a far more appropriate route than both – **Proposed Mill Creek Alternative**, and the **Morgan Lake Alternative**. Please see the map included as Attachment 3 from IPC's website depicting these routes, including the BLM's "Agency Selected Route (NEPA)."¹ Unacceptably, IPC did not include the Agency Selected Route in their application to EFSC.

I write today to share with you a letter from IPC dated March 24, 2020 (Attachment 4). The IPC letter is six short paragraphs on one page. The following is my response to paragraphs 1 – 6. Page two of IPC's letter is a map that shows the Mill Creek Alternative and the Morgan Lake Alternative, but the map does not show the BLM Agency Selected Route.

1) IPC - "We're now focused on building the Morgan Lake Alternative."

My response - In my January 14, 2019 letter to you, I explained that this "false choice" scenario would likely play out this way. This is because IPC's Proposed Mill Creek Alternative was a completely inappropriate route. In my January 14, 2019 letter, I predicted that IPC would switch from the Mill Creek Alternative to the Morgan Lake Alternative. This, again, without consideration for the Agency Identified Route, which the BLM previously identified as having the lowest impact overall, including: fire risk, natural gas line crossings, forested acres, endangered fisheries, rangeland resources, wildlife resources, cultural resources, viewshed degradation, and recreation. The January 14, 2019 letter addresses each of the issues in more depth.

2) IPC - "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."

My response – Here, IPC vaguely identifies the committee on which it relied as the 2016 committee of Union County residents. I was a participant of the committee" that proposed siting the transmission line on the existing 230 kv route, to which IPC appears to refer. The committee was known as the Glass Hill Coalition. A petition was circulated that requested that the B2H Transmission Line be sited along the existing 230 kv route. Neither this committee, nor any other committee of Union County residents, has advocated for the Morgan Lake Alternative.

3) IPC – "With help from local landowners, Idaho Power developed the Morgan Lake Alternative."

¹ Included as Attachment 3-A is a localized reproduction of proposed routes specific to Union County.

My response – IPC states that that local landowners—not a committee— assisted to develop the Morgan Lake Route that it is now pursuing. IPC does not identify, and it is entirely unclear, which local landowners worked with IPC to develop this route. I am, and have been, a local landowner at Morgan Lake for 40 years, and I know most if not all the local landowners. My property specifically lies a quarter mile from the transmission line on the Morgan Lake Route. IPC did not consult me or the vast majority of landowners whose properties will be significantly impacted by the Morgan Lake Route. I have been representing local landowner interests with regards to the B2H Transmission Line since 2009. I am only familiar with one local landowner who is in favor of the Morgan Lake Route. He worked with IPC to develop that route in 2016. He bought his property here in 2014. To say that IPC worked with **landowners** to develop the Morgan Lake Route is a complete misrepresentation.

4) IPC - “We’ve also committed to helping improve recreation at Morgan Lake Park.”

My response - It is aggrandizing for IPC to advocate that they are going to improve recreation at Morgan Lake Park. Morgan Lake Park is considered one of La Grande’s most valuable assets. The La Grande Chamber of Commerce has long rated Morgan Lake Park as #1 for the top 10 locations to visit around La Grande. Morgan Lake Park Recreational Use And Development Plan identifies – “A goal of minimum development of Morgan Lake Park should be maintained to preserve the maximum of natural setting and to encourage solitude, isolation, and limited visibility of users while at the same time providing safe and sanitary condition for users.” No commitment on IPC’s part can overcome the visual and noise impacts that this transmission line will have on recreation at the park. The existing record of public comments (EFSC Public Comments) clearly demonstrates that La Grande’s public opinion shows strong opposition to siting on the Morgan Lake Alternative. La Grande Mayor Steve Clements has written a letter that clearly states the city’s position. La Grande’s City Parks Director made a request for Public Comment on this matter. My letter in response to this request to the City Parks Director Stu Spence is attached (Attachment 5).

5) IPC - “Over the past two years, the community has shown a preference for the Morgan Lake Alternative.”

My response - Again, I live here in the Morgan Lake Estates on the outskirts of La Grande. I have attended most meetings on this matter. I am only aware of one person advocating for the Morgan Lake Alternative and that is the same landowner that worked with Idaho Power to develop that route. What I hear, overwhelming, is our community showing a predominant preference for the Agency Identified Route which effectively mitigates most all the public concerns. I implore that both the Oregon Public Utility Commission (OPUC) and the Oregon Energy Facility Siting Council (OEFSC) investigate this matter.

6) IPC - “Since your property is near the Mill Creek Route, you don’t need to take further action.”

My response - This letter was sent to a neighbor to the east of my place. My home property, a tree farm, is within one quarter mile of the Morgan Lake Route at the ridgetop. As I have never received any notice of the route from IPC, I now assume that I do need to take “further action.”

In taking such action, I refer you to the previous analysis that I shared on January 14, 2019 (Attachment 2) – contrasting the appropriateness of IPC’s **Morgan Lake Alternative** with the **Agency Identified Route**. The Morgan Lake Alternative is sited across the top of the Glass Hill Monocline – the ridgetop that traverses along the west side of the Grande Ronde Valley. Up here the wind blows almost continuously. All of us that live here are concerned about fast moving fire fanned by the prevailing westerly winds. Just this week (April 23, 2020), I attended OPUC’s public comment hearing. I heard multiple individuals express specific comments about the risks associated with the Morgan Lake Route: the risk of transmission line fire, and the dangers associated with heavy traffic on Morgan Lake Road. We see the potential for a powerline-caused fire as recently occurred in Butte County, California which as explained in my January 14, 2019 letter (Attachment 2), would be mitigated by the Agency Selected Route. To date, the BLM Selected Route has been entirely disregarded with no other justification than IPC’s impatience with the BLM’s process. Specifically, IPC’s representative Mark Stokes responded to inquiry into the exclusion of the BLM’s preferred route at the June 20, 2019 public hearing as follows:

25 VICE CHAIRMAN JENKINS: So Mark and David, I'm

Page 151

1 going to ask a really hard question tonight: Why wasn't
2 the BLM route proposed as a part of your application to
3 EFSC?

4 MR. MARK STOKES: Back when BLM was working on
5 getting their ROD issue, the delays in their process
6 happened, occurred. We had to move ahead with the state
7 process late in the application. And by the time BLM
8 came out with their ROD, their record of decision, it
9 was too late for us to really go back at that point.

10 Now, when I had conversations with BLM's
11 program manager about this and whether that created any
12 issues for BLM, they recognized that the Glass Hill
13 route that you're talking about and the Morgan Lake
14 route were identical on parcels that were under control
15 of BLM, federal government.

16 So the fact that in our state application we
17 had the Morgan Lake route did not influence or impact
18 BLM's record of decision in their process.

To clarify, neither the Agency Selected Route (also called Glass Hill Route) nor the Morgan Lake Route cross any federal lands, rather both routes cross private lands only. IPC purports that, because these routes are confined to private lands, the BLM’s jurisdiction is null as it relates to which of these routes IPC applies for. Thus, it is IPC’s position that it is immaterial that the BLM has identified the lowest-impact route across these private lands and IPC can, and will, disregard it. However, the fact that these routes do not cross BLM or federal land does not minimize the BLM’s Environmental Impacts Analysis – its findings are conclusive that for the Agency Selected Route (Glass Hill) risks and impacts are minimized. And to my knowledge, IPC has provided no justification for their Morgan Lake Alternative other than they “worked with landowners to develop” it – again, only one landowner that I know of.

Given that there is no apparent justification for ignoring the BLM’s preferred route, it is of some concern that the Morgan Lake Route that IPC now pursues across the windy ridgetop (rather than the BLM’s

Agency Selected Route) may seek to establish an “energy corridor,” or “incentive corridor” as described by the Governor’s Advisory Committee on Energy and Agriculture in the Umatilla Basin in its February 24, 2017 Report² that may pave the way for windmill farm development on the Morgan Lake Alternative which will become a pre-established corridor after its construction. Some are speculating that the ridgetop (Glass Hill Monocline) is a prime location for windmill development. One landowner has even erected a 200-foot-tall anemometer tower on the ridgetop to the northwest of Morgan Lake. Increasingly, it appears that there is a cryptic force behind the IPC’s Morgan Lake Route along the windy ridgetop. If the B2H Transmission Line is going to establish an “energy corridor” that provides an easier path toward future permitting for windmills, then we should all be made aware of this so that we do not find ourselves living in the shadow of a **Glass Hill Monocline Windmill Farm**. If windmill speculation is a driving force behind the Morgan Lake Route, that explains why IPC has ignored, and buried, the BLM’s Agency Selected Route across the lowlands. Wind frequencies and velocities are greatly reduced along the Agency Identified Route, as are risks and natural resource impacts.

If IPC does, in fact, have a legitimate justification for its high-impact route, I implore IPC to communicate its reasoning with the local community and the Oregon state regulators. In closing, I would ask you to read ‘Safety Is Not a Glamorous Thing’: How PG&E Regulators Failed to Stop Wildfire Crisis (Attachment 6).³ In giving the green light to B2H Transmission line as sited, state regulators are abdicating their responsibility to ensure that Eastern Oregon does not become the next Paradise, California— an avoidably tragedy resulting in scores of fatalities, and for which tax payers and rate payers now bear the financial and economic burden.

Again, I ask you, the Oregon Department of Energy, the Oregon Public Utility Commission, and the Oregon Energy Facility Siting Council to critically evaluate the appropriateness of the Morgan Lake Route, and whether it adequately represents IPC’s application for site certificate. We all deserve a sound explanation – why the Morgan Lake Alternative?

Respectfully,

Michael McAllister

Cc: M. Mark Stokes, Idaho Power Company
Oregon Public Utility Commission
Oregon Energy Facility Siting Council
Kellen Tardaewether, Oregon Dept. of Energy Senior Siting Analyst
Kristen Sheeran, State Energy and Climate Change Policy Advisor
Don Gonzale, BLM B2H NEPA Coordinator

² See https://www.oregon.gov/energy/Data-and-Reports/Documents/2017_Governors_Advisory_Committee_Energy_Ag_Report.pdf

³ Blunt K. and Gold, R. 2019, Dec. 8). ‘Safety Is Not a Glamorous Thing’: How PG&E Regulators Failed to Stop Wildfire Crisis. *The Wall Street Journal*, Retrieved from <https://www.wsj.com/articles/pg-e-caused-over-400-fires-in-2018-where-were-the-regulators-11575834385> (last accessed 4/25/2020).

ATTACHMENT 1

ATTACHMENT 1

Michael McAllister, 60069 Morgan Lake Road, La Grande, Oregon, 97850, (541) 786-1507.

June 23, 2019

Todd Cornett, Energy Facility Siting Division Administrator, Energy Facility Siting Division, Oregon Department of Energy, 550 Capitol Street NE, 1st Floor, Salem, OR, 97301, todd.cornett@oregon.gov .

Dear Mr. Cornett,

On January 14, 2019, I delivered to you a letter (attached – page 2) to express my concerns about Idaho Power Corporations (IPC) “incomplete application” for *Site Certificate* of their **Boardman to Hemingway Transmission Line** through Union County. The application is incomplete because IPC did not include the Agency Selected Route, adopted by the National Environmental Planning Act (NEPA) process – conducted by the U.S. Department of Interior’s Bureau of Land Management.

This past Thursday – June 20, 2019 – the **Energy Facility Siting Council** held Public Hearing on the *Draft Proposed Order and Request for Comments* – here in Union County. I attended that meeting and I did make comments regarding my position with regards to Idaho Power Corporations Incomplete Application for Site Certificate.

In brief, the most significant point that I made was – the **Agency Identified Route A** would effectively mitigate nearly all the concerns expressed by the many attendee’s comments at that meeting.

Following the public comments, two representatives from Idaho Power were seated before the Siting Committee, this so that committee members could ask questions in response to the public comments previously made.

Committee Member Hanley Jenkins asked the only question and he phrased it this way – **“I am going to ask you one very hard question – why did Idaho Power Corporation not include the BLM Agency Identified Route into their Application”?**

Idaho Power’s Mark Stokes provided the following as an answer – **the BLM Agency Alternative was not included because their process was being drawn out – we were under time constraints to submit our application and went ahead without it.**

There were no further questions, and no further opportunity for the public to respond to this **Revelation.**

I have been involved over ten years in advocating for what is now the BLM Agency Identified Route A.

Idaho Power Corporation and others are currently processing an incomplete application. IPC has been asked to amend their application repeatedly, too include the **Agency Identified Route A**. This issue should not become a Contested Case.

Respectfully

Michael McAllister

ATTACHMENT 2

ATTACHMENT 2

Michael McAllister

January 14, 2019

Todd Cornett, Energy Facility Siting Division Administrator, Energy Facility Siting Division, Oregon Department of Energy, 550 Capitol Street NE, 1st Floor, Salem, OR, 97301, todd.cornett@oregon.gov .

Dear Mr Cornett,

I am gravely concerned that Idaho Power Corporation (IPC) has submitted an incomplete application to Oregon's Energy Facility Siting Council (EFSC). Their application for *Site Certificate* of the **Boardman to Hemingway Transmission Line** through Union County does not include for consideration, the Agency Selected Route, adopted by the National Environmental Planning Act (NEPA) process – conducted by the U.S. Department of Interior's Bureau of Land Management. The two routes that IPC has applied for: **Proposed Route (B)** and **Morgan Lake Alternative (3)**, were developed late in the NEPA process and have not undergone environmental analysis or public comment. IPC's failure to gather satisfactory evidence has limited the ability of the public, EFSC, and other regulators in their ability to make fully informed decisions in the public interest.

I am requesting that Idaho Power Corporation amend their Oregon EFSC Application for Site Certificate to include the U.S. Bureau of Land Management's **Agency Identified Route A** for consideration by the State of Oregon EFSC board members. It is the only route that was fully subjected to environmental analysis and public comment during the Federal EIS. It was established through community consultation and environmental review in a multi-year process. It must be on the table for full consideration by Oregon EFSC for a "Complete Application" review.

I am Michael McAllister, a long-time resident of Union County and private contractor specializing in natural resources inventory and management. I hold a Bachelor of Science degree, *Wildlife Resources*, from the University of Idaho. As a 40-year resident on Morgan Lake road, I have an intimate knowledge of the geology, habitat, environmental issues, wildfire hazards and recreational value of the area. My interest is both professional and personal.

Oregon Department of Energy and Idaho Power Corporation records show that, since 2008, I have been encouraging Idaho Power Corporation to site the Boardman to Hemingway (B2H) Transmission Line in a manner, whereby the cumulative impacts of the Right-Of-Way will have a minimal impact on Oregon's public and their natural resources.

Attached is my comparative analysis of IPC's two routes (B and 3) and the BLM's Agency Selected Route (A). This analysis demonstrates that the Agency Selected Route minimizes risks to public safety and imposes the least impacts on the natural resources of both the City of La Grande and Union County.

At this time, I ask that Idaho Power Corporation amend their Oregon EFSC Application for Site Certificate to include additional environmental and community evidence regarding their proposed routes and to include the BLM *Agency Identified Route A* for consideration.

Respectfully

Michael McAllister

Public Comment: Michael McAllister**Proposed Boardman to Hemingway Transmission Line
Site Certificate Application Review**

January [1], 2019

Introduction

The reader is advised to follow along using the Google Earth maps provided at <http://www.boardmantohemingway.com/LandownerMaps.aspx>. Expand the map to full screen and zoom in on Routes A, B, and 3 near La Grande, Oregon. Note you can switch between Earth View, Map View, and Topography View using the tab at the top left of the screen. To see vegetation coverages, use Earth View. To see geographic features switch to Topography View.

Map 3 (Union County) Legend:

- (A) – BLM Agency Selected Route (NEPA) - Route Color is Green on Map;
- (B) – Proposed Route (EFSC) – Route Color is Red on Map;
- (3) – Morgan Lake Alternative (EFSEC) – Route Color is Blue on Map.

Proposed Route B (EFSC)

IPC's Proposed Route has been identified as a best attempt to site B2H along the existing 230 kV transmission line as it passes through Union County. In 2008 and again in 2012, I asked that IPC construct their new B2H transmission line adjacent to the existing 230 kV transmission line passing through La Grande and Union County. After much further review of the evidence presented, I deemed that such a route would not meet the screens for the 500 kV transmission line for the following reasons:

- 1) The valley slopes to the west above La Grande are steep, with unstable geology; many areas have been identified by the U.S. Geologic Survey as unsuitable for construction.
- 2) La Grande's western skyline viewshed would be severely impacted. Both the City of La Grande and Union County have asked IPC to keep B2H out of their viewshed.
- 3) The "Powerful Rocky" stretch of Oregon Trail, and its archaeological artifacts, would be desecrated by the construction and continued maintenance requirements of the B2H towers.
- 4) Impacts to Oregon's Ladd Marsh Wildlife Management Area would be severe and permanent. Ladd Marsh was established as a wildlife mitigation area for past federal projects and the refuge should not be compromised. IPC itself recognizes and designates Ladd Marsh as "irreplaceable."

Based upon the above considerations, **Proposed Route (B)** has *High Cumulative Impact*, and few mitigation options.

Comparative Analysis of BLM Agency Selected Route (A) and Morgan Lake Alternative Route (3)

From here forward I will explain and contrast the **Agency Selected Route A**, with the **Morgan Lake Route 3**. The analysis begins at the Divergence Point – where Routes A and 3 diverge. The analysis then proceeds from north (DP), then south to the Convergence Point (CP) of the two routes near Ladd Canyon. The distance between DP and CP is approximately eleven miles for both Routes: A and 3. The elevation at DP (north end) is approximately 3,400 feet. The Elevation at CP (south) is approximately 4,800 feet. The Divergence Point is located near the middle of section 7, Township 3 South, Range 37 East, approximately 1.5 miles south of the Highway 244 junction with Interstate 84 at Hilgard. It is approximately 0.75 miles south of Highway 244, traveling south on the Whiskey Creek Road.

Geographic Setting

The biggest difference between the two routes is how each of them has been established geographically. This can best be recognized by comparison in *Topography View*. Recognize that the Grande Ronde Valley is the dominant geographic feature for the region, and further that it is oriented in a slightly northwest by southeast alignment - as is the Blue Mountain Range along the valley's west side. Recognize that from Divergence Point (near the Grande Ronde River at Hilgard) that the landscape rises as you go south following the west side of Grande Ronde Valley, all the way to near the Convergence Point above Ladd Canyon.

Now notice how the two routes, A and 3, ascend from 3,400 feet up to just over 5,200 feet elevation near the high point at Glass Hill. And notice that between the two routes there is a series of parallel ridges and drainages that are also oriented in the northwest by southeast alignment. This alignment is caused by the orientation of the faults associated with the origins of the Grande Ronde Valley. The highest of the fault generated-ridges is the one following the Mill Creek Fault – which also establishes the west edge of the valley. This highest ridge is known by geologists as the Glass Hill Monocline – **Morgan Lake Route 3 sites the transmission line along this monocline ridgetop.**

Comparatively, the Agency Selected Route A is the lower elevation route where the mean elevation is approximately 4,100 feet. See that from DP Route A proceeds southerly at an azimuth of approximately 150 degrees, along the same northwest/southeast geologic alignment. Route A gains elevation slowly as it moves up “Graves Ridge” in a straight line for approximately 5.0 miles. “Graves Ridge” is a broad gentle slope, where the only vegetation is sparse grass and forbs – much of it is rocky scab vegetation. The Graves Ridge Road (East Fork of the Whiskey Creek Road) mostly parallels the Route A with an elevation gain of about 200 feet per mile – a slope grade of just 5 percent. Importantly, note that existing roads provide excellent road access for at least two thirds of the Route A. These roads are bladed across solid basalt with few corners and no steep grades. Route A then makes only one turn, easterly to approximately 110 degrees. On this course, **Agency Selected Route A crosses the Rock Creek drainage 8.5 miles upstream from the Grande Ronde River – above the lower 6 miles deemed important to Threatened Snake River Chinook Salmon.**

Comparatively, the Morgan Lake Route 3 on the other-hand, moves east from DP and away from the Whiskey Creek Road. Route 3 then crosses the Rock Creek watershed just three miles up-stream of the Grande Ronde River. Note that there are four distinct drainages that make up the Rock Creek Watershed, from west to east they are: Graves, Little Rock, Rock, and Sheep Creeks. Notice that all four of the drainages converge near to where Route 3 crosses Rock Creek. There are no real existing roads

that access the north two thirds of Route 3. After crossing Rock and Sheep Creeks, Route 3 then intersects the Glass Hill Monocline (near Morgan Lake), where it turns southerly and follows the ridgetop. **Morgan Lake Route 3 is the high elevation route where the mean elevation across the route is approximately 4,500 feet.**

Soil Protection - OAR 345-022-022

The 400 feet mean elevation difference between **(A and 3)** is the predominant variable responsible for the difference in soils. The higher elevations along the top of the Glass Hill Monocline gather more precipitation, summer temperatures are cooler, more layered vegetation provide more shading, and windblown snow and soil particulates accumulate. The variability in soils is well demonstrated when you superimpose the **Union County Soil Survey Map** over IPC's Route Map overlay. Using this soils inventory, **I have identified the four predominant soil types for both: Route A and Route 3. They are listed hear from most coverage, to least coverage:**

Agency Selected Route A, Soils are: **1)** = 69C - *Watama-Gwinly complex*, is on biscuit-scabland uplands, vegetation is mainly bunchgrasses, and annual forbs; **2)** = 35E – *Klicker-Anatone complex* - mountainous uplands where the native vegetation is mainly Ponderosa pine, bunchgrasses and elk sedge, a warm moist plant community suited to the production of pine, on a patchy basis - where soil is deep enough, also as rangeland and wildlife habitat. **3)** = 4E *Anatone extremely stony loam* - is shallow, well-drained soil at ridgetops, and on south and west facing slopes where vegetation is mainly blue-bunch wheatgrass, Idaho fescue and stiff sage; used mainly as rangeland. **4)** = 58E – *Starkey very stony silt loam* – shallow well drained soil on uplands, the vegetations is mainly bunchgrasses and annual forbs, Idaho fescue, blue-bunch wheatgrass and Sandberg bluegrass. The unit is used mainly for rangeland. Collectively, the soils makeup for Route A, tend to be shallower, and of residual decomposed basalt in its origin. The site index for timber production is lower, and shrubs are limited in the vegetation composition.

Agency Selected Route A crosses 44% forested acres - mostly warm dry plant communities. And it is noteworthy that Route A crosses 33% less timber acres than does Morgan Lake Route

Morgan Lake Route 3, Soils are; **1)** = 4E - *Anatone extremely stony loam*, is shallow, well drained, at ridgetops and on south and west facing slopes, derived predominately from basalt; vegetation in mainly blue-bunch wheatgrass, Idaho Fescue and stiff sage; used mainly as rangeland. **2)** = 32E - *Kalema very stony silt loam*, moderately deep, well drained, mainly coniferous forest and an understory of shrubs, forbs and grasses; used mainly for timber production, also used for woodland grazing and wildlife habitat. **3)** = 33E – *Klicker stony silt loam*, moderately deep, well drained, mountainous uplands, vegetation is mainly coniferous forest with bunchgrasses annual forbs and perennial shrubs, unit is used mainly for timber production, also for woodland grazing and wildlife habitat. **4)** = 61E – *Ukiah-Starkey complex*, Ukiah moderately deep and well drained, vegetation mainly Idaho Fescue, Blue-bunch wheatgrass and Sandberg bluegrass; used mainly as rangeland. Collectively, the soils makeup for Route 3, tend to be deeper, loamier, of residual decomposed basalt, but with more volcanic ash composition. The site index for timber production is higher, where shrub composition is greater. **Morgan Lake Route 3 crosses 66 % forested acres mostly cool moist plant communities, and that is 33% more timber acres than does the Agency Selected Route A crosses.**

Recreation - OAR 345-022-0100**Protected Areas - OAR 345-022-0040****Scenic Resources – OAR 345-022-0080.**

Morgan Lake Route 3 also establishes towers within 500 feet of Morgan Lake Park. Here, the impact on La Grande's public will be *High*. The first stated goal in the Morgan Lake Park Recreational Use and Development Plan (Section 1, Page 2) - *A goal of minimum development of Morgan Lake Park should be maintained to preserve the maximum of natural setting and to encourage solitude, isolation, and limited visibility of users while at the same time providing safe and sanitary condition for users.* Also noteworthy is the fact that the **City of La Grande Chamber of Commerce** has long promoted Morgan Lake Park as the #1 Recreation Tourist Destination in the La Grande Area. And the State of Oregon designated **Morgan Lake Park as a State Wildlife Refuge** in the 1960s. Today Oregon Department of Fish and Wildlife identifies the Lake as an easy access fishing destination for the handicapped.

Morgan Lake Park encompasses two separate Lakes. Morgan Lake is 70 acres in size and is developed with road access and camping. Twin Lake is 27 acres in size, undeveloped, and with no road access or camping. **Twin Lake has been identified by both Federal and State programs to conserve, restore, and protect wetlands.** Oregon has developed a **Wetland Conservation Strategy** (Oregon Division of Lands, 1993). This Strategy is implemented through the Oregon Wetlands Inventory and Wetlands Conservation Plans (See Webpage). This planning process allows local governments to balance wetlands protection with other land-use needs. **Twin Lake is recognized as an important, persistent, emergent vegetation wetlands, which includes both submersed and floating plants.**

Fish and Wildlife Habitat - OAR 345-022-0060,

Morgan Lake Route 3 crosses Rock Creek approximately 2.5 miles upstream from the Grande Ronde River - just below where Sheep Creek flows into Rock Creek. Here is where the best water quality and the coolest water temperatures exist during the heat of summer. And here is where Route 3 will cross. Rock Creek is not a Chinook Salmon spawning habitat. However, **the lower six miles of Rock Creek have been identified as important habitat for both Steelhead and Chinook Salmon smolts.**

Twin Lake, at 4,100 feet elevation, supports one of the most diverse waterfowl nesting communities in the Blue Mountain Ecoregion. Most unusual is the nesting by: Ring-necked Ducks, Red Head, Rudy Duck, Blue-winged Teal, Shoveler, and Pied-billed Grebe. The species diversity surrounding this wetlands anomaly at 4100 feet elevation, is enhanced by the natural basalt rim rocks forming the south and west sides of the lake. Here the vegetation is a diverse mixture of native shrubs, aspen, black Cottonwood, and Ponderosa pine. These surrounding shrub and tree communities support as rich an assortment of both migratory and nesting passerine birds as can be recognized across the Blue Mountain Ecoregion. **Also frequenting these habitats are two bird species identified on the Oregon Department of Fish and Wildlife – Sensitive Species List: Great Gray Owl, and White-headed Woodpecker.**

In 2013 a Pair of Bald Eagles constructed a nest in the top of a large Ponderosa pine at the west edge of **Twin Lake** where they fledged their first two young. GPS coordinates (Degrees, Minutes,

Seconds) for **Nest-1** are: N 45*, 18', 06.0" by W118*, 08', 44.2". Route 3 places a **Tower 580 feet from Nest 1**. The pair of Eagles has since built **Nest-2** at N 45*, 17', 45.9" by W118*, 08', 54.4". Route 3 places a **Tower 0.31 miles east of Nest 2**. Route 3 places the transmission line between the two nests. **Here I will point out that IPC's Avoidance Criterion Identifies Bald Eagle Nests as High Avoidance – recognizing a Buffer of one mile.** The Morgan Lake Route 3 demonstrates a disregard for these Bald Eagles. Here at the ridge-top, Morgan Lake supports an entire ecosystem of scale where the fall hawk migration follows south up the monocline ridge. **Here, watching Bald Eagles and their interaction with fishing Ospreys is a popular nature spectacle. If the Morgan Lake Route 3 is built, the spectacle will become a loud "crackling" transmission line towering over Morgan Lake Park.**

South of Morgan Lake, Route 3 advances southeast up the Glass Hill Monocline and into renowned high-density elk breeding grounds. Here in the upper reaches of Sheep Creek are numerous sedge meadow springs that are used heavily as elk wallows. All "muddied-up", large mature bulls now strut out onto the open bunchgrass slopes to breed on Cowboy and Sheep Ridges. Landowners here have a long history of promoting the Elk Resource as a viable economic and recreational endeavor. Oregon's Governor Pierce and Supreme Court Justice William O. Douglas once made this habitat their personal "getaway." One neighbor has made land acquisitions and established conservation easements to consolidate and preserve the native integrity of the area. The Rocky Mountain Elk Foundation is a cooperator in these efforts, as is the case with the Eastern Oregon University's Rebarrow Forest Project. Before the white-man's time, the Glass Hill Monocline was the gathering location for hundreds of horses that were summer pastured on what we now call the Starkey Range Lands. This is sacred ground, that has been long recognized for its richness and integrity of native vegetation.

Threatened and Endangered Species – OAR 345-022-0060

Morgan Lake Route 3 could impact Snake River Chinook Salmon habitat and water quality where the route crosses Rock Creek.

Oregon's Sensitive Species Rule – OAR 635-100-0040

Morgan Lake Route 3 will affect known Great Gray Owl and White-headed Woodpecker habitats across the 2.5 mile stretch between Rock Creek and Morgan Lake.

Health and Safety Standards for Siting Transmission Lines - OAR 345-024-0090

Specific Standards for Facilities Related to Underground Gas Storage Reservoirs - OAR 345-024-0030

At this point we need to consider the Transmission-line Tower that would stand closest to Morgan Lake recreationists. It is located within 100 feet of a thirty-inch diameter Natural Gas Line (Trans-Alaska, 1st leg constructed 1982). Here the gas-line is less than 600 feet from Morgan Lake Park. And here at the ridge-top is a known zone of weakness for said pipeline. From the top of the Glass Hill Monocline, the pipeline drops steep downslope in both directions – east and west. Over the years, there have been multiple pipeline ruptures less than a mile from Morgan Lake. This explosive potential exposes the residence of Morgan Lake Estates and the recreationist at Morgan Lake Park to unnecessary risk. IPC also needs to consider how their stray energy electrolysis will erode this Trans-Alaska Natural Gas Pipeline. **The Morgan Lake Route 3 crosses the natural gas line twice - once at Morgan Lake, and again it crosses at Rock Creek – approximately 2.5 miles to the northwest. Even more noteworthy, is the fact that the Agency Selected Route A avoids pipeline crossing all together.**

Looking at the statistics for American transmission lines, I see that between 1984 and 2006, approximately 44% of all power blackouts were weather-related, and of those – **11% were caused by lightning activity**. As a resident of the Morgan Lake Estates, I am extremely concerned that IPC's transmission line may act as a source of ignition for leaking gas from an aging pipeline, as well as for uncontrolled wildfire - we have recently seen this in California. My residential property is within 100 feet of the pipeline, and within 900 feet of the Morgan Lake transmission-line/powerline crossing. In 2005, Union County conducted a County-wide Wildland Urban Interface Fire Hazard Analysis. The resulting Analysis was published using Federal grant monies. The document identifies fourteen different Wildland Urban Interface (WUI) Zones within Union County. Based upon a set of Risk Analysis Criterion, each of the 14 WUI Areas were ranked from High-1 to Low-14. The Morgan Lake Estates WUI was given the Highest (#1) Ranking. It is also noteworthy that along the **Agency Identified Route A, there are no residences in any direction for well over a mile.**

Of the three routes under consideration, the **Morgan Lake Route 3 gets the Highest Fire Risk Rating for the following reasons:** it follows across the top of the Glasshill Monocline adjacent to the Grande Ronde Valley. The construction of a 200-foot-tall transmission line towers, along the highest ridgetop, where they are exposed to the most turbulent weather conditions is a recipe for fire. Here at this high elevation, the Morgan Lake Route 3 will be cut through *Cold Moist Ecotypes* that are dominated by mixed-conifer forests. Here, dense volatile fuels are exposed, where winds are the norm, and fuels dry quickly. It is highly significant that this area of the Blue Mountains is in the major lightning path, where cumulus buildups move up from the southwest. The storms track across the Blue Mountains strengthening as they move northeasterly. And as the storms cross the Glass Hill Monocline and the adjacent Grande Ronde Valley, thermals increase lightning activity at the ridgetop – not a good place for a major transmission line. Note here that the **Agency Selected Route A rapidly drops (west) down from the Glass Hill Monocline and onto a lowland ridge where winds and weather are diminished, and where vegetative fuel is sparse short grass vegetation of low flammability.**

As a resident in the Morgan Lake Estates for 40 years, I have always considered **Morgan Lake to be our greatest Fire Fighting Asset**. At the ridgetop, Morgan Lake provides fire helicopters with buckets the ability to come and go from any direction without limitations. Morgan Lake is among the best water sources for helicopters in the region. **The proposed Morgan Lake Route 3 would significantly change helicopter activity around Morgan Lake, creating an unnecessary liability that puts us all at risk.**

Additionally, the Morgan Lake Route 3 (at the ridgetop) poses additional aviation liabilities that need consideration. Most air traffic in and out of La Grande Airport, the U.S. Forest Service Airtanker Base, and the Life Flight Base comes from and goes out to the west. Low Flying aircraft cross the Morgan Lake ridgetop commonly. Again, the **Morgan Lake Route B creates unnecessary liabilities that puts us all at risk. The Agency Identified Route A eliminates these liabilities.**

SUMMARY

Idaho Power's Proposed Routes offer Oregon decision makers a false choice. It is likely that **Idaho Power's Proposed Route B** will not achieve License Approval by EFSC. By default, IPC's request would become permit **Morgan Lake Route 3**. IPC put these two routes forward in the "11th hour" of the Final EIS. Neither route was evaluated by a credible environmental review team. I have dedicated my own time to comparing and contrasting **Morgan Lake Route 3** with the **Agency Identified Route A**

because Oregon's decision makers and the public deserve a full vetted and evaluated alternative. The **Morgan Lake Route 3 is High Impact.**

At the ridgetop, the Morgan Lake Route 3 would have greater impacts on: protected areas, recreation, scenic resources, soils, forested acres, and fish and wildlife habitats. The Morgan Lake Route poses unnecessary risks to: public health and safety, the wildland urban interface, fire suppression support systems, and to aircraft transportation. Morgan Lake Route is more topographically complex, has very limited road access, and requires much more disruption to wildlands. **All said, I calculate that the Morgan Lake Route 3 is a significantly more expensive transmission line segment to build, and to maintain.**

Alternatively, the Agency Identified Route A is topographically simple, has extensive solid road access, and crosses uninhabited lowlands. Here, soils are thin, vegetation is sparse and of low flammability. **It is clear to me why Route A is the Agency Identified Route. And it remains a complete mystery - why IPC chooses to disregard the Agency Identified Route.**

Idaho Power has been asked repeatedly – why the **Agency Identified Route 3** was not included in the EFSC Application? On October 17, 2018, IPC and EFSC held a joint informational meeting at the Blue Mountain Conference Center in La Grande. A member of the audience asked **IPC's Jim Maffuccio** the question – **why are you not using the BLM's environmentally preferred route?** His vague answer was essentially - **we have been working with landowners; there are habitat concerns; the tribes have some concerns; we are communicating with the BLM.** There has been no further elaboration or publicly presented documentation.

I am now asking EFSC, to ask Idaho Power Corporation, to amend their Oregon Application for Site Certificate - Include the Agency Identified Route A for consideration.

Going forward, I also ask that EFSC consider seriously the issues of Health and Public Safety. And I ask that EFSC members consider the **Oregon Conservation Strategy (OCS)** as they weigh the impacts that each of the three routes: A, B, & 3. OCS is the state's overarching strategy for conserving fish and wildlife resources. It serves as the official State Wildlife Action Plan for Oregon, and it is a requirement for the federal State Wildlife Grant Program. The objective of OCS is to conserve fish and wildlife resources by maintaining and restoring *functioning habitats*. OCS breaks the state into *Ecoregions* - the entirety of Union County is within the *Blue Mountains Ecoregion*. It is critical that EFSC members understand that the setting for this transmission line analysis is arguably in one of the Highest Functioning Habitat Areas in the Blue Mountains Ecoregion. The variability of topography, elevation, soils, native vegetation, and wildlife habitats along the breaks of the Grande Ronde Valley is very high, especially for a two-mile radius surrounding Morgan and Twin Lakes...

Respectfully

Michael McAllister (Owner), Wildland Resource Enterprises, 60069 Morgan Lake Road, La Grande, OR, 97850, wildlandmm@netscape.net, (541) 786-1507 .

cc. EFSC Facility Siting team – energy.siting@oregon.gov, Mark Stokes – Applicant/Certificate holder – mstokes@idahopower.com, Scott Hartell – Planning Director for Union County - shartell@union-county.org , Don Gonzale – BLM B2H NEPA Coordinator – dgonzale@blm.gov .

ATTACHMENT 3

ATTACHMENT 3

Search



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Search search



Boardman to Hemingway Transmission Line Project

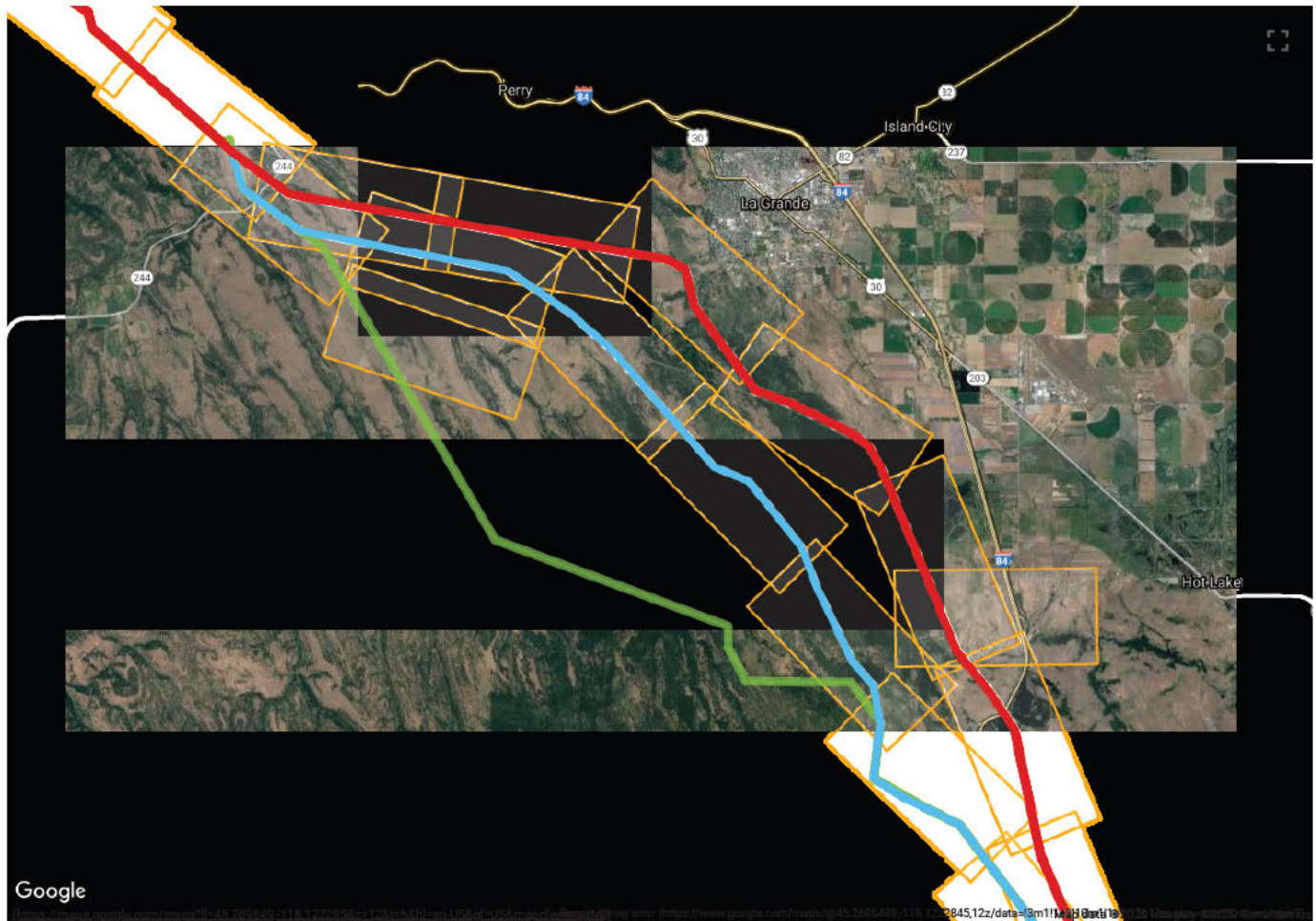
Interactive Map - Including landowner parcels

Property Search

Enter a physical address into the search box to find a property on the map.

Search

- Agency Selected Route (NEPA)
- Proposed Route (EFSC)
- Substations
- Detailed Maps



For questions, contact:

Bureau of Land Management (<https://www.blm.gov/oregon-washington/energy-independence/boardman-hemingway>).

U.S. Forest Service (<https://www.fs.usda.gov/project/?project=26709&exp=overview>).

David Plummer
Wallowa-Whitman National Forest

Susan Geer Opening Testimony PCN5

Renee Straub, BLM Project Coordinator
Boardman to Hemingway Transmission Line Project
BLM Vale District
100 Oregon St
Vale, Oregon 97918

Phone: 541-473-6289
[Email Renee \(mailto:rstraub@blm.gov?subject=B2H%20-%20website%20E-mail\)](mailto:rstraub@blm.gov?subject=B2H%20-%20website%20E-mail).

[Oregon Department of Energy.
\(https://www.oregon.gov/energy/facilities-safety/facilities/Pages/B2H.aspx\)](https://www.oregon.gov/energy/facilities-safety/facilities/Pages/B2H.aspx).

Kellen Tardaewether, Senior Siting Analyst
Energy Facility Siting Division
Oregon Department of Energy, 1st Floor
550 Capitol Street NE
Salem, OR 97301

Phone: 503-373-0214 (Direct)
[Email Kellen
\(mailto:Kellen.Tardaewether@oregon.gov?subject=B2H%20-%20website%20E-mail\)](mailto:Kellen.Tardaewether@oregon.gov?subject=B2H%20-%20website%20E-mail).

Exhibit 120 McAllister letter and attachments page 19

Phone: 541-523-1261
[Email David \(mailto:David.g.plummer@usda.gov\)](mailto:David.g.plummer@usda.gov).

[Idaho Power
\(https://www.idahopower.com/energy/planning/project-news/boardman-to-hemingway/\)](https://www.idahopower.com/energy/planning/project-news/boardman-to-hemingway/).

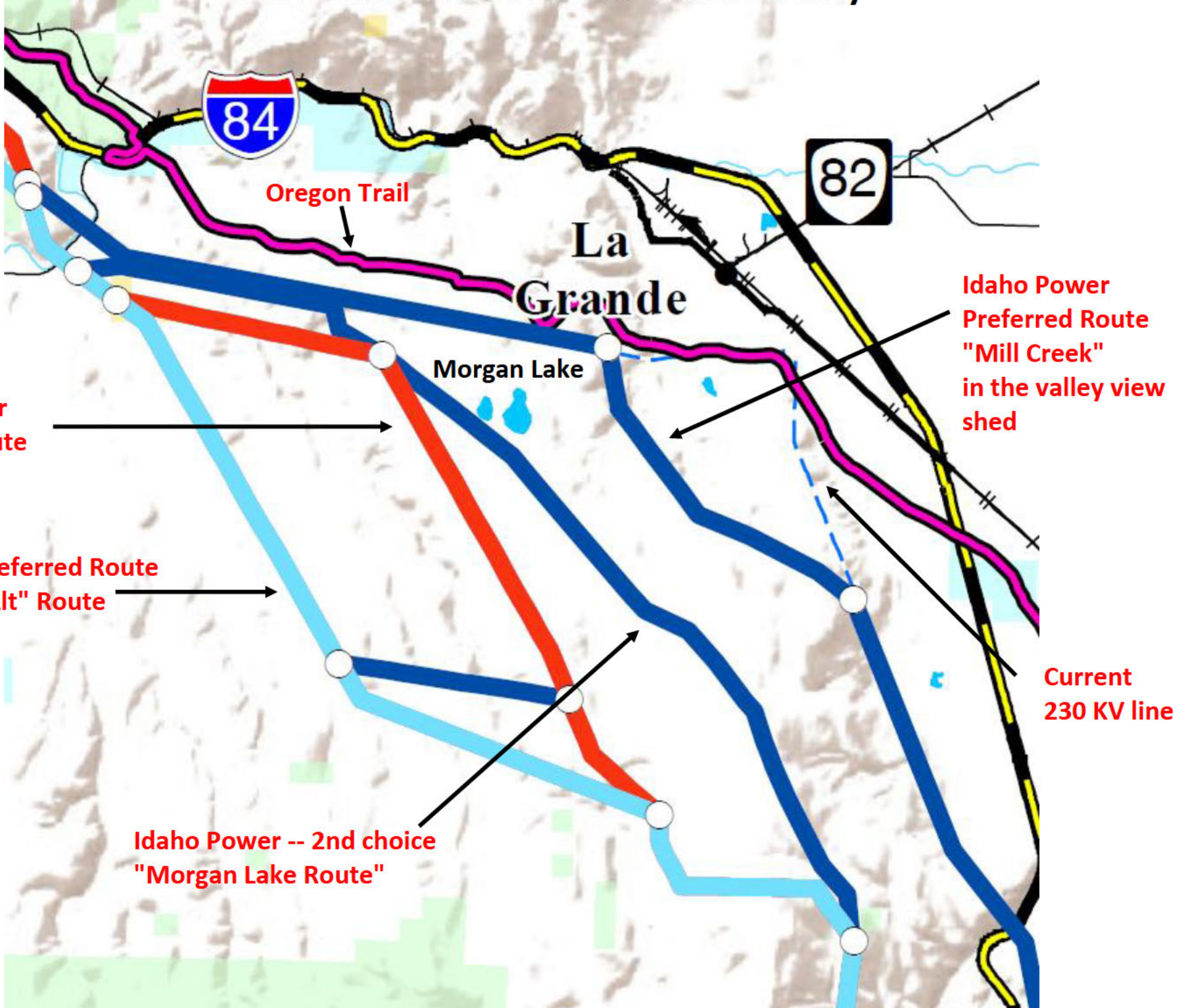
Jeff Maffuccio, Facility Siting Coordinator
PO Box 70
Boise, ID 83707

Phone: 208-388-2402
[Email Jeff \(mailto:JMaffuccio@idahopower.com?subject=B2H%20-%20website%20E-mail\)](mailto:JMaffuccio@idahopower.com?subject=B2H%20-%20website%20E-mail).

ATTACHMENT 3-A

ATTACHMENT 3-A

B2H Routes Considered in Union County



ATTACHMENT 4

ATTACHMENT 4



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.

Sincerely,

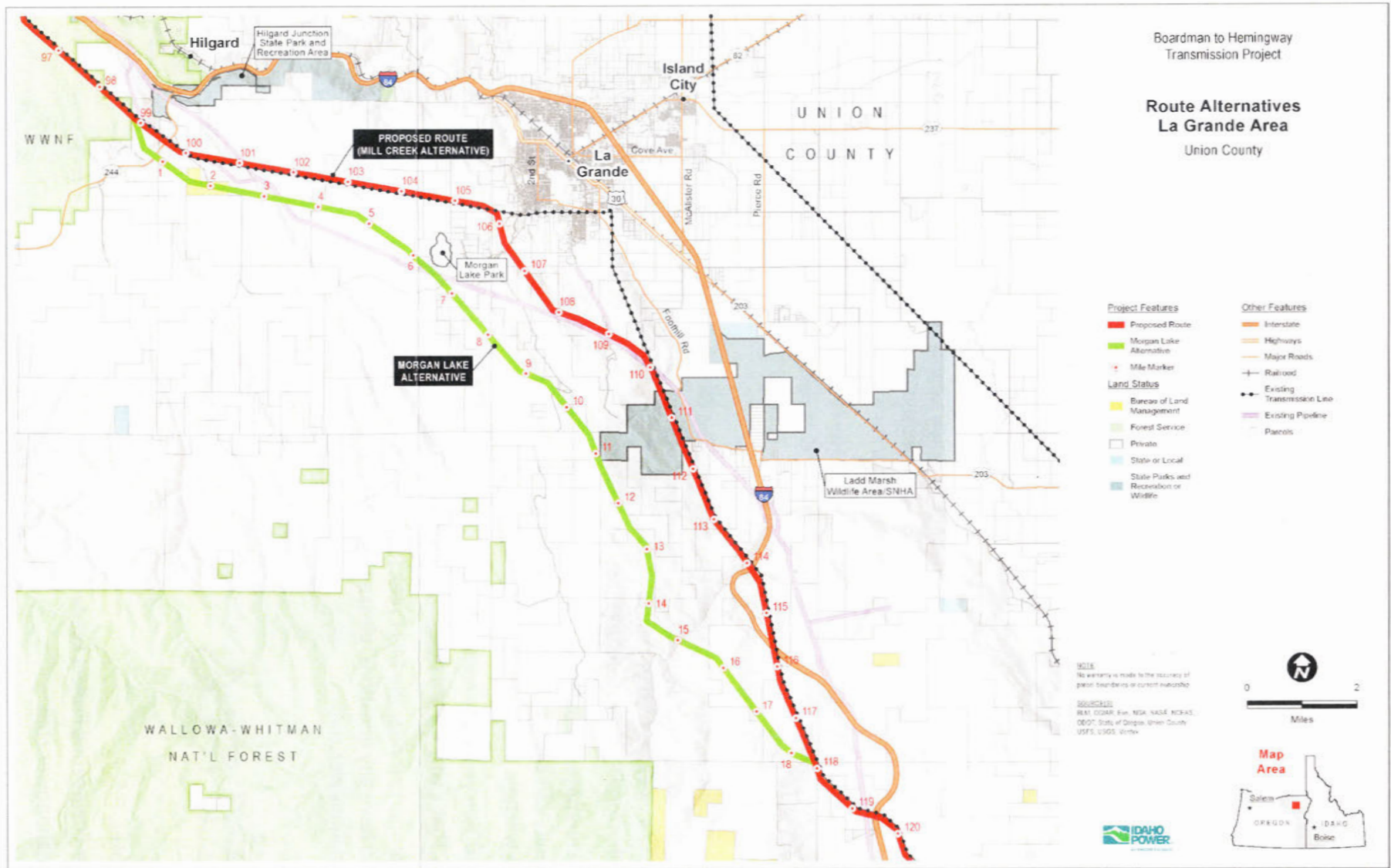
A handwritten signature in black ink that reads "M. Mark Stokes".

M. Mark Stokes, P.E.

Idaho Power Engineering Project Leader
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



ATTACHMENT 5

ATTACHMENT 5

Stu Spence <sspence@cityoflagrande.org>

In response to your call for information (Date: Fri, Aug 11, 2017 at 11:16 AM - Subject: B2H Morgan Lake) – “The City of La Grande is currently providing input to Idaho Power for their Boardman to Hemingway Transmission Line Project. Their current proposed route crosses the boundary of Morgan Lake along the West and Southwest and I have some major concerns about the environmental impacts on Little Morgan Lake. That’s where I need your help.”

I encourage you to emphasize to Idaho Power that - the first stated goal in the Morgan Lake Park Recreational Use and Development Plan (Section 1, Page 2) - *A goal of minimum development of Morgan Lake Park should be maintained to preserve the maximum of natural setting and to encourage solitude, isolation, and limited visibility of users while at the same time providing safe and sanitary condition for users.*

Morgan Lake Park encompasses two separate Lakes; Morgan Lake is 70 acres in size and is developed with road access and camping. Lower Morgan Lake is 27 acres in size, undeveloped, and with no road access or camping. Here it is important that we make one important clarification that (although little known) Little Morgan Lake is officially recognized by both the State of Oregon, and by Federal Agencies as Twin Lake (See USGS – Hilgard Quadrangle Topographic Map). This is especially confusing because the City of La Grande’s Morgan Lake Park Plan recognizes Twin Lake as “Lower Morgan Lake.” Semantics yes, but here is the reason that Twin Lake be recognized for this discussion. Twin Lake has been identified by both Federal and State efforts to conserve, restore, and protect wetlands. Oregon has developed a Wetland Conservation Strategy (Oregon Division of Lands, 1993). This Strategy is implemented through the Oregon Wetlands Inventory and Wetlands Conservation Plans (See Webpage). This planning process allows local governments to balance wetlands protection with other land-use needs. Twin Lake was recognized as an important – persistent emergent wetlands that includes both submersed and floating plants.

Between 1979 and 1987, I lived on Sheep Creek – within ¼ mile of Twin Lake. Most days I walked the south shore of the lake on my way to Eastern Oregon University where I was a student. In 1985, I received a B.S. degree from the University of Idaho in Wildlife Resources. Since graduation I have worked as independent contractor specializing in wildlife and vegetation inventory. My very first contract was with the Nature Conservancy – Baseline Inventory of Wildlife and Vegetation for the Downey Lake Preserve in Wallowa County. There I mapped all vegetation communities, emergent to upland. Like Downey Lake, Twin Lake is recognized in the Oregon Wetlands Inventory. Both are distinct wetlands anomalies in the Blue Mountain Ecoregion

Although I have not mapped the wildlife and vegetation communities of Twin Lake, I am empirically familiar with them for the past 38 years. This pristine wetland, and the surrounding uplands, have been uniquely preserved over time. The native integrity of Twin Lake is virtually

unchanged. In fact, both the Osprey and the Bald Eagle have established nesting since I moved here.

Twin Lake, at 4,100 feet elevation, supports one of the most unique waterfowl nesting communities in the Blue Mountains. Most unusual is the nesting by: Ring-necked Ducks, Red Head, Rudy Duck, Blue-winged Teal and Pied-billed Grebe. Other nesting waterfowl include: Shoveler, Green-winged Teal, Mallard, and Canada Geese.

Rush Sedge and Marsh Birds.

Increasing the species diversity surrounding this wetlands anomaly, the lake is created by natural basalt rim rocks along the south and west edge. Here the vegetation is a diverse mixture of native shrubs, Aspen, Black Cottonwood, and Ponderosa Pine. These surrounding shrub and tree communities support as rich an assortment of both migratory and nesting passerine birds as can be recognized across the Blue Mountain Ecoregion.

And with this species richness, so come the Raptors – both nesting and migratory.

Clearly, I understand why you have major concerns about the environmental impacts that a 500 kv Transmission Line would have towering along the south and west sides of Twin Lake. I assume that it was impacts on resources like Twin Lake that resulted in the Bureau of Land Management (BLM) identifying the Glass Hill Alternate as having the Least Environmental Impact – Hilgard to Ladd Canyon Reach.

I hope that the City also expresses concerns about the visual impacts that this Transmission Line would have on one of La Grande's and Union Counties premier viewsheds. Every visitor to Morgan Lake, at the top of the Blue Mountains, would have to first confront a visual assault from Idaho Power.

I encourage you and the City of La Grande to advise Idaho Power to Amend their Application for Site Certificate to include the Glass Hill Alternate Route - the BLM's "Least Environmental Impact Route." This will give the State of Oregon the opportunity to evaluate what Idaho Power has clearly disregarded.

Respectfully

Michael McAllister, wildlandmm@netscape.net

ATTACHMENT 6

ATTACHMENT 6

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<https://www.wsj.com/articles/pg-e-caused-over-400-fires-in-2018-where-were-the-regulators-11575834385>

'Safety Is Not a Glamorous Thing': How PG&E Regulators Failed to Stop Wildfire Crisis

California's public utilities commission prioritized rates, green power; wildfires exposed shortcomings

By *Katherine Blunt* and *Russell Gold*

Dec. 8, 2019 2:46 pm ET

In 2015, the California regulator overseeing PG&E Corp. opened an inquiry into whether the state's largest utility put enough priority on safety.

Since then, a federal jury has found PG&E guilty of violating safety regulations for natural-gas pipelines and a federal judge later placed it on criminal probation. Its electrical equipment has sparked more than a fire a day on average since 2014—more than 400 last year—including wildfires that killed more than 100 people. It filed for bankruptcy protection this year, citing \$30 billion in fire-related liabilities, and started blacking out millions of customers to try to avoid sparking blazes during strong winds. On Friday, it agreed to pay \$13.5 billion to wildfire victims in a settlement deal.

The regulator, meanwhile, is still investigating.

PG&E's collapse has exposed the California Public Utilities Commission's failure to hold the utility accountable on safety. The CPUC for years focused attention elsewhere, on

setting rates and pushing for cleaner power.

Now, the agency tasked with regulating utility safety is struggling to refocus on the issue while also grappling with its failure to prevent the state's second electricity crisis in two decades.

"The PUC is reactive," says Janice Grau, a retired administrative law judge for the commission. Of the weather patterns that led to deadly power-line failures and blackouts, she says: "There wasn't anyone at the PUC who had the idea to look at the Diablo Winds and say that maybe this is going to get worse."

Behind the CPUC's failure to ensure a safe PG&E lie a number of political mandates from California's leadership, skimpy financial and personnel resources for safety, and an internal culture that ceded much safety oversight to the utilities themselves, say former commissioners, academics and industry experts.

The commission's detractors say it has been excessively cozy with PG&E and the other companies it is supposed to regulate, with a revolving door of staffers shuttling between the regulator and utilities. The companies, meanwhile, have long been among the biggest political players in Sacramento, showering money on Democrats and Republicans alike and helping write the state laws that are meant to govern their behavior.

Utility commissioners, appointed by California's governors, have focused much of the past two decades on implementing politicians' increasingly ambitious goals to reduce the state's carbon footprint by requiring utilities to buy more wind and solar power.

Those efforts were largely successful in pushing the utilities toward renewable power, turning California into a green-energy leader. But now, as state fire officials link outdated PG&E and Southern California Edison equipment to an increasing number of destructive fires, the CPUC faces criticism it should also have prepared the state for the rising wildfire threat.

In 2013, a consultant interviewed CPUC staff about the agency's safety-enforcement efforts and issued a report concluding the safety division received less money and staffing than others focused on delivering green energy and setting rates.



The Camp Fire in November 2018.

PHOTO: NOAH BERGER/ASSOCIATED PRESS

The report stated: “There has been little attention and limited resources directed toward reliability, and even fewer toward safety, by the Legislature and the Commissioners.”

Several of its safety auditors and other staffers have moved into roles at PG&E and other utilities in recent years to oversee the functions they were once charged with regulating.

Earlier this year, U.S. District Judge William Alsup, who is overseeing PG&E's federal probation stemming from the 2010 natural-gas-pipeline explosion that killed eight people in San Bruno, Calif., criticized the commission's staff as they testified before him on the company's safety practices. “It's a revolving door with PG&E over there,” he said. He later apologized to the staffers.

“Criticism of the CPUC being too close to the utilities it regulates is not reflective of current CPUC leadership,” a commission spokeswoman said, adding that “the CPUC overhauled how all investor-owned utilities identify, prioritize, and mitigate safety risks.” PG&E declined to comment.

California Gov. Gavin Newsom recently appointed a new commission president, Marybel Batjer, a former casino executive and veteran California bureaucrat who held top jobs with the state’s prior Democratic and Republican governors, and gave her the task of overhauling the regulator. He has threatened a state takeover of the utility. Ms. Batjer has criticized PG&E for its handling of recent blackouts, telling Chief Executive Bill Johnson it was “an unacceptable situation that should never be repeated,” and she has signaled the need for better safety regulation.

Ms. Batjer says the CPUC, as part of the continuing safety probe, is considering going beyond fines in sanctioning PG&E, perhaps by targeting executive compensation or the board’s makeup. She notes that safety problems have persisted within the company, even after the agency fined it \$1.6 billion for the San Bruno explosion, which destroyed a neighborhood near San Francisco.

“I’m not sure that changed their behavior,” she says, “or their corporate culture.”

Green focus

The 1,200-employee CPUC, whose roots trace to 19th-century efforts to check railroad tycoons’ power, is the nation’s largest state-utility commission. The next largest, Virginia’s, has about 625 employees to regulate utilities and other industries, according to the National Association of Regulatory Utility Commissioners. California’s commission oversees a range of industries, including telecommunications and ride-sharing companies like Uber Technologies Inc.

From the early 2000s, the commission’s focus was on setting rates and implementing Sacramento’s renewable-energy goals. Starting in 2002, three consecutive governors,

two Democrats and a Republican, signed bills ratcheting up the percentage of wind and solar power utilities had to buy.

These mandates required investor-owned utilities such as PG&E to change their mix of generation, effectively phasing out burning coal and lowering reliance on natural gas while signing contracts to buy electricity from new solar and wind farms. The CPUC oversaw these deals, as well as figuring out how to integrate thousands of new rooftop solar installations.

“Was there a considerable amount of resources placed on policy? Yeah, there was,” says Timothy Alan Simon, a commissioner between 2007 and 2012 and now a utilities consultant. “It’s a challenge to balance between the safety aspects and the need for policy deliberation.”

Michael Peevey, a former Southern California Edison president, and CPUC president between 2002 and 2014, was a vocal champion of renewable-energy policies. Now retired, he says the regulator was large enough to focus on safety and renewables simultaneously but that it was tough to get Sacramento lawmakers excited about funding safety.

When compared with eliminating coal and adding solar energy, he says, “Safety is not a glamorous thing.”

PG&E was among nine corporations that made the maximum \$58,400 contribution to Democratic Gov. Newsom’s 2018 campaign. It was a major contributor to the gubernatorial campaigns of Democrat Jerry Brown and Republican Arnold Schwarzenegger before him.

Susan Geer Opening Testimony PCN5



'Safety is not a glamorous thing' compared with green energy, says former CPUC President Michael Peevey, here in 2006, left.

PHOTO: MARK BOSTER/LOS ANGELES TIMES/GETTY IMAGES

The company reported in a federal court filing earlier this year that it made \$5.3 million in contributions to candidates, political parties and political-action committees in 2017 and 2018. The top recipients were the state's Republican and Democratic parties, which each received more than \$400,000, according to campaign-finance records.

While PG&E remains among the state's top political donors, its role in the wildfires has eroded that clout despite its support of the governor and other key lawmakers.

Struggle for resources

The commission's budget for regulating utilities was roughly \$200 million in the 2018-19 fiscal year, up from \$98.5 million in the 2015-16 year, a budget that funds all activities related to the oversight of utility companies, including inspections, rate-setting, auditing, writing reports, doing investigations and other bureaucratic tasks—but that budget doesn't fund its regulation of other industries. The CPUC has historically struggled to find sufficient resources to conduct safety inspections and

investigations, despite a long string of California utility disasters that have suggested the need for closer oversight.

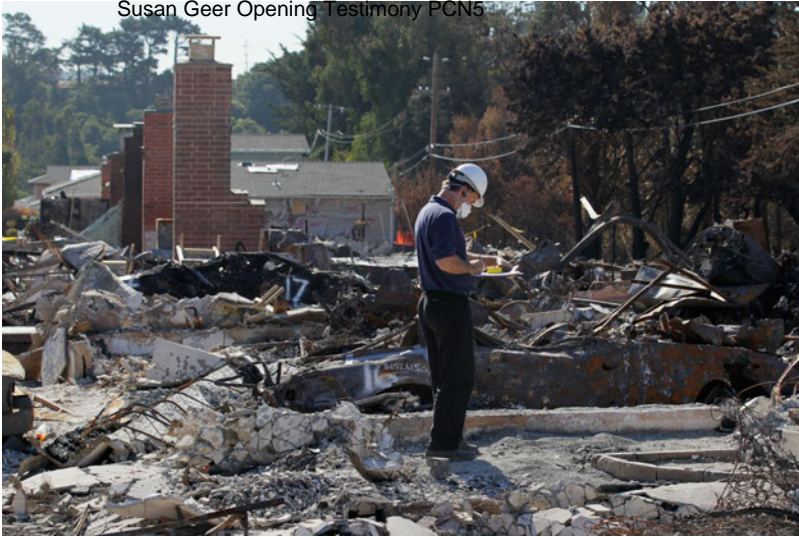
“There ought to be a team of safety experts living in an office in PG&E’s headquarters with access to all employees and records, looking at what they are doing and asking hard questions,” says Steve Weissman, who spent 30 years at the commission as an administrative law judge and a top adviser to commissioners, and is now a lecturer at the University of California, Berkeley’s public-policy school. “But that has not been the approach that they have taken.”

The CPUC began probing its own safety culture after the 2010 San Bruno explosion. At the time, its safety and enforcement division had about 30 employees, less than a third of the number today. They focused on conducting record audits and did little to determine whether the utilities had adequate maintenance and inspection procedures.

After the explosion, the division created a new seven-person team to assess risk and push the utilities to be more forthcoming when they discovered problems. Arthur O’Donnell, who began supervising the team in 2015, says it was down to three engineers when he took over and lacked the money to ramp back up quickly. By the time he retired late last year, he says, it had added six positions and become more sophisticated in its approach.

The commission has for years labored to fill vacancies. Mr. Peevey, the former commission president, says agency jobs often pay less than similar jobs elsewhere in the industry. “We’d attract very bright people,” he says, “and they work three or four years and then leave to make more money and have less bureaucracy.”

Inside the CPUC was a culture that felt it had to pick its battles, says Mark Ferron, a commissioner between 2011 and 2014. Not long after the San Bruno explosion, the PG&E waited months to tell the regulator about potentially similar problems with another pipeline.



A burned home near the center of the San Bruno, Calif., gas-line explosion in 2010.

PHOTO: JUSTIN SULLIVAN/GETTY IMAGES

Mr. Ferron, now retired, says he wanted to launch an investigation to obtain company emails but was told by staff that PG&E would fight the effort in court for years, taxing agency resources. He relented, he says, and agreed to support fining PG&E \$14.4 million for “delay and obfuscation.”

Lawyers for San Bruno, who were suing PG&E following the explosion, uncovered evidence commissioners had engaged in back-channel communications with PG&E executives, which was supposed to be banned under the commission’s rules. Thousands of emails were made public that raised questions about whether the CPUC was too cozy with PG&E.

After an investigation, the commission last year fined PG&E, which admitted wrongdoing, \$97.5 million for improper communications with its own officials.

Among those involved was Mr. Peevey. Four months before San Bruno, the commission’s then-president had invited a PG&E executive to his house for dinner. “No matter the menu,” he wrote, “we have some great bottles of Pinot to drink.”

Mr. Peevey says he extended the invitation upon running into the executive at a grocery store near his home. They discussed the company's politically unpopular effort to push a failed ballot initiative that would have made it harder for local governments to form electricity-buying authorities, he says, calling the meeting "pretty innocent."

At the end of 2014, then Gov. Brown appointed Michael Picker to succeed Mr. Peevey as president. Shortly thereafter, the commission fined PG&E \$1.6 billion for negligence in record-keeping and other problems that led to San Bruno, the largest penalty ever levied against a utility in the state.

Mr. Picker pressed the agency to consider going beyond imposing fines to hold utility executives accountable for operating safely. He opened the 2015 investigation into PG&E's safety culture and pushed to strengthen the commission's approach to safety regulation. He declined to comment.

SHARE YOUR THOUGHTS

Will more regulation make PG&E's operations safer? Join the conversation below.

Last month, Mr. Picker expressed

frustration that the CPUC was tasked with enforcing safety in addition to overseeing rates, which he saw as the regulator's main mandate. "Utility commissions across the country were designed for one purpose, but now are expected [to] tackle everything," he wrote on Twitter.

Diablo Winds

Even as the CPUC tried to increase oversight of PG&E, wildfire risk was spreading from Southern to Northern California. That heightened the chance PG&E equipment could spark fires when warm gusts known as Diablo Winds swept across its 70,000-square-mile service territory.

In 2012, the regulator had launched an effort to map high-threat fire areas throughout the state, but the maps weren't completed until the end of 2017. By that time, a wave of wildfires in the state's wine country had killed 44 people and burned more than 6,600 homes. State fire investigators later determined that 18 of the fires, responsible for half the deaths, were started by PG&E equipment; the company concurred.

As part of the 2015 probe into PG&E's safety culture, a consultant produced a report in May 2017 that spelled out the utility's failings and made recommendations that involved increasing field training and supervision, hiring leaders with stronger safety qualifications and improving risk analyses.

The commission spent more than a year evaluating the report, and it didn't vote to adopt the recommendations until last November, after the Camp Fire killed 85 people and destroyed the town of Paradise in the Sierra Nevada foothills. State fire investigators later linked the fire to PG&E equipment, a conclusion with which PG&E concurred.

In December, Mr. Picker formally opened a new phase of the investigation. The commission is now considering a number of proposals to restructure the company, including separating its gas and electric businesses, making it a publicly owned utility or tying shareholder returns to safety performance.

Elizaveta Malashenko, head of the CPUC's safety division, says the agency has expanded its ability to investigate and litigate utility failures. This month, her division released a report citing PG&E for regulatory violations related to the transmission-line maintenance, including the one that ignited the Camp Fire.

The agency remains constrained in its ability to inspect the vast expanse of utility infrastructure throughout the state due to the size of its workforce and budget, she says. This year, lawmakers gave Ms. Malashenko approval to hire more electric inspectors. She says it has been a challenge to find qualified inspectors, most of whom have been hired by PG&E and other utilities.



Mirrors that track the sun at a solar electric generating facility near the California-Nevada border in 2014.

PHOTO: STEVE MARCUS/REUTERS

She says she hopes to be able to use technology, including drones, to expand the agency's inspection capabilities. "We need to be looking at this a little more creatively than just sending out people to duplicate the workforce of the utilities," she says.

State lawmakers voted in July to create a Wildfire Safety Division in the CPUC, where it will begin examining investor-owned utilities. In 2021, it will be moved to the state's Natural Resources Agency to ensure it has oversight over municipal utilities as well.

The CPUC earlier last month opened a new investigation, its seventh, into PG&E. This one will examine whether PG&E and other utilities put enough priority on safety during large-scale blackouts.

Gov. Newsom and regulators criticized PG&E for the shut-offs in October, but the company was operating within the rules. After a deadly fire near San Diego in 2007 involving a different utility, the commission approved plans to let utilities pre-

emptively turn off power during windy and dry periods to reduce the risk that equipment would spark fires.

Only last year, however, did it opened a proceeding to look at how and when utilities decided to shut off power. That proceeding is continuing.

Ms. Batjer, the new commission president, says the CPUC is examining ways to make its investigation and rule-making procedures faster and more efficient. “We do and should, at all times, apply due process,” she says. “Due process takes time.”

Write to Katherine Blunt at Katherine.Blunt@wsj.com and Russell Gold at russell.gold@wsj.com

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Susan Geer's Opening Testimony PCN 5

Exhibit 121

McAllister memo to Judge Mellgren

2023

BEFORE THE PUBLIC UTILITY COMMISSION**OF OREGON****PCN 5**

Michael McAllister
60069 Morgan Lake Road
La Grande, OR 97850

January 6, 2023

Oregon Public Utility Commission Attn.:
PCN 5, Administrative Hearings Division
Public Utility Commission of Oregon
PO Box 108 Salem, OR 97308-1088

Sent via email to:
puc.filingcenter@puc.oregon.gov

RE: In the Matter of Idaho Power Utility Company Petition for Certificate of Public Convenience and Necessity, PCN 5,
Memorandum Issued: December 19, 2022

John Mellgren
Administrative Law Judge,

Pending before the Supreme Court of the State of Oregon, I am Petitioner, verses Energy Facility Siting Council, Oregon Department of Energy, and Idaho Power Company (IPC), Respondents – **S069920**.

In the Memorandum, you state that “I am particularly interested in hearing from the parties on the specific issues on appeal and how the issues on appeal may impact the PUC’s review of Idaho Powers petition in this matter, if at all.”

I see the issue in my case on appeal potentially affecting OPUC’s review of the Idaho Power’s petition in several ways. As context, one of my issues raised in **OAH Case No. 2019-ABC-02833** was, in effect that, that the BLM’s environmentally preferred route pursuant to NEPA in Union County (the Glass Hill Alternative) should have been included in the application such that EFSC could review the application, to the maximum extent feasible, consistent with the federal agency review under NEPA. This is required by a state law 469.370(13). Compliance with this statute is significant for many reasons, including that it incorporates important NEPA analyses into the state process as to non-federal lands. I was denied the opportunity to be heard on the merits of my issue relating to compliance with 469.370(13) in the contested case. I am now appealing that improper exclusion of the issue from consideration in the contested case at the Oregon Supreme Court.

In the Energy Facility Siting Council – **OAR 345-020-0011 (d) Exhibit D states:**

If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, identification of at least two proposed corridors, as defined in OAR 345-001-0010, or identification of a single proposed corridor with an explanation of why alternate corridors are unlikely to better meet the applicant’s needs and satisfy the Councils standards. The applicant must include an explanation of the basis for selecting the proposed corridors and, for each proposed corridor, the information described in subsections (e), (g), (i), (k), (n), and (p) that is available from existing maps, aerial photographs, and a search of readily available literature.

Exhibit D establishes that a route justification is a prerequisite for an **Application for Site Certificate (ASC)**.

Throughout the EFSC case **OAH Case No. 2019-ABC-02833**, and now in the pending appeal **S069920** at the Supreme Court, it is my contention that IPC's ASC is incomplete because in Union County, IPC's Proposed Mill Creek Route and Morgan Lake Alternative, there is no "explanation of why alternate corridors are unlikely to better meet the applicant's needs and satisfy the Councils standards. The applicant must include an explanation of the basis for selecting the proposed corridors and, for each proposed corridor." In their ASC, IPC chose to eliminate the Bureau of Land Management's (BLM) National Environmental Policy Act (NEPA) "Environmentally Preferred Alternative" in both the Draft and Final EIS prepared over years of multidisciplinary and interagency analysis. The route segment, identified by the BLM as the "Glass Hill Alternative" was chosen through the extensive EIS process and is the federally designated route in the Record of Decision (ROD) for Union County. Not only did IPC exclude this Glass Hill Alternative from its application, but they also misrepresented in the application that the "Glass Hill Alternative Corridor Segment was not carried forward by BLM as the agency preferred route" as Idaho Power's "Basis for Corridor Change."

There are two problems with IPC's ASC when it comes to routing through Union County. First, rather than compare their newly developed Union County routes to the federal "Environmentally Preferred Alternative" – the BLM/NEPA/ROD, they chose to simply ignore it because ODOE/EFSC and IPC claim that their route is on private lands and therefore do not need to comply with the federal ROD. The second flaw was that they identify their Proposed Mill Creek Route as the BLM/NEPA/ROD as the Agency Preferred Alternative. In the ASC, they make a comparative analysis of their Mill Creek Route ("IPC's new BLM NEPA Alternative") to their Morgan Lake Alternative. I see this misrepresentation of routes as proof that the ASC is incomplete, as well as evidence of "fraud, oppression and bad faith, or abuse of power" **Moore Mill & Lbr.Co. v. Foster, 337 P.2d 810 (Or. 1959) Oregon Supreme Court.**

Further evidence of fraud, oppression and bad faith are found in my above-mentioned court record, **OAH Case No. 2019-ABC-02833**, which I am bringing forward to appeal in Case **S069920** at the Supreme Court. The Morgan Lake Alternative (per IPC's application/ASC) was developed by one landowner late in the BLM's NEPA process. He proposed the Morgan Lake Alternative to IPC by letter and this route first appeared in the FEIS, along with the newly created Mill Creek Route, after comments closed in the DEIS. Neither were selected by the BLM. The BLM did not allow for public comment of the FEIS; there was no public notice or opportunity for comment on the two Union County routes. IPC manipulated these two routes (which were not selected during the EIS process), as the only two routes for Union County in their application at ODOE/EFSC; and then they shepherded the Morgan Lake Alternative to final approval for the certificate. The only explanation given by IPC about their creation of the Morgan Lake Alternative is that they were "working with landowners." That single landowner has since sold the property.

In *Moore Mill & Lumber Company v. Foster*, the Oregon Supreme Court is clear "that the condemner has a right to select the route it desires to acquire for a right of way, with which the courts will not interfere except in case of a clear showing of bad faith." Also, the Court is clear that "the owner whose land is under condemnation may always submit evidence showing fraud, bad faith or abuse of discretion."

Idaho Power's creation of the Morgan Lake Alternative and their comparison to their "Agency Preferred" Mill Creek Alternative (not the BLM/NEPA/ROD "Environmentally Preferred Alternative") is clear proof of fraud, bad faith, and abuse of discretion. There are numerous long-term land stewards along the Morgan Lake Route that have been directly impacted by IPC's fraud, bad faith, and abuse of discretion.

I hope that this sharing of thoughts is helpful to you in your oversight of the Public Trust.

Respectfully submitted

Michael McAllister

Susan Geer's Opening Testimony PCN 5

Exhibit 122

McAllister additional public comment on PCN5

2023

Michael McAllister
60069 Morgan Lake Road
La Grande, Oregon 97850

January 10, 2023

VIA ELECTRONIC FILING

puc.filingcenter@puc.oregon.gov

PUC.PublicComments@puc.oregon.gov

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE, Suite 100
Salem, OR 97301-3398

Re: Comments of Michael McAllister PCN 5 IDAHO POWER CERTIFICATION OF PUBLIC CONVENIENCE AND NECESSITY

Please add my comments below to OPUC docket PCN 5 IDAHO POWER CERTIFICATION OF PUBLIC CONVENIENCE AND NECESSITY.

I did submit Public Testimony (#13) at the PUC public meeting on November 16, 2022 in La Grande. This written testimony is a follow-up where I specifically respond to, **Idaho Power Company Supplemental notes to the December 8, 2022 Workshop Presentation, Docket No. PCN 5**. Specifically, I address IPC's answers to two of the Staff Topics.

Note: Blue face text is as IPC responds to Staff Topics. Black face text are my response comments.

Staff Topic 7 (Slides 18 – 28)

Please describe the process and criteria that IPC used to select the proposed route for the transmission line and the alternatives described in the CPCN petition. Include a discussion of all other routes considered and rejected.

Boardman to Hemingway has been in permitting for quite some time and has an extensive siting history.

Idaho Power's corridor selection process occurred primarily in four phases:

1. Phase One between 2008 and 2010,
2. Phase Two between 2010 and 2012,
3. Phase Three between 2012 and 2015, and
4. Phase Four in 2016.

To develop its initial proposed route, Idaho Power evaluated both siting constraints and siting opportunities. Data collection and meetings with stakeholders resulted in over 200 datasets and helped establish the level of permitting importance from the stakeholder perspective of each constraint for siting alternative corridors.

Constraints – The constraints were those resources or conditions that potentially limited transmission line siting because of relative sensitivity based on rules and regulations as well as stakeholder input. Some of the key constraints included: agricultural areas, high desert areas, mountainous regions, land use zones, existing developments, historic resources such as the Oregon Trail, and sage grouse habitat.

Opportunities – Siting opportunities were those resources or conditions that could accommodate a transmission line because of their physical characteristics or regulatory designations. Key siting opportunities include the Bureau of Land

Management's ("BLM") Vale District Utility Corridor, the BLM's West-wide Energy Corridor, the Wallowa-Whitman National Forest Utility Corridor, Interstate 84, existing transmission lines, and existing pipelines.

Idaho Power presented its originally proposed corridor in 2008. Because of the level of public interest, corridor suggestions, and opposition to the originally proposed corridor, Idaho Power initiated a process to engage residents, property owners, business leaders, and local officials in siting the project. Through the Community Advisory Process ("CAP"), Idaho Power partnered with communities and other stakeholders from northeast Oregon to southwest Idaho to identify proposed and alternative corridors and station locations for the project.

Project Advisory Teams

Idaho Power's Community Advisory Process took place in 2009 and early 2010. Project Advisory Teams ("PAT") representing five geographic areas were convened for the purpose of identifying, developing, and recommending proposed and alternative corridors for the project.

I was a participant in the Project Advisory Teams ("PAT") process. I was invited to attend the first meeting (December 14, 2009) held at the Best Western Sunridge Inn in Baker City. The final Agenda Item (8:45 p.m.) was Next Steps: 1) Discuss further detailed analysis, 2) Select proposed and alternative routes to submit to BLM.

Staff Topic 8 (Slides 29 and 30)

Explain the difference between the BLM route and EFSC B2H route for which IPC is seeking the CPCN certificate in terms of physical differences, cost differences, utilization/benefits differences, and differences in impacts on private vs. public lands and other environmental attributes including wildlife, vegetation, noise levels for impacted residents, project timeline and any other factors that were considered in comparing these two routes.

Most of this discussion was captured under the routing constraints that were presented under the previous topic.

I do not understand how this could be the case.

The BLM route and the EFSC B2H route are very similar with a few key differences.

In IPC's response to **Staff Topic 8** (above) they provide no explained differences. There are in fact many "key differences" between these two routes, including: topography, elevation, soils type, forested acres, fire risk, fish and wildlife habitats, and scenic values. Of great importance is the fact that the BLM/NEPA/FEIS route was extensively analyzed with public participation and the EFSC B2H Route was not.

Idaho Power has worked to develop an acceptable route through Union County for over a decade.

Since 2009, starting with IPC's PAT process, I have proactively assisted in the development of the "acceptable route" through Union County. The "acceptable route" pursued by IPC's Project Advisory Team since 2009 is the BLM/NEPA/FEIS Glass Hill Alternative. After nine years of pursuing this route with public participation, IPC, without any public notice, presented two new routes in Union County that they claim were developed through the BLM's NEPA process. These two routes were presented to the BLM near the end of the FEIS process in 2016. Neither of the routes packaged in the ASC were evaluated through the NEPA process. Only in IPC's 2017 Supplemental Siting Study (ASC Attachment B 3.2.3.3, IPC's Morgan Lake Alternative, page 9) are these two routes evaluated on a very cursory basis. In this "study", IPC identifies their new Proposed Mill Creek Route as the BLM/NEPA/FEIS Preferred Route (B 3.1-1, page 3, claiming further that the real BLM/NEPA/FEIS Glass Hill Alternative was "not brought forward in the FEIS."

It is Noteworthy here, that in the Energy Facility Siting Council – Chapter 345, Exhibit D

The Applicant must include an explanation of the basis for selecting the proposed corridors and, for each proposed corridor, the information described in (e), (g), (i), (j), (k), (n) and (p) that is available from existing maps aerial photographs, and a search of readily available literature.

This did not happen with the Morgan Lake Route. The BLM DEIS Glass Hill Alternative (“Environmentally Preferred Alternative”) was available literature.

See the ASC, (Exhibit B, Project Description, Table B-6, Proposed and Alternative Corridor Adjustments, page B-40).

BLM released the Draft EIS December 14, 2014 identifying the agency preferred alternative as the same as the environmentally preferred alternative alignment. BLM selected the agency preferred alternative that it believes would fulfill the statutory mission and responsibilities of the agencies while giving consideration to the economic, environmental, technical, and other considerations, and details further in bullet points.

Also, in the ASC (Exhibit B, Project Description, Table B-39, Proposed and Alternative Corridor Adjustments, page B-7) IPC states that the “Glass Hill Alternative was no carried forward by the BLM as the agency preferred route.” I see this as fraudulent.

Early on, Idaho Power considered the Glass Hill Route, along with at least one other route in the vicinity of Morgan Lake. However, the Glass Hill Route was confronted with substantial backlash from the affected landowners and other interested parties, some of which formed the Glass Hill Coalition specifically to challenge that route.

On February 28th, 2015 the Glass Hill Coalition held one meeting at La Grande’s Transportation Center. There, I signed the petition that was circulated – the petition proposing to put the B2H transmission line along the existing 230 kv transmission corridor. At the meeting there was no mention of the Morgan Lake Route. Members of the Glass Hill Coalition were against the IPC original Proposed Route down “Cowboy Ridge.” Some members had issues with the Glass Hill Alternative. In view of the Glass Hill Coalitions proposal, the Morgan Lake Route is an even worse variation of IPC’s originally proposed (“Cowboy Ridge”) route. To be clear, the Morgan Lake Alternative was an unknown to the Glass Hill Coalition petition signatories.

The Confederated Tribes of the Umatilla Indian Reservation also expressed disfavor for the Glass Hill Route due to impacts to cultural resources.

I cannot speak to the Tribe’s expressed disfavor; however the literature shows that IPC’s Morgan Lake Route crosses Rock Creek below the confluence with Sheep Creek where the Tribe has a Conservation Easement along the lowest reach of Rock Creek which is identified as critical habitat for smolt Chinook Salmon smolts during the warmer waters in the Grande Ronde River. The BLM/FEIS Glass Hill Alternative crosses Rock Creek seven miles above the mouth of Sheep Creek and this critical habitat area.

The Morgan Lake Alternative was developed in response to those concerns, as well as in response to a request made by one of the affected landowners during the federal NEPA process to locate the route closer to the border of their property rather than bisecting it.

I am uncertain how and when the “affected landowner” first presented the IPC’s Morgan Lake Route. I first became aware of it more than a month after the February 28, 2015 Glass Hill Coalition meeting. The first evidence I have is a letter (dated February 27, 2015) from Idaho Power to the affected landowner which states “Thank you for providing an alternative route for the Boardman to Hemingway Transmission Line Project.” Very significantly, this new route makes changes to other affected landowners that did not receive the same consideration. Also, the date of the letter is one day prior to the Glass Hill Coalition meeting, where the same landowner did no sharing of his Morgan Lake Route. Again, to be clear, the Glass Hill Coalition signatories had no knowledge of the Morgan Lake Route which was developed by the landowner that arranged this Glass Hill Coalition meeting.

The Mill Creek Route was also developed during the NEPA process, in response to the Union County's request to site the project in parallel with the existing 230-kv line.

The Mill Creek Route was developed as an outcome of the Glass Hill Coalition signatories. Their interest was in moving the transmission line off Glass Hill, and siting B2H instead on the existing 230-kv line. As a result, the Union County Commissioners appointed the Boardman to Hemingway (B2H) Advisory Committee. At their scheduled meeting July 29, 2016, by unanimous vote, passed a motion for the following – Recommendation on Supplemental Environmental Impact Statement – We recommend that the Union County Board of Commissioners contact the Bureau of Land Management (BLM) to request that the BLM initiate a Supplemental Environmental Impact Statement (EIS). This Supplemental EIS is needed because there are transmission route segments on two routes in Union County that have not yet been analyzed by the BLM through the Draft EIS (DEIS) process. It is imperative that the new segments of routes receive the same scrutiny as all other portions of the proposed B2H route. It is the only way to permit the opportunity to inform the public and allow for public response and testimony. This must be done prior to the release of the Final EIS (FEIS). We further recommend that our Board of Commissioners notify the other counties who could be impacted to inform them of this Union County action and notify our two U.S. Senators.

Only in response to the false choice presented by IPC's Application for Site Certificate (absent the BLM/FEIS/DEIS Glass Hill Alternative) did Union County express a preference for IPC's Morgan Lake Alternative over IPC's Proposed Mill Creek Route.

Based on feedback received from the community, Idaho Power has elected to pursue the Morgan Lake Alternative. This route is out of the viewshed of the Grand Ronde Valley and more rural in nature. The two areas are both Private land and do not impact public vs private land.

The BLM/FEIS/DEIS Glass Hill Alternative is further out of the viewshed of the Grand Ronde Valley, and it is out of the viewshed of the city of La Grande's famed Morgan Lake Park. In 2019 La Grande's Mayor Steve Clements filed, City of La Grande Proclamation, Declaring and Clarifying Opposition to the Boardman to Hemingway Powerline Project. This proclamation, Whereas the Morgan Lake Alternative would adversely impact the view shed of the City's Morgan Lake Park and adversely impact the experience of visitors to this unique Park." The proclamation also states, "we request the application be revised to include the BLM Preferred route as the only route in the vicinity of La Grande.

In Conclusion, I find unacceptable, IPC's response to UPUC **Staff Topic 8 (Slides 29 and 30)**. Furthermore, I find that IPC's responses to demonstrate fraud, oppression, bad faith, and poor discretion.

Submitted by
/s/ Michael McAllister

Attached is reply to:

RE: In the Matter of Idaho Power Utility Company Petition for Certificate of Public Convenience and Necessity, PCN 5, Memorandum Issued: December 19, 2022

John Mellgren
Administrative Law Judge,

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
PCN 5

Michael McAllister
60069 Morgan Lake Road
La Grande, OR 97850

January 6, 2023

Oregon Public Utility Commission Attn.:
PCN 5, Administrative Hearings Division
Public Utility Commission of Oregon
PO Box 108 Salem, OR 97308-1088

Sent via email to:
puc.filingcenter@puc.oregon.gov

RE: In the Matter of Idaho Power Utility Company Petition for Certificate of Public Convenience and Necessity, PCN 5,
Memorandum Issued: December 19, 2022

John Mellgren
Administrative Law Judge,

Pending before the Supreme Court of the State of Oregon, I am Petitioner, verses Energy Facility Siting Council, Oregon Department of Energy, and Idaho Power Company (IPC), Respondents – **S069920**.

In the Memorandum, you state that “I am particularly interested in hearing from the parties on the specific issues on appeal and how the issues on appeal may impact the PUC’s review of Idaho Powers petition in this matter, if at all.”

I see the issue in my case on appeal potentially affecting OPUC’s review of the Idaho Power’s petition in several ways. As context, one of my issues raised in **OAH Case No. 2019-ABC-02833** was, in effect that, that the BLM’s environmentally preferred route pursuant to NEPA in Union County (the Glass Hill Alternative) should have been included in the application such that EFSC could review the application, to the maximum extent feasible, consistent with the federal agency review under NEPA. This is required by a state law 469.370(13). Compliance with this statute is significant for many reasons, including that it incorporates important NEPA analyses into the state process as to non-federal lands. I was denied the opportunity to be heard on the merits of my issue relating to compliance with 469.370(13) in the contested case. I am now appealing that improper exclusion of the issue from consideration in the contested case at the Oregon Supreme Court.

In the Energy Facility Siting Council – **OAR 345-020-0011 (d) Exhibit D states:**

If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, identification of at least two proposed corridors, as defined in OAR 345-001-0010, or identification of a single proposed corridor with an explanation of why alternate corridors are unlikely to better meet the applicant’s needs and satisfy the Councils standards. The applicant must include an explanation of the basis for selecting the proposed corridors and, for each proposed corridor, the information described in subsections (e), (g), (i), (k), (n), and (p) that is available from existing maps, aerial photographs, and a search of readily available literature.

Exhibit D establishes that a route justification is a prerequisite for an **Application for Site Certificate (ASC)**.

Throughout the EFSC case **OAH Case No. 2019-ABC-02833**, and now in the pending appeal **S069920** at the Supreme Court, it is my contention that IPC's ASC is incomplete because in Union County, IPC's Proposed Mill Creek Route and Morgan Lake Alternative, there is no "explanation of why alternate corridors are unlikely to better meet the applicant's needs and satisfy the Councils standards. The applicant must include an explanation of the basis for selecting the proposed corridors and, for each proposed corridor." In their ASC, IPC chose to eliminate the Bureau of Land Managements' (BLM) National Environmental Policy Act (NEPA) "Environmentally Preferred Alternative" in both the Draft and Final EIS prepared over years of multidisciplinary and interagency analysis. The route segment, identified by the BLM as the "Glass Hill Alternative" was chosen through the extensive EIS process and is the federally designated route in the Record of Decision (ROD) for Union County. Not only did IPC exclude this Glass Hill Alternative from its application, but they also misrepresented in the application that the "Glass Hill Alternative Corridor Segment was not carried forward by BLM as the agency preferred route" as Idaho Power's "Basis for Corridor Change."

There are two problems with IPC's ASC when it comes to routing through Union County. First, rather than compare their newly developed Union County routes to the federal "Environmentally Preferred Alternative" – the BLM/NEPA/ROD, they chose to simply ignore it because ODOE/EFSC and IPC claim that their route is on private lands and therefore do not need to comply with the federal ROD. The second flaw was that they identify their Proposed Mill Creek Route as the BLM/NEPA/ROD as the Agency Preferred Alternative. In the ASC, they make a comparative analysis of their Mill Creek Route ("IPC's new BLM NEPA Alternative") to their Morgan Lake Alternative. I see this misrepresentation of routes as proof that the ASC is incomplete, as well as evidence of "fraud, oppression and bad faith, or abuse of power" **Moore Mill & Lbr.Co. v. Foster, 337 P.2d 810 (Or. 1959) Oregon Supreme Court**.

Further evidence of fraud, oppression and bad faith are found in my above-mentioned court record, **OAH Case No. 2019-ABC-02833**, which I am bringing forward to appeal in Case **S069920** at the Supreme Court. The Morgan Lake Alternative (per IPC's application/ASC) was developed by one landowner late in the BLM's NEPA process. He proposed the Morgan Lake Alternative to IPC by letter and this route first appeared in the FEIS, along with the newly created Mill Creek Route, after comments closed in the DEIS. Neither were selected by the BLM. The BLM did not allow for public comment of the FEIS; there was no public notice or opportunity for comment on the two Union County routes. IPC manipulated these two routes (which were not selected during the EIS process), as the only two routes for Union County in their application at ODOE/EFSC; and then they shepherded the Morgan Lake Alternative to final approval for the certificate. The only explanation given by IPC about their creation of the Morgan Lake Alternative is that they were "working with landowners." That single landowner has since sold the property.

In *Moore Mill & Lumber Company v. Foster*, the Oregon Supreme Court is clear "that the condemner has a right to select the route it desires to acquire for a right of way, with which the courts will not interfere except in case of a clear showing of bad faith." Also, the Court is clear that "the owner whose land is under condemnation may always submit evidence showing fraud, bad faith or abuse of discretion."

Idaho Power's creation of the Morgan Lake Alternative and their comparison to their "Agency Preferred" Mill Creek Alternative (not the BLM/NEPA/ROD "Environmentally Preferred Alternative") is clear proof of fraud, bad faith, and abuse of discretion. There are numerous long-term land stewards along the Morgan Lake Route that have been directly impacted by IPC's fraud, bad faith, and abuse of discretion.

I hope that this sharing of thoughts is helpful to you in your oversight of the Public Trust.

Respectfully submitted

Michael McAllister

Susan Geer's Opening Testimony PCN 5

Exhibit 123

Michael McAllister Expert Witness Testimony

2023

1 **Expert Witness Testimony of Michael McAllister in Support of Intervenor Susan Geer**

2 **PCN 5**

3 **February 1, 2023**

4

5 I, Michael McAllister, commit to make expert testimony in support of Intervenor Susan Geer,
6 representing Whitetail Forest LLC and Glass Hill State Natural Area, who presents the following
7 four arguments:

8 1. Of the Union County alternatives, the Morgan Lake route has the highest quality and
9 quantity of native habitat, rare organisms, and priority plant communities.

10

11 2. Viable better alternatives to the Morgan Lake route exist.

12

13 3. Development of the Morgan Lake route is not compatible with the greatest public good or
14 the least private injury.

15

16 4. The Morgan Lake route was developed through fraud and deceit on the part of Idaho
17 Power.

18

19 Susan Geer's Opening Testimony PCN 5 includes a List of Exhibits. I am familiar with exhibits:
20 2, 6, 15, 16, 17, 18, and 19.

21 The following is additional witness testimony for Argument 4, above, that results from Oral

22 Arguments before the Supreme Court, January 18, 2023, Michael McAllister v. Oregon

23 Department of Energy, S069920:

1 <https://oregoncourts.mediasite.com/mediasite/Channel/default/watch/a49062d4fc9d4335bcf3ddf>
2 [e9b4af3fd1d](https://oregoncourts.mediasite.com/mediasite/Channel/default/watch/a49062d4fc9d4335bcf3ddf)

3 Justice Bushong, Oregon Supreme Court:

4
5 *“Address (McAllister’s) counsel’s contention that Idaho Power misrepresented the routes*
6 *that it was considering”* (in the Application for Site Certificate).

7
8
9 Sara Kobak, Attorney for Respondent/Applicant Idaho Power Company:

10
11 *“That statement is not correct. In the Application for Site Certificate there was a chart*
12 *that incorrectly listed. There are two routes that were ultimately approved, the Proposed*
13 *Route and the Morgan Lake Alternative Route, and she (Counsel Hailey McAllister) is*
14 *correct that in the application there is a chart that incorrectly listed the approved route as*
15 *a NEPA Preferred Route, but that was corrected. That was in the Site Certificate*
16 *Application and that was corrected in the process, so that I don’t think that there is any*
17 *question that during the process that there is an awareness that this is a different route”*.

18
19 On January 18, 2023, IPC’s Counsel (before the Oregon Supreme Court, case S069920) once
20 again covered-up the gross misrepresentations in the Application for Site Certificate (ASC).

21 Over the years, Idaho Power Company (IPC) has perpetually misrepresented routes within Union
22 County. On top of these falsehoods, the entire EFSC process was corrupted because Idaho Power
23 applied solely with two routes barely studied and not selected in the federal NEPA process.

1 Years of environmental study by the BLM and USFS went unheeded. Now the case before us,
2 PCN5, permits the consideration of “alternate” routes, and I urge the OPUC to do so and correct
3 this injustice.

4 On July 29, 2016, the Union County Boardman to Hemingway Advisory Committee
5 “recommended that the BLM initiate a Supplemental Environmental Impact Statement (EIS).
6 This supplemental EIS is needed because there are transmission route segments on two routes in
7 Union County that have not yet been analyzed by the BLM through the Draft EIS (DEIS)
8 process.” (See **Geer Exhibit 15**).

9 The BLM did not initiate a supplemental EIS. The “two routes” were never analyzed in any
10 detail; Idaho Power’s promotion of them subverts any guise of state and federal co-operation in
11 the environmental assessment process.

12 To understand IPC’s misrepresentations, one must carefully read “Boardman to Hemingway
13 Transmission Line Project 2017 Supplemental Siting Study”¹ pages 1- 4 as originally labeled
14 (**McAllister Attachment 1**). These four pages cover three Subject Headings: 1)
15 INTRODUCTION, 2) REASONS FOR FURTHER SITING STUDY, 3) ROUTE
16 MODIFICATIONS. A careful reading of the first four pages of the 2017 Siting Study can only
17 be interpreted as both the identification and justification for IPC’s selection of the Mill Creek
18 Route. These pages clearly (mis) identify IPC’s Mill Creek Route as the BLM/FEIS/Agency
19 “Preferred Alternative”. In fact, it is not the BLM Agency Preferred Alternative and never was.
20 Furthermore, the Mill Creek Route was not evaluated through the BLM EIS process.

¹ ODOE - B2HAPPDoc1-2.2 ApASC Exhibit B_Project Description_Part 2_Att B-2 thru B-4 2017-06-28. Page 281 of 300; and Attachment 1.

1 IPC mis-leads us regarding the origin and development of the Mill Creek route. In the 2017
2 Siting Study, on page 9, 3.2.3, Union County, Oregon²:

3 *“In Union County, the Proposed Route includes portions of the Proposed Route that were*
4 *included in the Draft Amended pASC and the Mill Creek Route that was developed by the BLM.*
5 *In addition, the BLM also developed routes that collocated the Project with the existing La*
6 *Grande to Quartz 230-kV transmission Line. IPC also developed the Morgan Lake Alternative*
7 *to the Mill Creek Route.”*

8 Let it stand corrected: the BLM did not develop the Mill Creek Route, yet IPC represents the
9 route as the BLM/FEIS/Agency Preferred Alternative continuously in their ASC.

10 Idaho Power further mis-leads us by baldly denying the Preferred Route status of the Glass Hill
11 Alternative selected in the BLM and USFS Environmental Impact Statements (EISs) of 2017 and
12 2018. ASC Exhibit B “Project Description” Page B-39, Table B-6 “Proposed and Alternative
13 Corridor Adjustments (macro changes) since Preliminary Application for Site Certificate
14 (February 2013)”³ (**McAllister Attachment 2**), states – IPC Basis for Corridor Change is,
15 *“Glass Hill Alternative Corridor Segment was not carried forward by BLM as the Agency*
16 *Preferred Route.”* The Glass Hill Alternative was in fact brought forward in the BLM FEIS as
17 the “Agency Preferred Route” and identified as the “Selected Route” in the USFS FEIS. The
18 Glass Hill Alternative was thoroughly vetted by Federal and State Agencies. In contrast, neither
19 of the routes in Idaho Power’s ASC, the Mill Creek or the Morgan Lake route, were thoroughly
20 vetted or fully analyzed.

² ODOE - B2HAPPDoc1-2.2 ApASC Exhibit B_Project Description_Part 2_Att B-2 thru B-4 2017-06-28. Page 293 of 300

³ ODOE - B2HAPPDoc3-3 ASC 02a_Exhibit_B_Project Description_ASC 2018-09-28. Page 45 of 96

1 Idaho Power mis-leads us concerning the origin of the Morgan Lake route, with an obfuscation
2 even greater than the Mill Creek misinformation. ApASC Attachment B, 2017 Siting Study
3 Pages 9-10, 3.2.3.3⁴ (**McAllister Attachment 3**). The section labeled “IPC’s Morgan Lake
4 Alternative” states, “*The Morgan Lake Alternative was developed by IPC with input from local*
5 *landowners.*” This is a gross misrepresentation of nearly 10 years of landowner “inputs” and
6 participation in the NEPA and EFSC processes.

7 Instead, the truth is enigmatically stated in “Staff Topic 8” page 4 of Idaho Power Company
8 Supplemental notes to the December 8, 2022, Workshop Presentation, Docket No. PCN 5⁵ (**Geer**
9 **Exhibit 19**). “*The Morgan Lake Alternative was developed ----- in response to a request*
10 *made by **one of the affected landowners** (emphasis added) during the federal NEPA process to*
11 *locate the route closer to the border of their property rather than bisecting it.*”(see also **Geer**
12 **Exhibit 19.1**: McAllister additional public comments dated January 10, 2023).

13 **McAllister Attachment 4** is a letter forwarded to Michael McAllister from landowner Brad
14 Allen clearly showing the origin of the Morgan Lake route. It is a February 2015 letter thanking
15 a single large landowner for his “idea” for a route that avoids bisecting his land.

16 Idaho Power’s misrepresentations were perpetuated through the entirety of EFSC’s processing of
17 the IPC Application for Site Certificate. Even as the Energy Facility Siting Council held
18 hearings in La Grande in August 2022 prior to finalizing the approval of the ASC, confusion
19 sowed by Idaho Power Company regarding the status and locations of routes was still apparent.
20 For example, transcripts from the Hearing on Day 2 on 08/30/2022⁶, pages 379 and 483

⁴ ODOE - B2HAPPDoc1-2.2 ApASC Exhibit B_Project Description_Part 2_Att B-2 thru B-4 2017-06-28. Page 293 of 300

⁵ Idaho Power Company Supplemental Notes to December 8, 2022 Workshop Presentation Docket No. PCN 5

⁶ Hearing - Day 2 Council Review of Boardman to Hemingway Transmission Line August 30, 2022. Transcription by Buell Realtime Reporting of Seattle WA.

1 (McAllister Attachment 5) illustrate that even as the EFSC prepared to approve the route,
2 council members remained confused. The public is immensely confused and disenchanted.
3 Referring to the January 18, 2023, statement by Sara Kobak, Attorney for Respondent/Applicant
4 Idaho Power Company, counsel was incorrect in stating that the misrepresentations in IPC's
5 ASC are limited to one "*chart*" and "*that was corrected in the process*". With respect to the
6 BLM/NEPA/FEIS (Glass Hill) Agency Preferred Alternative, IPC's Application processed by
7 EFSC is a total misrepresentation of the facts.

8 On January 18, 2023, IPC's Counsel (before the Oregon Supreme Court) strongly stated that the
9 siting process has gone on for many years. This is factual; IPC opened the siting process to
10 public participation in 2010. The stated objective of IPC's Public Advisory Team (PAT) was to
11 develop route proposals that would be submitted to the BLM for NEPA Review. I was a PAT
12 participant. The Glass Hill Alternative Route was first proposed in 2010 through IPC's PAT
13 Process. It is the BLM/NEPA/DEIS/FEIS Agency (Environmentally) Preferred Alternative and
14 authorized in the Record of Decision (ROD). In 2016, without any agency analysis or public
15 comment, IPC put forth the Morgan Lake Alternative in response to one landowner's request for
16 consideration of the property that he purchased in 2014. That landowner has since sold the
17 property.

18 With respect to the treatment of the BLM/FEIS/Agency Preferred (Glass Hill) Alternative, the
19 Idaho Power Application for Site Certificate processed by EFSC is fraudulent. I have argued (in
20 the public record) these misrepresentations before EFSC for two years now. The only EFSC
21 response has been that the misrepresentations are outside of their jurisdiction. IPC's argument
22 before the Supreme Court on January 18, 2023, that the misrepresentations are the result of one

1 bad “chart” that has since been corrected through the process is just the latest in a pattern of
2 intentionally fraudulent and deceitful verbiage.

3 I hereby declare that the above statements are true to the best of my knowledge and belief, and I
4 understand that they are made for use as evidence in administrative and court proceedings and
5 are subject to penalty of perjury.

6

7 Dated this 1st day of February 2023.

8

9 /s/ Michael McAllister

10 Michael McAllister

11

12 LIST OF ATTACHMENTS:

- 13 1. ApASC Attachment B 2017 Supplemental Siting Study pages 1-4 4p
- 14 2. ASC Exhibit B Project Description see Page B-39, Table B-6. “Proposed and Alternative
15 Corridor Adjustments (macro changes) since Preliminary Application for Site Certificate
16 (February 2013)” 2p
- 17 3. ApASC Attachment B 2017 Siting Study, Page 9-10, 3.2.3, Union County, Oregon
18 2p
- 19 4. Email letter from Idaho Power Company to Brad Allen dated February 27, 2015.
20 1p
- 21 5. Energy Facility Siting Council’s La Grande Hearing – Day 2 – 08/30/2022, pages 379
22 and 483 2p

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McAllister Attachment 1

Excerpt from 2017 Supplemental Siting study

1 INTRODUCTION

This 2017 Supplemental Siting Study addresses changes to the proposed and alternative routes for the Boardman to Hemingway Transmission Line Project (Project) that have been developed since June 2016, when Idaho Power Company (IPC) submitted its Draft Amended preliminary Application for Site Certificate (Draft Amended pASC), which contained the 2015 supplemental siting study. Since the 2015 Supplemental Siting Study and filing of the Draft Amended pASC, the Project has undergone many route adjustments. The changes include the addition of alternatives and changes to the Proposed Route including major line and road location adjustments as well as minor adjustments to avoid sensitive resources, reduce redundancy of Project features, and improve the preliminary engineering design. Section 2 explains why IPC modified the Project following the submittal of its 2016 Draft Amended pASC, and Section 3 describes the specific route modifications. Exhibit C contains a detailed description and map sets documenting the location of the proposed and alternative routes that will be included in the Amended pASC.

2 REASONS FOR FURTHER SITING STUDY

After filing the Draft Amended pASC for the Project in 2016, IPC performed additional analysis and revision to the Project. The primary factors driving the need for modifying the Project were:

- The Bureau of Land Management's (BLM) identification of an agency-preferred alternative that included several alternatives not analyzed in the Draft Amended pASC;
- Further coordination with the Department of Defense and project stakeholders in the Boardman, Oregon area;
- Further coordination with land owners; and
- Route refinements by IPC due to continued engineering to avoid sensitive resources and improve design.

2.1 BLM's Agency Preferred Alternative

In March of 2016, the BLM requested additional input from stakeholders on the alternatives being considered in the National Environmental Policy Act (NEPA) process. The BLM took the information provided by the stakeholders and developed a revised Agency Preferred Alternative. The revised BLM Agency Preferred Alternative resulted in 147.4 miles of route modifications to the IPC Proposed Route as presented in the Draft Amended pASC. The majority of the route modifications occurred in Morrow, Umatilla, Union, and Baker counties (Table 2.1-1).

Table 2.1-1. Miles of Route Modifications as a Result of the BLM Agency Preferred Alternative

County	Alternatives	Miles of Route Modifications
Morrow	Sand Hollow/Whittaker Flats	31.4
Umatilla	Sand Hollow/Whittaker Flats	30.5
Union	Mill Creek and Magpie Peak Collocation with Existing 230-kilovolt transmission lines	32.3
Baker	Magpie Peak, Flagstaff Gulch, Lone Pine Mountain, West Durkee, and Table Mountain	47.2
Malheur	Owyhee River Crossing	6.0
Total		147.4

The BLM identified the Agency Preferred Alternative that it believed will fulfill the statutory mission and responsibilities of the relevant agencies, including giving consideration to economic, environmental, and other factors, including:

- Cultural resources, including historic trails, visual impacts on historic properties, and prehistoric archaeological sites;
- Fish presence and stream crossings;
- Native vegetation and forest and riparian habitats;
- Overall visibility from key observations points, and BLM and United States Department of Agriculture Forest Service (USFS) visual management objectives and criteria; and
- Greater sage-grouse, big-game winter range, raptors, special status species, and sensitive species.
- Certain sensitive areas including Areas of Critical Environmental Concern, lands with wilderness characteristics, and wild and scenic suitable rivers;
- Agriculture;
- Use of corridors including the West-wide Energy Corridor, BLM Vale District utility corridor, and USFS utility corridor; proximity to existing roads including Interstate 84; and adjacency to existing transmission lines;
- Socioeconomics; and
- Technical and other considerations (military operations, constructability, and Resource Management Plan and USFS plan conformance).

2.2 IPC Route Modifications

IPC made minor changes to the sections of the Proposed Route submitted in the Draft Amended pASC that were not eliminated by the new BLM Agency Preferred Alternative. These included minor line and road location adjustments as well as adjustments to avoid sensitive resources, reduce redundancy of project features, and improve the preliminary engineering design. In addition, in coordination with permitting partners PacifiCorp and Bonneville Power Administration (BPA) and other stakeholders, IPC also added two alternatives in Morrow County and one alternative in Union County.

3 ROUTE MODIFICATIONS

3.1 Overview

This section describes changes to the Proposed Route and alternatives by county that have been identified since the last Supplemental Siting Study submitted as Exhibit B, Attachment B-4, 2015 Supplemental Siting Study.

The naming convention and map labeling identifies IPC's Energy Facility Siting Council (EFSC) Proposed Route and BLM's Agency Preferred Alternative in **red**, IPC's EFSC alternative segments in **green**, routes that were not be analyzed in the Draft Amended pASC in **purple**, and routes that were not analyzed in the Final Environmental Impact Statement in **blue** (see Table 3.1-1). Figures in this section show an overview of the route locations and of the route adjustments between 2016 and 2017. Tables in this section compare the constraints between the Proposed Route and alternatives.

Table 3.1-1. Summary of the EFSC and NEPA Status of the Routes and Stations Considered in the Amended pASC

Route Originator	Route Designation	EFSC Status	Status in FEIS
Morrow County			
IPC	Proposed Route (includes West of Bombing Range Road Route and Longhorn Station)	Proposed Route and Longhorn Station.	BLM's Agency Preferred Alternative in the FEIS.
IPC	West of Bombing Range Road Alternatives 1 and 2	IPC Alternative Routes in the Amended pASC.	Not Analyzed in the FEIS
BLM	Sand Hollow/Whittaker Flats Alternative	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
Umatilla County			
IPC	Proposed Route	Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
BLM	Sand Hollow/Whittaker Flats Alternative	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
Union County			
IPC	Proposed Route	Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
IPC	Morgan Lake	Not Analyzed in the Draft Amended pASC. IPC Alternative Route in the Amended pASC.	Not Analyzed in the FEIS.
BLM	Mill Creek	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
BLM	Magpie Peak	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
Baker County			
BLM	Magpie Peak, Flagstaff Gulch, Lone Pine Peak	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
BLM	Durkee West	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
BLM	Table Mountain	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.

Route Originator	Route Designation	EFSC Status	Status in FEIS
Malheur County			
IPC	Birch Creek North	Not Analyzed in Draft Amended pASC. Proposed Route in the Amended pASC.	Not Analyzed in the FEIS.
IPC	Proposed Route	Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
BLM	Owyhee River Crossing	Not Analyzed in the Draft Amended pASC. Proposed Route in the Amended pASC.	BLM's Agency Preferred Alternative in the FEIS.
IPC	Double Mountain Alternative	IPC Alternative Route in the Amended pASC.	Considered but not Selected by the BLM.
Owyhee County, Idaho			
IPC	Proposed Route and Substation	N/A (outside EFSC jurisdiction).	BLM's Agency Preferred Alternative in the FEIS.

Amended pASC – Amended preliminary Application for Site Certificate
 BLM – Bureau of Land Management
 EFSC – Energy Facility Siting Council
 FEIS – Final Environmental Impact Statement
 IPC – Idaho Power Company
 N/A – not applicable
 NEPA – National Environmental Policy Act
 pASC – Preliminary Application for Site Certificate

3.2 Changes by County

3.2.1 Morrow County, Oregon

The Project's northern termination point is Longhorn Station and the Proposed Route includes West of Bombing Range Road and Sand Hollow/Whitaker Flats Routes in Morrow County.

3.2.1.1 West of Bombing Range Road Route

The West of Bombing Range Road (WBRR) Route was included as IPC's Proposed Route in Draft Amended pASC submitted in 2016. IPC has made minor modifications to the route since 2016 in an effort to improve engineering and reduce the Project footprint. IPC has also developed two short alternatives to the WBRR Route that are described below and compared in Table 3.2-1.

The WBRR Route is located along the eastern edge of the Naval Weapons Systems Training Facility (NWSTF) Boardman and the western edge of Bombing Range Road. Heading south and west away from the Longhorn Station, the WBRR Route crosses onto the Bombing Range to the west side of Bombing Range Road at approximately transmission line milepost 3.0, and runs parallel to and on the west side of Bombing Range Road for 11.9 miles. The WBRR Route continues along the NWSTF Boardman for another 1.7 miles before angling to the southeast (Figure 3.2-1).

McAllister Attachment 2

ASC pages B-39 and B-40

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
47	Map 10	Proposed Corridor MP 281-285	Shifted Proposed Corridor South	Avoid private land, follow WECC offset criteria from existing lines	iii
48	Map 10	Proposed Corridor MP 286-289.5	Shifted Proposed Corridor North	Idaho Department of Lands request to reduce offset to existing 500-kV line	iii

¹The adjustments that occurred in the state of Idaho are not included in this table.
 ACEC – Area of Critical Environmental Concern; BPA – Bonneville Power Administration; EFU – Exclusive Farm Use; NA – Not Applicable; NHOTIC – National Historic Oregon Trail Interpretive Center; ODOT – Oregon Department of Transportation; WECC – Western Electricity Coordinating Council

3.1.4 Corridor Selection Process Phase Three – February 2013 to May 2016

After filing the pASC for the Project in 2013, IPC identified the need to perform additional analysis and revision to the Project, resulting in some macro (major) and micro (minor) route adjustments. The macro changes included the addition of alternatives and the determination not to carry some alternative and stations forward into the 2017 Amended pASC as shown in Table B-6. The micro changes included making minor line and road location adjustments to avoid sensitive resources, reduce redundancy of project features, and improve the preliminary engineering design.

Table B-6. Proposed and Alternative Corridor Adjustments (macro changes) since Preliminary Application for Site Certificate (February 2013)

Map Number Reference from Attachment B-4	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Figure 3.1-1 Morrow County	Proposed Station and Proposed Corridor changed due to cancellation of the Portland General Electric's Cascade Crossing transmission line.	Longhorn Station is IPC's proposed station because Grassland and Horn Butte do not provide an adequate electrical connection to meet the needs of the Project. The West of Bombing Range Road is the proposed corridor due to Longhorn Station being the proposed station. Minimizes impacts to agricultural and WAGS and other existing infrastructure.	ii
Figure 3.1-2 Union County	Glass Hill Alternative Corridor Segment not carried forward.	Glass Hill Alternative Corridor Segment was not carried forward by BLM as the agency preferred route.	ii
Figure 3.1-3 Baker County	Virtue Flat and Durkee Alternative not carried forward.	Virtue Flat and Durkee alternatives were not carried forward by BLM as the agency preferred routes due to sage-grouse issues.	ii

Map Number Reference from Attachment B-4	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Figure 3.1-4 Malheur County	Brogan 2012 Proposed Corridor, Willow Creek, Malheur A and Malheur S Alternatives not carried forward.	Brogan 2012, Willow Creek, Malheur A and Malheur S alternatives were not carried forward by BLM as the agency preferred route.	ii

¹ The adjustments that occurred in the state of Idaho are not included in this table.
 WAGS – Washington ground squirrel

The 2015 Supplemental Siting Study (Attachment B-4) explains why IPC was required to modify the Project following filing of its 2013 pASC, as identified below:

- 1) **BLM's identification of a preliminary preferred route that included several segments not analyzed in the pASC:** In May 2013, BLM identified the preliminary preferred alternative for the Project in advance of public release of the Draft Environmental Impact Statement (EIS). BLM selected a preliminary preferred alternative that resulted in the lowest impact on the natural, human, and cultural environment that best protects, preserves, and enhances historic, cultural, and natural resources.

BLM released the Draft EIS in December 2014 identifying the agency preferred alternative as the same as the environmentally preferred alternative alignment. BLM selected the agency preferred alternative that it believes would fulfill the statutory mission and responsibilities of the agencies while giving consideration to economic, environmental, technical, and other considerations. In addition to the key resources listed above in selecting the environmentally preferred alternative, BLM also identified the following criteria for consideration while identifying the recommended agency preferred alternative:

- Land Use (ACEC values, lands with wilderness characteristics, and wild and scenic suitable rivers)
- Agriculture
- Use of corridors (designated corridors including the WWE corridor, the BLM Vale District corridor, and USFS corridors; proximity to existing roads including I-84; parallel to and in proximity of existing transmission lines)
- Socioeconomics
- Technical and other considerations (military operations, constructability, and Resource Management Plan and USFS plan conformance)

- 2) **Formal guidance from ODFW regarding its interpretation of its Habitat Mitigation policy and sage-grouse guidance:** IPC received a letter from ODFW in August 2013 stating that the ODFW Habitat Mitigation Policy (OAR 635-415-0025) does not draw a distinction between direct and indirect impacts to Category 1 habitat. The letter also stated that ODFW understands that IPC may be faced with rerouting the Project based on their guidance. Without a change in both BLM and ODFW's current positions on sage-grouse habitat, it is highly unlikely that either the federal or state agencies involved will authorize the Virtue Flats and Durkee Alternative Corridor Segments of the Proposed Corridor. These segments were therefore not analyzed in the Amended pASC.
- 3) **Further coordination with the Bonneville Power Administration (BPA), PacifiCorp, and other utilities in Boardman area:** In order for the Project to meet its objective of adding approximately 1,000 MW of bi-directional capacity between the Pacific Northwest

McAllister Attachment 3

2017 Supplemental Siting Study Table 3.2.2

3.2.3 Union County, Oregon

In Union County, the Proposed Route includes portions of the Proposed Route that were included in the Draft Amended pASC and the Mill Creek Route that was developed by the BLM. In addition, the BLM also developed routes that collocated the Project with the existing La Grande to Quartz 230-kV transmission line. IPC also developed the Morgan Lake Alternative to the Mill Creek Route.

3.2.3.1 The Proposed Route

The Proposed Route (Mill Creek Route and the collocated route) are part of the Proposed Route in Union County. These routes were developed by the BLM with input from Union County. In Union County, the Mill Creek Route and the Magpie Peak Route replaced 32.3 miles of the Proposed Route that was included in the Draft Amended pASC. Only 7.6 miles of the Proposed Route was included in the Draft Amended pASC and is being carried forward into the Amended pASC. This portion of the Draft Amended pASC route is located in the Blue Mountains between Kamela and Hilgard (see Figure 3.2-3).

3.2.3.2 Magpie Peak Route

The BLM developed the Magpie Peak Route in Union and Baker counties to collocate the Project with the existing Quartz to La Grande 230-kV transmission line. Where possible, the Project was located within 250 feet of the existing transmission line. See Section 3.1.1.2 of Exhibit B for a detailed discussion of extra high voltage transmission line separation criteria.

3.2.3.3 IPC's Morgan Lake Alternative

The Morgan Lake Alternative was developed by IPC with input from local land owners. The Morgan Lake Alternative crosses fewer parcels with residences, does not cross the Ladd Marsh Wildlife Management Area, does not cross Interstate 84, and is 0.5 miles shorter than the corresponding section of the Proposed Route (Mill Creek Route; see Table 3.2-2).

Table 3.2-2. Comparison of Constraints between the Mill Creek Route and the Morgan Lake Alternative in Union County

Resource Group/ Resource Name	Mill Creek Route (miles)	Morgan Lake Alternative (miles)
Length	19.0	18.5
Fish and Wildlife		
Big Game Deer Winter Range (ODFW)	19.0	15.3
Big Game Elk Winter Range (ODFW)	19.0	16.5
Elk Summer Range (USFS)	6.1	15.6
Elk Winter Range (USFS)	17.0	16.3
Elk Winter Range Concentration (USFS)	8.7	3.2
Mule Deer Summer Range (USU)	2.7	7.8
Mule Deer Winter Concentration (USU)	16.4	10.7
Mule Deer Year Round Population (USU)	16.4	10.7
Land Use		
Fire Management Unit	19.0	18.5
Fire Management Zone	19.0	18.5
Grazing Allotment (OR Mgmt Category: C)	1.9	6.9
Recreation Opportunity Spectrum	-	0.8

McAllister Attachment 4

2015 letter from Idaho Power to Brad Allen



27 February 2015

Brad Allen
Via electronic mail

Subject: **Elk Song Ranch Alternative Routes**

Dear Brad and June Allen:

Thank you for providing an alternative route for Boardman to Hemingway Transmission Line Project where it crosses your property known as the Elk Song Ranch. We took your proposed route and modified it slightly to avoid known constraints in the area. Both your proposed route (red dashed line) and the modified routes (orange line and yellow line) are shown on the attached map and explained below.

Your proposed route follows the general route of the Glass Hill Road area you state has a higher human presence than the location of the proposed route. In the siting of a transmission line we must consider the impacts to the human as well as the natural environment. We modified your proposed route to avoid passing over several structures and to be further away from Morgan Lake, a local recreation site. We also developed an alternative route (yellow line) that would further reduce impacts to Morgan Lake. The above recommendations reflect the same methodology we used for routing along the entire length of the project.

A site visit to the area by Idaho Power transmission engineers and final design of the transmission line could result in further refinement of the modified route on the Elk Song Ranch. Please contact me if you would like to discuss any aspect of the routing.

Regards,

Todd Adams
B2H Project Leader

Enc: map

cc: D Gonzalez BLM
T Gertch BLM
R Straub BLM
Z Funkhouser IPC
M Colburn IPC

McAllister Attachment 5

Excerpts from Transcript of EFSC Hearing in August 2022

Hearing - Day 2 - 8/30/2022

Page 379

1 management area that is managed by ODF&W. ODF&W
2 provided comments and the provisions under this
3 condition, protected area condition one, incorporate
4 requests from ODF&W in coordinating activities with
5 ODF&W. And that was the proposed route.
6 And then there's also the Morgan Lake
7 alternative, which did have a public comment earlier and
8 I know when I talked about -- this may help.
9 And forgive me, I forgot who raised it. But
10 we were talking about the proposed route and the Mill
11 Creek route. And then there's the Morgan Lake
12 alternative.
13 So here we are, beautiful La Grande, Union
14 County. And so this is the proposed route.
15 Now, this route in the BLM's NEPA review was
16 called the "Mill Creek Route." So when somebody says
17 "Mill Creek Route" for EFSC and in our EFSC speech, it's
18 the proposed route. And then there's the Morgan Lake
19 alternative. So that is -- I just wanted to kind of
20 paint that picture in our minds.
21 So for this Ladd Marsh, the condition one
22 applies to the proposed route. And then for the Morgan
23 Lake alternative, if the Morgan Lake alternative is
24 selected, then there is -- there is this overlap.
25 Because we talked about the site boundary.

Page 380

1 We talked about the site boundary being the micro-siting
2 corridor.
3 And so -- but we know that the actual
4 right-of-way for the transmission line is going to be
5 smaller than the 500-foot site boundary. So what this
6 condition two is -- because that Morgan Lake alternative
7 is not within a utility corridor, what this condition
8 two does is it -- it basically -- it does not allow or
9 requires them to site the final right-of-way outside of
10 the boundaries of the protected area, because there's
11 just a little bit of overlap. Like, in a map of the
12 site boundary, it clips a corner. So this condition is
13 saying that none of your facility components can be
14 sited inside this protected area.
15 Yes, Councilmember Condon.
16 COUNCILMEMBER CONDON: Kellen, I just want
17 to make sure I'm following you.
18 So if I'm reading in the proposed order --
19 maybe I shouldn't be reading the proposed order right
20 now. But the recommended protected areas condition one.
21 So "proposed" facility has been struck from
22 there. It doesn't -- it's not proposed. It's just the
23 facility regardless of route in the reading of it.
24 MS. TARDAEWETHER: Sarah is going to find --
25 because I don't want to bumble around too much here.

Page 381

1 It's possible that we took out "proposed" because
2 conditions are supposed -- conditions generally read, it
3 has -- it says certificate holder. The conditions are
4 written under the assumption that it -- this is going to
5 end up being the site certificate condition.
6 So rather than "applicant," it says
7 "certificate holder."
8 Rather than "proposed facility" they say
9 "facility."
10 Does that look like what that edit was made?
11 COUNCILMEMBER CONDON: It just seems like
12 this condition would apply no matter what route.
13 And is that -- is that appropriate? I mean,
14 no matter which route was --
15 The reason I'm asking the question is,
16 Kellen, you said it would only affect the proposed
17 route. So I'm trying to distinguish between -- if an
18 alternative route were chosen.
19 MS. TARDAEWETHER: If we can look into that.
20 I think we need to look at a map. Or we --
21 So, yeah, no. I misspoke in my
22 presentation.
23 So, correct -- and maybe it would be
24 helpful. I can pull up a more succinct MAP set because
25 the one MAP set that I pulled up is -- isn't very

Page 382

1 detailed.
2 So this does apply to -- to the facility.
3 Right?
4 But then, it's like, where it separates
5 off -- so here in the findings, a small segment of the
6 site boundary for the Morgan Lake alternative. So I can
7 actually pull this up here, which will kind of show us
8 where they break off. Where the proposed route kind of
9 separates from the Morgan Lake alternative. And that is
10 the portion that this condition applies to.
11 I'll try to pull up that MAP set.
12 Sarah's computer is frozen here. So let me
13 see. Where is this at?
14 COUNCILMEMBER JENKINS: So, Mr. Chair, this
15 is Hanley. My question is to Cindy.
16 Are you referring to condition number two?
17 COUNCILMEMBER CONDON: One. I'm really
18 trying to make the distinction between "facility" and
19 the "facility route."
20 You know, they are two different things in
21 my mind, I guess. There's the transmission line
22 wherever it is, which is the facility, no matter what
23 route.
24 COUNCILMEMBER JENKINS: So isn't one
25 referring to, essentially, towers not the power line?

45 (Pages 379 to 382)

Hearing - Day 2 - 8/30/2022

<p style="text-align: right;">Page 483</p> <p>1 the line. We're waiting for a few other people, 2 Councilmembers, to join our group. 3 I just wanted to take a moment to say that I 4 have been corrected in my description of the Morgan Lake 5 alternative and proposed route. 6 I think I was talking about under the Soenic 7 Resource Standard, I kind of wove in a reference from 8 one of the public comments about the Mill Creek route. 9 And so I said that it was the proposed 10 route. And that -- that's not accurate. The Mill Creek 11 route was a route that came out of the NEPA review, but 12 is not reflected in the application for site 13 certificate. So this is just -- just to make sure -- 14 yeah, so -- is that accurate. 15 Okay. All right. Making sure I'm getting 16 it right. However, what is in front of Council right 17 now, proposed route and the Morgan Lake alternative in 18 Union County. But I just wanted to make sure that we 19 got that -- got that clarified. 20 How is that not -- okay. 21 Well, and I am talking about Union, 22 VICE CHAIR HOWE: Okay. We have a quorum of 23 the Council. We are ready to move forward. 24 MS. TARDAEWETHER: All right. We're going 25 to proceed with the Council's Fish and Wildlife Habitat</p>	<p style="text-align: right;">Page 485</p> <p>1 where each habitat category has a -- separate protection 2 goals and mitigation goals for habitat quantity and 3 quality. 4 So let me go here. I have some maps here. 5 This is another one of those issues where I 6 had to PDF my PowerPoint. 7 So you are missing a table here. But it's a 8 table that it summarizes -- which, actually, it's just 9 more valuable than this figure here. But it summarizes 10 the habitat categorization just along for the proposed 11 route and the alternative routes. 12 An example and so we had talked -- under 13 Threatened and Endangered Species, we talked about 14 category 1 habitat for the Washington ground squirrel. 15 Other examples of category 1 habitat are the 16 occupied WGS colonies, trees or structures with special 17 status raptor nests and then caves with -- that are 18 hibernaculum for bats. 19 Mostly, I'm just working in my favorite word 20 that I've learned here in this job. 21 That's all avoidance. And so -- but there 22 is a lot of the transmission line that crosses through. 23 And Council is pretty familiar with category 24 2 habitat. Category 2 habitat is elk and mule winter 25 range. There's also pygmy rabbits is considered</p>
<p style="text-align: right;">Page 484</p> <p>1 Standard. 2 So to the -- the Fish and Wildlife Habitat 3 Standard, which I'm sitting here staring at it and it 4 does actually have habitat in it. This is not named 5 correctly; correct? 6 Okay. So one of the things I was going to 7 emphasize -- and I'm looking at the name with how we 8 have it labeled here and it's missing the word 9 "habitat." 10 Is the important aspect about this standard 11 is that it really is oriented toward habitat. And so 12 sub (1) directs Council and the Department to work and 13 coordinate with and be consistent with the Oregon 14 Department of Fish and Wildlife Habitat Mitigation 15 Policy, which also includes their habitat 16 categorization. 17 So the habitat categorization from ODF&W 18 goes from a categorization of category 1 to category 6 19 where 1 being the most exclusive. And I'm not using -- 20 I don't have their language right in front of me. 21 And Sarah probably has it memorized best. 22 I'm just going to air quote "best habitat" 23 or "habitat that should be most protected." 24 And then 6 being the poorer quality habitat. 25 And then it continues on that spectrum and</p>	<p style="text-align: right;">Page 486</p> <p>1 category 2 habitat. 2 All in all, there is approximately 4,403 3 acres of category 2, 3, 4, and 5 habitat that would 4 be -- that would be temporarily and permanently impacted 5 by the proposed facility and also incorporated into -- 6 and would be mitigated for and also restored, 7 particularly with those -- the temporary impacts. 8 So this slide, I'm just going to touch on 9 some of the fish and wildlife habitat conditions. We've 10 talked about some of them before. I'm going to start 11 with the bottom here on my screen. 12 In conditions 15 and 16, there are a lot of 13 fish and wildlife conditions. A lot of these have 14 timing restrictions, seasonal restrictions. 15 But 15 and 16 are -- are the conditions that 16 specify that certain surveys must be conducted according 17 to this final biological -- biological survey work plan. 18 And it's attachment P-1 to -- that is attached to the 19 final order -- or proposed order; correct? Right. 20 So -- and that has -- and the reason why 21 that's important is that the survey protocols are agreed 22 to and worked with ODF&W where ODF&W says this is an 23 appropriate methodology to go out in the field and 24 conduct this survey. All of those protocols for all of 25 the habitats and species that we've looked at and that</p>

71 (Pages 483 to 486)