
Botanical Resources

Introduction

The following section discusses effects concerning the risk of spreading noxious species, the impacts on American Indians use, and impacts on known sensitive species.

Regulatory Framework

The Malheur National Forest Plan (pages IV-32 to IV-33) requires:

- Assess all proposed projects that involve habitat changes or disturbance and have the potential to alter the habitat of threatened, endangered or sensitive plant and animal species.
- Perform biological (field) evaluation for use in planning of proposed projects when sensitive species are present or suspected. Conduct surveys in cooperation with other agencies and groups to document the locations of sensitive species populations and to provide more specific information on habitat requirements and relative management guidelines.
- The Forest Plan requires assessing Native American cultural resources and considers edible native plants to be part of these resources.

Analysis Methods

Noxious Weeds

Activities that expose bare ground or areas where vehicle traffic occurs were used to assess the potential of spreading weeds. Acres of proposed tractor yarding, miles of proposed road closures, and acres of proposed conifer planting were chosen as indicators to evaluate effects. Off-road equipment use would disturb soil during harvest activities and could spread seed or reproductive plant parts stored in the soil. Vehicular use of roads is a significant source of seed. Planting conifers would ensure that ground cover is more quickly established and site conditions are not as favorable to noxious weeds.

Culturally Important Plants

No measures were used because no activities are planned within known sites or within areas with potential for collection of culturally important plants.

Sensitive Plants

Sensitive plants suspected to occur on the district are derived from the 1999 Region 6 Sensitive Plant List. A pre-field review and field survey are conducted to determine the presence/absence of TES species, or their habitats. Once presence/absence of TES species or their habitats is documented, impacts to individuals or habitat can be assessed.

The Pre-field Review was performed to identify all sensitive species that could be encountered within the proposed Easy Fire Recovery Project area.

Field reconnaissance for the Easy Fire Recovery Project area was first conducted in November 2002, a time inappropriate for locating the sensitive species that could be present.

Therefore searches were focused on finding suitable habitat as opposed to finding actual plants. Potential habitat identified during the November 2002 surveys was surveyed again in July 2003.

No measures were used because no activities are planned within known sites or within potential habitat for known species.

Existing Condition/ Invasive Species – Noxious Weeds

Noxious weeds, located on the Prairie City Ranger District, are concentrated on roads, recreation sites, and other areas that have ground disturbance. The spread of noxious weeds are mainly by vehicle traffic, recreational use, livestock grazing, and ground disturbing activities.

Following fire suppression activities, noxious weeds likely spread by vehicle traffic and use of heavy equipment. The open ground conditions that increased light and the nutrients in the ash also improved conditions for noxious weed spread. The open machine lines and safety zones are also very susceptible to invasion. In addition to the spread of existing populations, a major threat is the introduction of weeds into the fire areas by equipment. There was no equipment washing stations for vehicles arriving at or leaving the fire areas.

In the summer of 2003, field surveys were conducted adjacent the firelines to identify noxious weed sites. Surveys were primarily along system roads adjacent the fire perimeter. The Easy project file contains a map of the locations of the new weed sites. Prior to the survey, no locations were documented before the fire (Technical Specialist's Report Burned Area Emergency Rehabilitation, 2002) but field personnel had known of widespread occurrence.

The 2003 survey documented 74 weed locations within or adjacent to the Easy Fire project area. Survey personnel used "Weed List of Grant County" list to determine target species. Six species of noxious weeds occur in or adjacent to the Easy Fire project area: dalmatian toadflax, yellow toadflax, diffuse knapweed, hound's tongue, spotted knapweed and St. Johnswort. Species of greatest concern are spotted knapweed, hound's tongue, dalmatian toadflax, yellow toadflax and diffuse knapweed, because these weeds can spread quickly, crowding out native plants, and are difficult to eradicate once established.

For most invasive species identified above, this means the plants were not killed but resprouted and produced seeds, or rhizomes produced new plants. The species that survive include dalmatian toadflax, yellow toadflax, diffuse knapweed, hound's tongue spotted knapweed and St. Johnswort. Most weed sites are located within 1000 feet of roads or old harvest units.

Environmental Consequences/ Invasive Species – Noxious Weeds

The following table summarizes the effects on the measures described under Analysis Methods:

Table B-1: Analysis by Alternative

Alternative	Acres of Proposed Tractor Yarding	Miles of Proposed Road Closures	Acres of Proposed Conifer Planting
1	0	0	0
2	979	5.2	3,918
3	837	5.2	3,918
4	633	5.2	3,918
5	1,750*	5.2	2,524

*Grapple piling only

Alternative 1 (No Action)

Direct/Indirect Effects

The risk of noxious weed spread along open roads would continue since there would not be a reduction in open road miles. Since roadways support the heaviest populations of noxious weeds and pose the biggest threat for invasion by not decreasing vehicle access, this alternative would have the greatest risk of vehicles spreading noxious weeds into the project area. There are few areas within the project area that do not have vehicle access.

Alternative 1 would also not plant conifers on any upland areas. This risk is increased since weeds could be established within the project area before native vegetation could occupy the site.

Alternatives 2, 3, and 4

Direct/Indirect Effects

There are known populations of weeds within treatment areas primarily along roads. There is a risk that off-road harvest equipment could spread existing weed seed or plant parts that survived the fire below ground and cause new populations to be established.

These alternatives would also construct 0.2 to 0.7 miles of temporary roads. Ground disturbance would also occur during ground skidding operations, landing construction, road maintenance, and road decommissioning. The risk of weed spread is moderate to high since the majority (58-66%) of the harvest uses ground yarding methods. Contract provisions that require off-road equipment to be cleaned before entering National Forest lands and requiring seeding disturbed areas would also reduce the risk that weeds might spread and find favorable growing sites. The design measures are included to report and treat weeds lowers the risk substantially, since monitoring shown early treatment successfully eliminates weeds.

The road closure project would reduce open road density within the subwatersheds by 5.2 miles. This will reduce the risk of weed spread by motorized vehicles. The risk of weed spread would be further reduced by conifer planting throughout the project area. By establishing ground cover quickly, conditions would be unfavorable for weed establishment and native plants could establish first.

Alternative 5

Direct/Indirect Effects

This alternative would have the least amount of ground disturbance. What little ground disturbance would occur during road maintenance, road closures, and grapple piling which would increase the risk of weed spread. The design measures to require equipment cleaning would reduce the risk of bringing in new weeds into the area.

The risk of spread is decreased in Alternative 5 since there is a reduction in the open road density that limits the use by motorized vehicles. The road closures would reduce open road density to motorized vehicles by 5.2 miles. This provides a greater reduction of risk of weed spread by motorized vehicles than proposed in Alternatives 2, 3, and 4.

Common to All Alternatives

Cumulative Effects

The past, ongoing, and reasonably foreseeable activities listed at the beginning of Chapter 3 were reviewed for possible cumulative effects. Past activities that have spread noxious weeds include fire suppression and rehab work, livestock, past harvest activities and reforestation work, road maintenance work and recreational activities such as dispersed camping, fire wood cutting and mushroom picking. Present and foreseeable activities are road maintenance; recreational activities such as disperse camping, firewood cutting and mushroom picking reforestation activities and livestock grazing.

There is a risk that the fire itself may have stimulated undocumented weed populations and that weeds were transported into the project area by off-road equipment during suppression activities. These weeds could germinate and spread. However, the Forest has decided to monitor for noxious weeds on disturbed areas created by fire suppression activities over the next three years and some manual removal of weeds is anticipated, which would reduce the spread of noxious weeds. These areas include hand and machine fire line, constructed safety zones and landing sites, and roads (Technical Specialist's Report Burned Area Emergency Rehabilitation, 2002).

As another precaution, livestock grazing will be deferred for at least two growing seasons in those allotments affected by the fire. This management strategy is important for both the short and long-term recovery of the area to assure that vegetation is re-established. This action should also reduce the risk of domestic livestock transporting seeds into the fire area and ensure that conditions in the future will not be as favorable for weed establishment.

Pile burning is not expected to contribute to the spread of noxious weeds because of the mitigation measures identified in Chapter 2.

Existing Condition/ Culturally Important Plants

No tribes or groups of American Indians maintain treaty-reserved rights within the Easy Fire Recovery planning area. However, the planning area does lie within overlapping areas of interest that have been recognized for the Burns Paiute Tribe, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Confederated Tribes of the Warm Springs Reservation (CTWSR). According to the Eastside Draft Environmental Impact Statement (Interior Columbia Basin Ecosystem Management Project, 1997), these areas of geographic interest are loosely based upon historic tribal ranges, traditional use areas, and zones of influence.

Plant food resources commonly used by Native Americans are sparsely distributed within the project area and include Balsamroot (*Balsamorhiza*), *Lomatium* spp. (wild celery), and wild onion (Hemphill et al. 1994). Hemphill notes however, that far richer resources of the nearby John Day River valleys gave the planning area very low priority for wild plant food harvesting (Hemphill et al. 1994). Prehistorically, the valleys of the John Day River and forests to the west and north offered better fishing, plant foods, climate, village sites and water (Hemphill et al. 1994).

Environmental Consequences/ Culturally Important Plants

Scoping letters were sent to Confederated Tribes of the Warm Springs Indian Reservation, Burns Paiute Tribe, and Confederated Tribes of the Umatilla Indian Reservation. There were no substantive comments or concerns raised about collection of culturally important plants in the Easy Fire Project Area. The project area has not historically been an important area for collection of plant foods.

All Alternatives

Direct, indirect, or cumulative effects

There would be no direct, indirect, or cumulative effects to culturally important plants under any alternative because treatment would not occur in known culturally important plant sites.

Existing Condition/ Sensitive Plant Species

The existing condition is identified first by reviewing the Forest GIS and sensitive plant database to locate known sensitive plant populations that occur in or near the project area. Second, to identify habitats that may harbor sensitive plants, the physical and biological features in the project area are correlated with those in which sensitive plants are known or suspected to occur (Nelson 1985). Habitats suspected of harboring sensitive plant populations are identified based on aspect, elevation, and ecoclass (plant association). Brooks et al. (1991) describes specific habitat features for Malheur National Forest sensitive species. Forest botanists have compiled habitat data from field surveys for the remainder of species with potential occurrence, listed since the above book was written. Lastly, potential habitats identified in step 2 are surveyed for new populations of sensitive plants.

Sensitive plant surveys were conducted in portions of the project area in 1979, 1980, 1982, 1984, 1988, 1989, 1990, 1996, 1997 and 2000. These past surveys reviewed areas by floristic walk-through survey (Nelson 1985) during specific times of the year for peak plant identification periods. Surveys completed before the 1999 Region 6 Sensitive Plant List was

released are now incomplete because species on the list have changed. These past surveys documented one existing account of TES plant population within the project area. One population of *Carex interior* is documented within the Easy Fire Recover Project area. Two other populations of *Carex interior* are documented just outside the Easy Fire Recover Project area.

Sensitive plant habitat surveys conducted in the project area in 2002 identified potential habitat for 11 species listed as Sensitive by Region 6: *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. manganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima*.

Sensitive plant surveys in 2003 focused on areas identified in 2002 as potential habitat. All areas that were determined to be good habitat and have activities proposed within them were surveyed again in 2003. Due to low potential for effects, areas within RHCAs that were determined to have limited potential habitat and have no activities proposed within them, were not surveyed. Field surveys in 2003 documented one new population of *Botrychium manganense* located in Mossy Gulch.

For additional information about the documented sensitive species in the planning area, refer to the Easy Fire Recovery Project Plant Biological Evaluation in Appendix E.

Environmental Consequences/ Sensitive Plants

Alternative 1 (No Action)

Direct and Indirect Effects

The No Action Alternative would have no direct or indirect effects to sensitive plant populations because no ground disturbing activities are proposed.

Common to Alternatives 2, 3, 4 and 5

Direct and Indirect Effects

Proposed hazard tree removal would have no direct or indirect effects to sensitive plant populations because no ground disturbing activities are proposed within potential sensitive plant habitats or known sensitive plant sites. Hazard trees that are within RHCAs would be cut and left on site.

Conifer planting with BGR treatment in areas within regeneration units and areas outside units that burned with moderate or high severity would have potential to effect sensitive plant species, if sensitive plant species were present where scalping occurs. However the probability is low because planting of conifers would only occur in areas where conifers were removed by the 2002 Easy fire. The Sensitive plant surveys conducted in 2003 identified one new population. This population was in an area unaffected by the fire. If unidentified populations exist, they would most likely occur in areas unaffected by the fire. These areas would therefore be unaffected by conifer planting and BGR because planting is not necessary in these areas. BGR application would have no direct or indirect effects to sensitive plant populations because it would not be applied on sensitive plants.

Proposed road closures and road maintenance would have no direct or indirect effects to sensitive plant populations because no ground disturbing activities are proposed within potential sensitive plant habitats or known sensitive plant sites.

Proposed replacement ROGs and DOGs with new areas outside the fire would have no direct or indirect effects to sensitive plant populations or known sensitive plant sites because no ground disturbing activities are proposed.

Proposed helicopter landings, and temporary roads, would have no direct or indirect effects to sensitive plant populations because no ground disturbing activities are proposed within potential sensitive plant habitats or known sensitive plant sites.

Alternative 2

Direct and Indirect Effects

Proposed Salvage Regeneration treatment areas 3, 4, 12, 13, 49, 50, 51, 52, 63 and 65 are adjacent to potential habitat for *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. minganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima*. Because harvesting activities are not proposed within designated RHCAs and with the implementation of project design criteria listed in chapter 2, there would be no direct or indirect effects to these species habitat and therefore no effect to populations of these species as a result of these treatments.

Alternative 3

Direct and Indirect Effects

Proposed Salvage Regeneration treatment areas 3, 4, 49, and 50 are adjacent to potential habitat for *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. minganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima*. Because harvesting activities are not proposed within designated RHCAs and with the implementation of project design criteria listed in chapter 2, there would be no direct or indirect effects to these species habitat and therefore no effect to populations of these species as a result of these treatments.

Alternative 4

Direct and Indirect Effects

Proposed Salvage Regeneration treatment area 65 is adjacent to potential habitat for *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. minganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima*. Because harvesting activities are not proposed within designated RHCAs and with the implementation of project design criteria listed in chapter 2, there would be no direct or indirect effects to these species habitat and therefore no effect to populations of these species as a result of these treatments.

Alternative 5

Direct and Indirect Effects

Proposed fuel treatment areas 3, 4, 12, 13, 16, 49, 50, 51, 52, 53, 59, 61, 63 and 65 are adjacent to potential habitat for *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. manganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima*. Because thinning and piling activities are not proposed within designated RHCAs and with the implementation of project design criteria listed in chapter 2, there would be no direct or indirect effects to these species habitat and therefore no effect to populations of these species as a result of these treatments.

Proposed fuel treatment area 53 is adjacent to the documented *B. manganense* site. Because thinning and piling activities are not proposed within the designated RHCA and with the implementation of project design criteria listed in chapter 2, there would be no direct or indirect effects to this population as a result of proposed treatments.

Common to Alternatives 1, 2, 3, 4 and 5

Cumulative Effects

Past actions including domestic livestock grazing, timber harvesting, thinning and piling, road side hazard tree removal, reforestation, road maintenance, noxious weed treatments, fire suppression, dispersed camping, hunting, ATV use, mushroom picking, firewood cutting, and permitted water use have contributed to changes in riparian habitats and the plant communities they support. The distribution and vitality of *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. manganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima* before these activities began are unknown.

Historic grazing has resulted in loss of potential habitat for these species through stream downcutting and accelerated erosion processes that significantly alter local surface hydrology. Past timber harvesting has also increased erosion and altered hydrologic relationships. Historic logging practices included skidding logs through riparian areas, which could have destroyed existing plants but could have also provided soil openings for new plants to establish. Fire suppression may have caused a decline in populations through increased competition for soil moisture and nutrients by shade-tolerant plant species.

The 2002 Easy Fire has altered riparian habitats and the plant communities they support (see section on vegetation and fire severity). This fire has altered the habitat conditions for these sensitive species most likely leading to insufficient moisture levels due to decreased shading and/or greater competition by other plant species due to increased light availability. Easy fire suppression activities, especially hand line construction in RHCAs could have destroyed existing plants but could have also provided soil openings for new plants to establish.

Activities proposed in this EIS under all alternatives would not have measurable cumulative effects on these sensitive species because no ground disturbing activities are proposed within potential sensitive plant habitats or known sensitive plant sites, and because of implementation of design criteria.

Future foreseeable activities such as planting of riparian vegetation and resting the area from livestock grazing for a minimum of 2 years would have beneficial effects. Beneficial effects

include increase shading in riparian areas that have had shading reduced due to the fire and a short-term (at least 2 years) reprieve in deleterious effects from grazing and trampling.

Determination of Effects for Sensitive Species

The three possible types of effects to TEPS (Threatened, Endangered, Proposed, or Sensitive) species that a Biological Evaluation or Biological Assessment can identify, and the corresponding "determinations of effect" to use, are given for TEP species in the 1986 Endangered Species Act regulations (50 CFR Part 402) and the March 1998 FWS/NMFS Endangered Species Consultation Handbook; and for sensitive species in FSM 2670 and in the May 15 and June 11, 1992 Associate Chief/RF 2670 letters on this topic.

Under the No Action Alternative, and Alternatives Two, Three, Four and Five, there would be NO IMPACT (NI) to *Botrychium ascendens*, *B. crenulatum*, *B. lanceolatum*, *B. minganense*, *B. montanum*, *B. pinnatum*, *Carex backii*, *C. interior*, *C. parryana*, *Listera borealis* and *Phacelia minutissima* because no ground disturbing activities are proposed within potential sensitive plant habitats or known sensitive plant sites, and because of implementation of design criteria.

Table B-2 displays a summary of the threatened, endangered and sensitive (TES) plant species considered in the analysis of the Easy Fire Recovery project.

Table B-2: Threatened, Endangered and Sensitive (TES) Plant Species Considered

Species (Status ²)	Scientific Name	Presence on the Malheur National Forest	Occurrence ³	Effects ⁴
Henderson's Ricegrass (S)	<i>Achnatherum hendersonii</i> ¹	Suspected	HN	NI
Wallowa Ricegrass (S)	<i>Achnatherum wallowaensis</i> ¹	Suspected	HN	NI
Transparent Milkvetch (S)	<i>Astragalus diaphanus</i> var. <i>diurnus</i>	Suspected	HN	NI
Deschutes Milkvetch (S)	<i>Astragalus tegetarioides</i>	Documented	HN	NI
Upswept Moonwort (S)	<i>Botrychium ascendens</i>	Suspected	HD	NI
Dainty Moonwort (S)	<i>Botrychium crenulatum</i>	Documented	HD	NI
Triangle Moonwort (S)	<i>Botrychium lanceolatum</i>	Documented	HD	NI
Mingan Moonwort (S)	<i>Botrychium minganense</i>	Documented	D	NI
Mountain moonwort (S)	<i>Botrychium montanum</i>	Documented	HD	NI
Northwestern Moonwort (S)	<i>Botrychium pinnatum</i>	Documented	HD	NI
Peck's Long-Bearded Mariposa (S)	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Documented	HN	NI
Dwarf Suncup (S)	<i>Camissonia pygmaea</i>	Suspected	HN	NI
Back's Sedge (S)	<i>Carex backii</i>	Documented	HD	NI
Inland Sedge (S)	<i>Carex interior</i>	Documented	D	NI
Parry's Sedge (S)	<i>Carex parryana</i>	Documented	HD	NI
Clustered Lady Slipper (S)	<i>Cypripedium fasciculatum</i>	Suspected	HN	NI
Northern Twayblade (S)	<i>Listera borealis</i>	Documented	HD	NI
Red-Fruited Lomatium (S)	<i>Lomatium erythrocarpum</i>	Suspected	HN	NI
Raven's Desert Parsley (S)	<i>Lomatium ravenii</i>	Documented	HN	NI
Colonial Luina (S)	<i>Luina serpentina</i>	Documented	HN	NI
Fleeting Monkeyflower (S)	<i>Mimulus evanescens</i>	Documented	HN	NI
Bridge's Cliff-Brake (S)	<i>Pellaea bridgesii</i>	Suspected	HN	NI
Least Phacelia (S)	<i>Phacelia minutissima</i>	Documented	HD	NI
Oregon Semaphore Grass (S)	<i>Pleuropogon oregonus</i>	Suspected	HN	NI
Arrow-Leaved Thelypody (S)	<i>Thelypodium eucosmum</i>	Documented	HN	NI

¹*Achnatherum hendersonii* and *Achnatherum wallowaensis* = *Oryzopsis hendersonii* (Vasey).

²Sensitive species from Regional Forester's List

³Occurrence

HD - Habitat Documented or suspected within the project area or near enough to be impacted by project activities

HN - Habitat Not within the project area or affected by its activities

D - Species Documented in general vicinity of project activities

S - Species Suspected in general vicinity of project activities

N - Species Not documented and not suspected in general vicinity of project activities

⁴Effect Determinations for Sensitive Species

NI - No Impact

MIHH - May Impact Individuals or Habitat, but Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species

WIFV - Will Impact Individuals or Habitat with a Consequence that the Action May Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species

BI - Beneficial Impact

For more information on the effects to sensitive plants, refer to the Biological Evaluation for Plant Species in Appendix E.

Consistency with Direction and Regulations

All alternatives are consistent with the Forest Plan and other direction with respect to botanical resources.

Irreversible and Irretrievable Commitments

There are no irreversible and irretrievable commitments of resources that may result from the alternatives with respect to botanical resources.