Upper Little Deschutes River Restoration Project

Invasive Plant Risk Assessment

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for:
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Summary

There are two documented invasive plant sites within the ULDR planning area. One is a small (less than 100 ft^2) infestation of butter-n-eggs (NRIS #6120106) along a section of the diversion ditch near the existing pond. This site has been treated annually since 2015 and was found to have only five plants in 2017. As mitigation this infestation will be treated prior to ditch closure work and then monitored and treated annually to ensure infestation does not spread.

A new site of reed canarygrass (NRIS #61200204PHAR3) was found in the fall of 2018 within an oxbow of the Little Deschutes River at DS#3. This site is planned for herbicide treatment in the fall of 2019. No restoration work is planned within this infestation site. All herbicide treatments within ULDR are covered by the 2012 FSEIS for Invasive Plant Treatments on the Deschutes and Ochoco National Forests.

Refer to page 5 for additional recommendations to prevent the introduction of invasive plants into the planning area.

Introduction

The following report analyzes the risk for the introduction and spread of invasive plants into the ULDR planning area as a result of a No Action and Proposed Action alternatives. Site specific weed concerns and risk activities are discussed in the effects analysis.

Invasive species can have significant deleterious impacts to native systems, including the loss of native species (USDA Forest Service 2017), loss of wildlife habitat (Trammel and Butler 1995), disruption of natural fire cycles (D' Antonio and Vitousek 1992), and economic costs (Cusack et al. 2009, PNWER 2012, U.S. Fish and Wildlife 2012).

Due to their harmful ecological effects on the environment, Forest Service policy requires the prevention and management of invasive species, including invasive plants (FSM 2900). Although this direction includes avoiding activities that increase the potential for spreading invasive plants, the Forest Service is also directed to provide recreation opportunities, provide timber products, and maintain a road system. Since these activities can increase the risk of spreading invasive weeds, the Forest Service is directed to implement prevention measures to reduce the risk of introduction and spread of invasive plants (USDA Forest Service 2005).

For ground disturbing activities Forest Service direction states that a determination of the risk of invasive species introduction or spread should be undertaken in project planning and analysis (FSM 2900). Project design features include prevention measures and recommendations that reduce the risk of introduction and spread of invasive plants.

Resource Indicators and Measures

The risk assessment focused on several factors that determine the potential for the spread of invasive plants in a project area, the first and foremost being the number of existing invasive sites within the planning area and whether or not those infestations can be avoided during implementation. Other key factors are related to the amount of ground disturbance associated with activities. This includes the number of user-created trails and system roads to be closed, as well as the amount of proposed disturbance from various treatments, such as log placements, structure removal, and tree thinning. Finally, the potential vectors for the introduction of invasive plants into an area, which would be the vehicles and equipment that are used during project activities (Table 1).

Table 1. Resource indicators and measures for assessing effects

Resource Element	Resource Indicator	Measure (Quantify if possible)	Used to address: P/N, or key issue?	Source (LRMP S/G; law or policy, BMPs, etc.)
Invasive species	Presence/Absence	Number (acres) of existing sites	No	FSM 2900
Habitat availability	Ground disturbance	Acres of disturbance	No	FSM 2900
Vectors	Roads	Miles of user-created and system roads	No	FSM 2900

Methodology

A pre-field review was conducted in May 2017 to determine where existing infestation sites were known to occur within the planning area. The following data sources were used for the review:

Information Sources

- NRM TESP-IS Forest Service database of invasive plant sites (accessed May 2017)

Surveys for invasive plants were conducted in conjunction with surveys for TES botanical species throughout the ULDR planning area from 2012 to 2017. The invasive plants targeted during surveys included those species on the Crescent Ranger District Invasive Plant List (Appendix A), which contain select species from the following sources:

- Oregon Department of Agriculture (ODA) - Noxious Weed List for 2017
- Deschutes County Noxious Weed List 2017
- Klamath County Noxious Weed List 2014

Affected Environment

Existing Condition

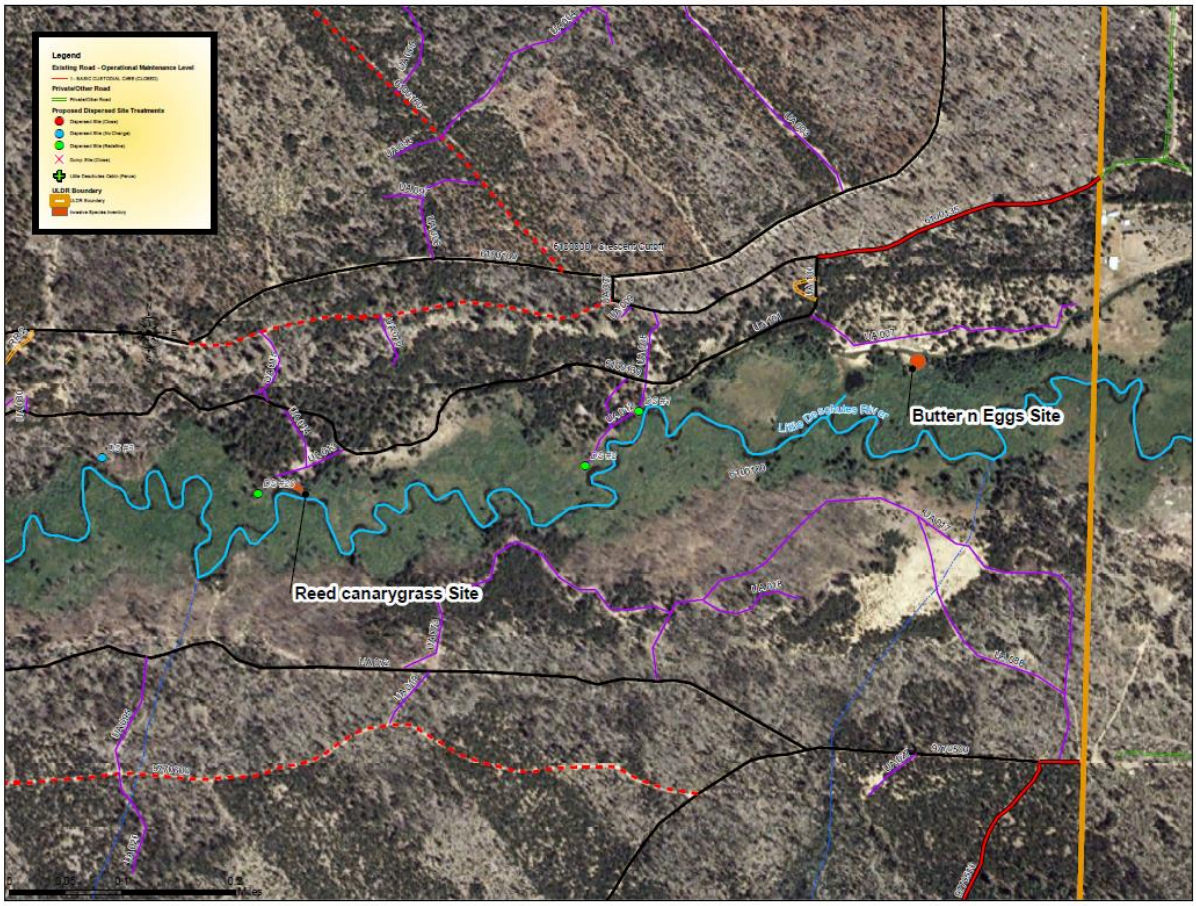
Resource Indicator - Known sites of invasive plants

Prior to 2018 there was only one documented invasive site within the ULDR planning area; a small infestation (less than 100 ft^2) of butter-n-eggs (*Linaria vulgaris* NRIS #6120106) along a section of the diversion ditch to be closed (Fig. 1). This site has been treated since 2015 and is nearly eradicated. (In 2017 only five plants were found.)

Although no other invasive plant sites were found during various field surveys from 2012-2017, a new infestation of reed canarygrass (*Phalaris arundinaceae* NRIS#6120204PHAR3) was found during field checks conducted in the fall of 2018 (Fig. 1). This is a .05 acre patch is located within an oxbow of the Little Deschutes River at #DS 3, one of the dispersed sites in the northern section of the project area. This site lies just east of the dispersed site and will not be impacted by any of the planned restoration work. Treatment is planned for this infestation in the fall of 2019. Any herbicide treatments within the ULDR project are covered by the 2012 FSEIS for Invasive Plant Treatments on the Deschutes and Ochoco National Forests (USDA Forest Service 2012).

Other non-native plants found sporadically within the project area include mullein (*Verbascum thapsus*) and bull thistle (*Cirsium vulgare*). These two species are considered a low-priority for treatment as they tend not spread from disturbed areas and into adjacent forest stands (Veverka 2017).

Figure 1. Known invasive plant sites within the ULDR project area



Resource Indicator and Measure 2 – Ground disturbance

The major source of ground disturbance within the planning area comes from recreational use from the public. Most of this consists of user-created OHV trails and unauthorized roads, which are discussed in the following section. Other ground disturbance is seen with dispersed camping sites and along river section near these campsites. In these areas native vegetation has been degraded through vehicles parking in riparian areas to access the river, and from swimming hole sites, where banks have been denuded from repeated use from swimmers. One notable area of extreme ground disturbance can be found between the 010 road and the Little Deschutes in the southern project area. Here there are several areas, the largest an acre in size, where all the vegetation has been obliterated from years of repeated use from OHV riders. Currently these areas do not have any invasive plant infestations; however, these sites are more vulnerable to invasions due to the highly disturbed soil and a lack of native plant cover.

Resource Indicator and Measure 3 – User-created Trails and System Roads

The ULDR planning area is characterized by a high density of unauthorized roads and user-created trails which have been created by the public through repeated OHV use off established Forest Service roads.

From field surveys and GIS work it has been determined there are 22.1 miles of these unauthorized trails and roads, compared to 46.3 miles of Forest System roads.

Because roads and vehicles can act as vectors by which invasive plants move into new areas (Tyser and Wooley 1992, Hodkinson and Thompson 1997, Lippe and Kowarick 2007, Rew and Pollnac 2010, Ansong and Pickering 2013), road density is a key component in determining the current and potential risk for invasive plants. Field studies have demonstrated that higher density of invasive plants can be found along roads when compared to adjacent interior land areas (Parendes and Jones 2000, Mortensen et al. 2007, Davies et al. 2013). Both open and closed roads were included during botanical surveys in the planning area. While one may have expected that infestations would be found along these roadside edges, this was not observed during field surveys. Roadside edges were found to be generally well vegetated with native vegetation. At most only, sporadic, individual plants of mullein or bull thistle were seen along roadways.

The amount of vehicular traffic and maintenance on the road system in the ULDR area is also a factor in determining the risk for invasive plants. There are both summer and year-round residences within the southern project area, on both sides of the Little Deschutes. The Gulick Road is the main thoroughfare for residents to access their properties. Maintenance on the Gulick road consists of grading every once or twice every summer and plowing during the winter.

Management Direction

Desired Condition

Forest Service policy provides direction to 1) manage/control existing invasive plant infestations and 2) to prevent the introduction and spread of invasive plants on Forest lands (FSM 2900). Currently the ULDR planning area has a low infestation rate of invasive plants, with only one documented site. There is a presence of low priority weeds (mullein and bull thistle) that are present as individual plants in disturbed sites and do not spread into forested areas. The desired condition with the ULDR project would be to maintain this low infestation rate and prevent the accidental introduction of new weed species into the planning area.

Environmental Consequences

Alternative 1 – No Action

Under the No Action alternative, the proposed treatment activities of the ULDR project would not be implemented. Under this scenario, the existing low level of invasive plant infestation would continue throughout the planning area. Although there is persistent use from the public within the planning area (camping, swimming, and OHV use), this use has not resulted in any significant invasive plant infestations. This would continue with the No Action alternative.

Alternative 2 – Proposed Action

The proposed action consists of the following:

1. Riparian Enhancement

The majority of the restoration work will be focused on repairing riparian damage, reconnecting oxbows, adding large wood structures (log jam) to reconnect the Little Deschutes with side channels (relic oxbow), and removal of encroaching lodgepole from a meadow area. Actions to implement this project will

include, but are not limited to the following: a) redirecting the diversion to the pond and back into the river, b) filling in the remaining diversion ditch, and c) planting native riparian vegetation along restored areas.

2. Sustainable Recreation

To maintain popular camping and swimming areas along the river, these sites will either be rehabilitated or closed to prevent riparian damage along the river. Two large, denuded areas within the project area will be protected (with fencing) and restored through native plant seeding and planting.

3. Sustainable Roads

To maintain a sustainable road system within the project area, all unauthorized (i.e. user-created) trails and roads will be closed through various techniques that will include ripping, seeding and planting with native plants, and bouldering to prevent access. Other work will include the removal of two unauthorized bridges and four dump sites.

Project Design Features and Mitigation Measures

Project design features will be incorporated into all action alternatives to reduce the risk of the introduction and spread of invasive plants. These design features are consistent with direction from the Forest Service Guide to Noxious Weed Prevention Practices (2001) and Chapter 2 of the Region 6 EIS on Invasive Plant Treatments (2005). Project design features are specified as follows.

- Actions conducted or authorized by the Forest Service that operate outside the limits of the road prism (including public works and service contracts) require the cleaning of equipment (i.e., bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to entering the National Forest System Lands. This requires that mud, dirt, and plant parts be removed from all heavy equipment and that cleaning must occur in areas where removed weed seeds will not create additional problems.

- Any gravel, fill, sand, or rock brought onto National Forest lands must be from a weed-free source that has been inspected and approved by either the District or Forest weed specialist.

- Only weed-free straw and mulch will be used for projects conducted or authorized by the Forest Service on National Forest System Lands. If State certified straw and/or mulch is not available, the Forest should require a source be certified using the North American Weed Free Forage program standards or a similar certification process.

- All native plant materials including seed, plugs, bare-root, and live stakes will be free of weed plant parts and propagules.

- All Forest Service employees, volunteers, and contractors are required to inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and personal equipment before entering National Forest Lands and prior to leaving a project site infested with weeds.

- To prevent the introduction of aquatic invasive species, all Forest Service employees, volunteers, and contractors are required to have clean equipment and gear (watercraft, boots, waders, etc.) prior to entering any wetland or waterway. It is recommended that aquatic gear be rinsed and

sterilized (with a chlorine bleach solution or a commercial disinfectant) as a preventive measure against the introduction of aquatic microorganisms.

Indirect and Direct Effects of Proposed Action

Resource Indicator 1 – Current infestation sites and whether are not they can be avoided

There is only one infestation site within the planning area which has been under treatment since 2015 and is nearly eradicated. This site can be flagged and easily avoided during project implementation, thereby eliminating the potential for the spread of this site. With this mitigation in place the Proposed Action will not result in an increased risk of invasive plant infestation.

Resource Indicator 2 – Ground disturbance

A key factor in assessing the risk for invasive plants is the acreage (quantitative measure) and intensity (qualitative measure) of ground disturbance associated with various treatments. The Proposed Action consists of restoration work that will some degree of ground disturbance associated with various treatments. Planting native vegetation will have minimal ground disturbance, while decommissioning roads will involve more extensive soil disturbance through the use of heavy equipment to rip road beds and place boulders. Disturbed areas have a higher potential for the colonization of invasive plants as such species physiological and morphological adaptations that allow them to rapidly colonize and proliferate in disturbed areas (Hobbs and Huenneke 2009, USDA Forest Service 2017).

Resource Indicator 3 – Roads

Roads and vehicles act as key vectors by which invasive plants move into new areas, so road density is a key component in determining the current and potential risk for invasive plants. Under the Proposed Action 9.4 miles of Forest System roads would be decommissioned, and 17.2 miles unauthorized and roads would be decommissioned. By decreasing the density of both system and unauthorized roads, the Proposed Action would result in a decreased risk potential for the introduction of invasive plants.

Cumulative Effects

Spatial and Temporal Context for Effects Analysis

The ULDR planning area provides the spatial boundary for analyzing the cumulative effects to invasive plants due to the site specificity of such sites. The timeframe for effects is 20 years, which is based upon the estimated duration for the natural regeneration of disturbed sites.

Past, Present, and Reasonably Foreseeable Activities Relevant to Cumulative Effects Analysis

Table 2 provides a summary of related projects and activities that have the potential to either decrease or increase the cumulative risk of invasive plants throughout the ULDR planning area. The only projects that significantly overlap within the ULDR area are those EIS's for the prevention and treatment of invasive species. These have the potential to reduce the cumulative risk of invasive species within the ULDR planning area as they allow for the treatment of any invasive infestations that be discovered within the area or result from project activities.

Table 2. Past, Present, and Reasonably Foreseeable Future Actions

Project/Event Name	General Description of Activities	Status
Region 6 Invasive Plant EIS (2005)	Implements Standards and Guidelines and prevention strategies to manage invasive plant species.	Implementation
Invasive Plant Treatments for the Deschutes and Ochoco National Forests and the Crooked River National Grassland – Final Supplemental EIS (2012)	Supplemental EIS for site-specific treatment of invasive plants at approx. 1,892 sites on the Ochoco and Deschutes NF and Crooked River National Grassland. Methods include herbicides, manual, mechanical, and cultural.	Implementation
Deschutes and Ochoco National Forests and Crooked River National Grassland Travel Management Project EIS (2011)	Motorized travel in central Oregon would be restricted to designated roads and trails only. Access to dispersed camping would have special provisions to limit access to sensitive areas.	Implementation
Outback Project (previously named Ringo) Prineville BLM (2018)	BLM is in the early stages of planning a thinning and fuels break project. One treatment cluster includes BLM directly east of Eagle Rock, adjacent to the Ringo planning boundary. Treatments proposed in this cluster include commercial thinning of lodgepole pine stands and commercial thinning of ponderosa pine stands.	Scoping
Rim-Paunina EIS (2012)	Vegetation management on approximately 11,236 acre of commercial thinning as well as associated fuels treatments, and 13,491 acres of fuel treatments/prescribed fire.	Implementation. Rim-Paunina units 3010 and 115 are separated from the south and southeast corner of the ULDR project area by 0.15 miles. Some effects maybe overlapping.
Crescent Roadside Firewood Strategy (2012)	Personal use firewood cutting on approximately 600 miles of (28,800 acres) roadside along open roads (as defined by the Deschutes Motor Vehicle Use Maps) east of the boundary delineated by the 1994 Northwest Forest Plan boundary (commonly known as the Northern spotted owl line).	Implementation
Three Trails OHV Project (2010)	142 miles of designated motorized OHV trails over a 93,016 acre project with the focus on areas that are currently being most heavily used by riders. Fifty-six to 94 miles of user-created trails would be rehabilitated.	Implementation. Part of the eastern border of the Rivers portion of the Three Trails OHV project area is adjacent to the southwest corner of Upper Little Deschutes Restoration Project (south section), but separated by Highway 58. Some effects maybe overlapping.

Project/Event Name	General Description of Activities	Status
BLT EIS (2008)	Commercial and small-tree thinning of forested stands, prescribed burning, piling and disposal of activity-generated slash, and construction of 9.8 miles of temporary roads over 7,499 acres within the analyzed vegetation management 80,000-acre BLT project area.	Completed and included in the existing condition where timber sale may overlap the Upper Little Deschutes Restoration Project area

Regulatory Framework

Land and Resource Management Plan

The Deschutes National Forest Land and Resource Management Plan (DLRMP) does not provide standards and guidelines for invasive plant management. Goals and objectives for invasive species prevention practices are provided in Chapter 2 of the EIS for the Pacific Northwest Invasive Plant Program (October 2005).

Forest Service Manual

Forest Service Manual (FSM 2900) provides direction on the prevention and management of invasive species.

Executive Orders

Invasive Species, EO 13112 of February 3, 1999

Section 2. Federal Agency Duties. (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Other Guidance or Recommendations

In 2001 the *Guide to Noxious Weed Prevention Practices* was published by the Forest Service to provide a comprehensive directory of weed prevention practices for use in planning and resource management activities and operations. In 2011 the California Invasive Plant Council published *Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers*, which provides guidelines for preventing the spread of invasive species. In 2013 the Forest Service produced the *National Strategic Framework for Invasive Plant Management* which provides land managers with guidelines for preventing, managing, and reducing invasive plants on Forest lands.

Summary of Environmental Effects

The Proposed Action would varying degrees of ground disturbance that include road decommissioning, ditch closure, lodgepole thinning, riparian enhancement, and native seeding and planting. All of these activities have the potential to introduce invasive plants into the project area, primarily from the use of heavy equipment that could carry invasive plants seed or plant parts. With the implementation of standard

Forest Service prevention practices such as equipment cleaning and use of weed-free material, this potential risk will be greatly reduced.

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Appendix A. Crescent District List of Invasive Plants (revised 10/27/16)

SCIENTIFIC NAME	COMMON NAME	PRESENCE
Bromus tectorum	Cheatgrass	Documented
Centaurea diffusa	Diffuse knapweed	Documented
Centaurea maculosa	Spotted knapweed	Documented
Centaurea pratensis	Meadow knapweed	Documented
Centaurea repens	Russian knapweed	Potential
Centaurea solstitialis	Yellow star-thistle	Documented
Centaurea virgata var. squarrosa	Squarrose knapweed	Potential
Cirsium arvense	Canada thistle	Documented
Cirsium vulgare	Bull thistle	Documented
Conium maculatum	Poison hemlock	Potential
Cynoglossum officinale	Common houndstongue	Documented
Cytisus scoparius	Scot's broom	Documented
Euphorbia esula	Leafy spurge	Potential
Hypericum perforatum	St. Johnswort	Documented
Isatis tinctoria	Dyer's woad	Documented
Kochia scoparia	Kochia	Potential
Linaria dalmatica	Dalmation toadflax	Documented
Linaria vulgaris	Butter and Eggs	Documented
Lythrum salicaria	Purple loosestrife	Potential
Myriophyllum spicatum	Eurasian water-milfoil	Documented
Onopordum acanthium	Scotch thistle	Documented
Phalaris arundinacea	Reed canarygrass	Documented
Ranunculus repens	Creeping buttercup	Documented
Salvia aethiopsis	Mediterranean sage	Potential
Senecio jacobaea	Tansy ragwort	Documented

Most of the weed species listed above are on the Oregon State Noxious Weed List. Common mullein and cheatgrass are not on that list. However, it is of concern on the Deschutes National Forest because both species invade disturbed sites, especially past harvest units, and may compete with young trees and other desirable native plants.