BUREAU OF RECLAMATION

Programmatic Environmental Assessment Wildland Fire Emergency Stabilization and Rehabilitation

Ephrata Field Office

Columbia-Pacific Northwest Region

CPN EA-2025-04

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Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

Acronym or Abbreviation	Description
APE	Area of Potential Effect
AUM	Animal Unit Month
BAR	Burned Area Rehabilitation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CH	Critical Habitat
CTCR	Confederated Tribes of the Colville Reservation
DM	Department of the Interior Manual
DNA	Determination of NEPA Adequacy
DOI	Department of the Interior
EA	Environmental Assessment
EFH	Essential Fish Habitat
EFO	Ephrata Field Office
EPMs	Environmental Protection Measures
ES	Emergency Stabilization
ES&R	Emergency Stabilization and Rehabilitation
ESA	Endangered Species Act
LEB	Log erosion barrier
LOE	Level of Effort
MLRA	Major Land Resource Area
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPS	National Park Services
NRHP	National Register of Historic Places
NHPA	National Historic Preservation Act
ORV	Off Road Vehicle
PEA	Programmatic Environmental Assessment
PESRP	Programmatic Emergency Stabilization and Rehabilitation Plan
PRPA	Paleontological Resources Protection Act
Reclamation	Bureau of Reclamation
Reclamation Handbook	Burned Area Emergency Stabilization and Rehabilitation Handbook
RMP	Resource Management Plan
SHPO	State Historic Preservation Officer
TCPs	Traditional Cultural Properties
THPO	Tribal Historic Preservation Officer
T&E	Threatened and Endangered
USC	United States Code

Acronym or Abbreviation	Description
USFWS	United States Fish and Wildlife Service
WA-DAHP	Washington State Department of Archaeology and Historic Preservation (i.e., WA State SHPO)
WDFW	Washington State Department of Fish and Wildlife
WFM	Wildland Fire Management
WSDOT	Washington State Department of Transportation

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1 Introduction

The U.S. Department of the Interior Bureau of Reclamation (Reclamation) Ephrata Field Office (EFO) has prepared this Programmatic Environmental Assessment (PEA) consistent with the statutory and regulatory requirements of the National Environmental Policy Act (NEPA; 42 U.S. Code [U.S.C.] 4321 *et seq.*), the U.S. Department of the Interior's NEPA Regulations (43 Code of Federal Regulations [CFR], Part 46), and administration priorities and policies.

This PEA describes and analyzes Reclamation's federal actions to support the Emergency Stabilization and Rehabilitation (ES&R) treatments that would be implemented after a wildfire occurs. Treatments are discussed independently of each other, but they may be combined and implemented together depending on treatment design and/or site-specific resource conditions (e.g., elevation and slope) and needs. Common factors affecting treatment selection type could include, but would not be limited to, soils, threatened and endangered (T&E) species habitat, sensitive species habitat, vegetation type, topography, and burn severity, and facility risk.

The EFO has public lands administered by Reclamation[1] in Montana, Idaho, and the state of Washington. Fires that occur within the EFO occur primarily in Washington, and therefore, this PEA will focus only on public lands administered by Reclamation EFO that are within the project planning area in the state of Washington (Appendix A, Map 1).

This PEA addresses the need to streamline future NEPA analysis for wildfire recovery actions within the EFO to be able to more quickly address post-fire public safety concerns; repair minor infrastructure; minimize degradation of natural resources, historic properties and traditional cultural places; and rehabilitate resources where degradation occurs.

Reclamation has considered the factors mandated by NEPA. This PEA represents Reclamation's good-faith effort to prioritize documentation of the most important considerations required by the statute within the congressionally mandated page limits. This prioritization reflects Reclamation's expert judgment. Any considerations addressed briefly or left unaddressed were, in Reclamation's judgment, comparatively not of a substantive nature that would meaningfully inform the consideration of environmental effects and the resulting decision on how to proceed.

Should a determination be made that the proposed ES&R treatments would not result in significant environmental impacts, a Finding of No Significant Impact would be prepared to document that determination and to provide a rationale for approving the selected alternative. If not, then a decision would be made to either select the no action alternative or issue a notice of intent to prepare an environmental impact statement.

[1] Public lands administered by Reclamation are any real property under the jurisdiction of or administered by Reclamation, and include, but are not limited to, all acquired and withdrawn lands and lands in which Reclamation has a lease interest, easement, or right-of-way.

1.1 Emergency Stabilization and Rehabilitation

The Reclamation Burned Area Emergency Stabilization and Rehabilitation Handbook (Reclamation Handbook) would be used post-fire as the primary guidance for Reclamation's Columbia-Pacific Northwest Region's ES&R treatment plan development. This handbook provides detailed information specific to the Columbia-Pacific Northwest Region policies, standards, and allowable procedures and treatments. The Reclamation Handbook is tiered to the Department of the Interior (DOI) Departmental Manual policy 620 DM 7 *Wildland Fire Management Burned Area Emergency Stabilization and Rehabilitation* relative to planning and implementing ES&R projects on public lands administered by Reclamation.

ES&R plans contain two components: Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR). ES addresses immediate need to prevent risk to life and property or degradation of federally listed or state-listed T&E species, historic properties or traditional cultural places (620 DM 7). BAR objectives are meant to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics or restore or establish a healthy, stable ecosystem in which native species are well represented, and repair or replace facilities damaged by wildland fire (620 DM 7). Implementation of ES plans occurs within 1 to 2 years following a wildfire, and BAR plans are implemented 3 to 5 years post-fire. ES&R treatments Reclamation implements are currently limited. Therefore, this PEA proposes a broader range of treatments that would be readily available, as further detailed in Chapter 2, Section 2.2 Proposed Action.

1.2 Background, Location, and Action Area

Reclamation jurisdictional ownership within the EFO area is scattered across a large area with a few locations blocked into sizable holdings. With a scattered land pattern, Reclamation lands are bordered by many different entities including private sector; other federal, state, and tribal entities; local government entities, and water. Federal land ownership within the project planning area includes that administered by Reclamation (withdrawn and acquired lands), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS), and Bureau of Indian Affairs (BIA). State-owned lands within the project planning area include Washington State Department of Natural Resources, Washington State Parks and Recreation Commission, and Washington State Department of Fish and Wildlife (WDFW).

The EFO has approximately 360,000 acres of jurisdictional land within the project planning area. These lands are identified as either acquired lands[2] or withdrawn lands, depending on the method by which the land was obtained for Reclamation use (Appendix A, Map 1). Of these lands, approximately 198,000 are managed by others under law or by agreement. In addition, Reclamation has acquired rights-of-way or easements on approximately 69,000 of these acres, consisting of canals and associated facilities and roads. Depending on the land classification stated above, lands may rely

[2] Acquired lands are lands acquired through outright purchase, condemnation, gift or exchange. Withdrawn lands are lands originally under the jurisdiction of BLM or, its predecessor, the General Lands Office, and later transferred to Reclamation.

on fire protection from federal, local, and/or state fire protection. Vegetation management on these lands after a wildland is a high priority for the EFO.

Wildfires on land managed by the EFO occur primarily in Okanogan and Grant Counties. Wildfire also occurs in Chelan, Douglas, Adams, Walla Walla, and Franklin Counties, where EFO has a smaller land ownership base but has irrigation infrastructure that could be impacted by wildfire. An estimated 51,761 acres, 14.3 percent of Reclamation-administered public land in the EFO burned in wildfires from 2014 through 2023 (Appendix A, Map 2). Acres burned within the EFO ranged from 0.01 acres (2021) to 8,072 acres (2019), with an average of 349 acres per year between 2014 and 2023[3].

Following wildfires on public lands, the EFO assesses whether there is a need for ES&R activities to respond to resource issues caused by wildfires. The assessment is carried out in accordance with Reclamation policy LND P14 described in the Reclamation Manual and the Reclamation Handbook.

Reclamation began developing ES&R plans in 2022; however, treatments have been limited to non-ground disturbing treatments (e.g. broadcast seeding, straw waddles) that fit within existing Reclamation categorical exclusions due to the immediate need to stabilize soils post-fire. Treatments that involve ground-disturbing activities such as drill seeding are the most effective treatments; however, they are not currently being utilized due the extensive time needed to prepare EAs and associated National Historic Preservation Act (NHPA)and Endangered Species Act (ESA) consultations. In July 2025, revisions to NEPA regulations allowed for additional CECs available for Reclamation use. Reclamation currently utilizes two commonly applied categorical exclusions for post-fire activities; however, additional categorical exclusions are available and may be considered depending on the specific scope and nature of the proposed actions: The two currently used by Reclamation for post-fire activities are below:

- Department of the Interior categorical exclusion outlined in Section 46.210(l)5 allows for post-fire rehabilitation; where rehabilitation efforts cannot exceed 4,200 acres, shall not include the use of herbicides or pesticides or the construction of new permanent roads or other new permanent infrastructure, and shall be completed within 3 years following a wildland fire. ES&R treatments (ES and BAR) occur over a period of 5 years, which limits the use of this categorical exclusion to the ES phase of treatments years 1 and 2 post-fire and does not allow Reclamation to meet the BAR program objectives (620 DM 7).
- On December 13, 2024, Reclamation along with seven other DOI bureaus, adopted[4] the NPS categorical exclusion for invasive species management. This categorical exclusion is described in Departmental Manual 516 DM 12.5.E(6): Restoration of noncontroversial native species into suitable habitats within their historic range and elimination of exotic species and allows for the use of herbicides. Reclamation plans to use this CE where appropriate for post wildfire treatments.

The EFO prioritizes post-fire treatments to locations that pose risks to facilities, cultural or natural resource values, and those that would not recover naturally. The ideal time for ES&R treatments is

[3] Data from the 2024 fires have not yet been uploaded into the fire database and therefore are not included in these numbers.

[4] Department of the Interior published a Federal Register notice (FR Vol. 89, No. 240, 101040-101042) indicating the adoption of a NPS categorical exclusion for invasive species management.

the fall or winter immediately post-fire. Current ES&R plans developed by Reclamation in the EFO are outlined in Table 1-1.

Table 1.2-1. Fire events from 2022 to 2024, including acres burned, ES&R status, and treatment details.

Year of Fire	Name of Fire	Total Acres Burned	ES&R Status	Acres Treated
2022	Hiawatha South Fire	85	Broadcast seeded and monitoring for noxious weeds	85
2023	Coulee City Fire	7	Monitor for noxious weeds. Has not been treated waiting for Environmental Compliance.	0
2023	Ione Road	113	Monitor for noxious weeds. Has not been treated waiting for Environmental Compliance.	0
2023	Saddle Mountain Fire	550	Broadcast seeded and monitoring for noxious weeds	Seeded 500 acres; 50 acres in riparian areas were left to recover naturally
2024	Banks Lake Fire	5	Broadcast seeded and monitoring for noxious weeds	5
2024	Wanapum Fire	100	Currently in NEPA and NHPA Compliance; plan to seed fall of 2025.	Plan to seed in 2026

Many Reclamation-administered lands in EFO occur in parcels surrounded by private land holdings, with strong influences from activities that occur on adjoining and adjacent lands that Reclamation does not manage. Non-federal lands adjoining Reclamation-administered lands are eligible for cooperative treatments under Wyden Amendment authority[5] where a tangible benefit to public lands would occur. Implementing cooperative ES&R treatments with adjoining private or other federal agency landowners can increase the overall effectiveness of post-fire response by addressing issues at the landscape scale and reducing ongoing influences from neighboring lands such as sources of noxious weed infestations. Cooperative ES&R treatments are identified on a case-by-case basis following each wildfire event and are contingent upon agreements between Reclamation[6], other federal or state agencies and private landowners.

[5] The Wyden Amendment (Public Law 105-277, Section 323 as amended by Public Law 109-54, Section 434) authorizes cooperative agreements with willing participants for the protection, restoration, and enhancement of fish and wildlife habitat and other resources on public or private land and for the reduction of risk from natural disaster where public safety is threatened that benefit these resources within the watershed. Reclamation may receive funding from an approved agency for projects on Reclamation lands. As of September 2025, it is still being decided if Reclamation may provide funding for projects on non-Reclamation lands.

[6] ES&R activities on private lands under federal agreements require environmental review before implementation and are excluded from analysis in this PEA.

1.3 Resource Management Plans and Fire Management Plans

Reclamation Resource Management Plans (RMPs) do not provide specific directions on ES&R objectives and treatments. However, the ES&R activities outlined in the proposed action would be consistent with the intent of land use plan goals, objectives, and decisions. The EFO Fire Management Plan discusses ES&R but does not discuss the treatment options in detail. The following EFO RMPs and Fire Management Plan have been identified as being applicable to the project planning area:

- *Potholes Reservoir Resource Management Plan Grant County Washington 2002*
- *Columbia Basin Scattered Tracts Resource Management Plan 1998*
- *Ephrata Field Office Fire Management Plan 2018*
- *Banks Lake Resource Management Plan Grant County Washington 2001*

1.4 Purpose and Need

Purpose

The purpose of this project is to develop a Programmatic ES&R Plan (PESRP) that establishes a suite of post-fire treatments, enabling their implementation following wildfire. By proactively identifying treatment strategies and completing programmatic environmental compliance in advance, a PESRP would expedite post-fire recovery efforts, minimize risks to public safety and natural resources, and ensure alignment with Reclamation policy. This programmatic approach would enhance efficiency, reduce administrative delays, and improve the effectiveness of ES&R treatments across the EFO's jurisdiction.

Need

Effective post-fire ES&R treatments are essential for protecting public safety, restoring infrastructure, and preventing further degradation of natural resources, historic properties and traditional cultural places following a wildfire. Reclamation requires that site-specific ES&R plans be developed and submitted within 21 days of fire containment (Reclamation Handbook). This limits the time available for environmental analysis and compliance with NEPA and other regulatory requirements to implement ES&R in fall and winter post-wildfire.

Currently, the Columbia-Pacific Northwest Region, EFO lacks the necessary tools to efficiently develop site-specific ES&R plans and complete required environmental compliance within Reclamation's timeframes. Programmatic analysis of ESR treatments prior to fire occurrence is needed to expedite the timely development and implementation of site-specific ES&R plans and streamline the compliance process to ensure actions are taken as quickly as possible to minimize resource degradation and mitigation costs.

1.5 Authorities

Reclamation's wildland fire management (WFM) is enabled by federal law, guided by DOI policy, detailed in Reclamation's directives, and carried out through interagency cooperation. Reclamation is subject to authorities and policies to provide for an integrated, coordinated, and comprehensive WFM Program under the Department of Interior's (DOI) Departmental Manual Part 620 on WFM (620 DM 1).

1.5.1 Wildland Fire Management Authorities

The primary authorities for WFM are outlined in 620 DM 1:

- Protection of Timber Act of September 20, 1922 (ch. 349, 42 Stat. 857; 16 U.S.C. § 594);
- Reciprocal Fire Protection Act of 1955 (ch. 105, 69 Stat. 66; 42 U.S.C. §§ 1856-1856d);
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (Pub. L. 93-288, as amended; 88 Stat. 143; 42 U.S.C. §§ 5121-5206.);
- Federal Fire Prevention and Control Act of October 29, 1974 (Pub. L. 93-498; 88 Stat. 1535; 15 U.S.C. § 2201, et seq.);
- Federal Grant and Cooperative Agreements Act of 1977 (Pub. L. 95-224; 92 Stat. 3; 31 U.S.C. §§ 6301- 6308);
- Supplemental Appropriations Act of 1982 (Pub. L. 97-257, Title I, ch. VIII; 96 Stat. 837);
- Temporary Emergency Wildfire Suppression Act of 1988 (Pub. L. 100-428; 102 Stat. 1615), as amended by the Wildfire Suppression Assistance Act of April 7, 1989 (Pub. L. 101-11; 103 Stat. 15; 42 U.S.C. §§ 1856m–1856p);
- Healthy Forests Restoration Act of 2003 (Pub. L. 108-148; 117 Stat. 1887; 16 U.S.C. § 6501, et seq.);
- Energy and Water Development Appropriations Act of 2006 (Pub. L. 109-103; 119 Stat. 2247; 33 U.S.C. § 2221);
- 620 Departmental Manual (DM) 1-7, Wildland Fire Management.
- 604 DM 2, Landscape Level Management, Conservation and Restoration of Sagebrush Biome;
- 2001 Federal Wildland Fire Management Policy; and
- Department of the Interior Service First Authority (43 U.S.C. § 1703), as amended.

1.5.2 Reclamation Policy Statements

Policy statements establish the overall goals, objectives, and guiding principles for a specific Reclamation-wide program that reflects the leadership direction of Reclamation's top management.

- WFM Policy (LND P14) sets forth the policy for management of WFM activities on lands under Reclamation jurisdiction.

- Guidance for Implementation of Federal WFM Policy (2009) used to provide consistent implementation of federal wildland fire policy.
- The DOI policy on WFM can be found in the Department of the Interior, Departmental Manual Part 620 for Wildland Fire Management.

1.5.3 Reclamation Directive and Standards

Directives and Standards are mandatory actions required on a Reclamation-wide basis to provide consistency in the way Reclamation programs are managed.

- WFM (LND 14-01) establishes Reclamation's approach to implementing WFM activities, including but not limited to entering into agreements with other federal, state, and local agencies for suppression and related activities; reporting wildfires; preparedness such as creating Fire Management Plan's; wildfire education; training; stabilization; post-fire recovery; prescribed fire; and fuels management.
- Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (2021)
- Secretarial Order 3374: Implementation of the John D. Dingell, Jr. Conservation, Management and Recreation Act (2019)
- Secretarial Order 3372: Reducing Wildfire Risks on Department of Interior Land Through Active Management (2019

2 Description of Alternatives

2.1 Alternative A – No Action Alternative

Under the No Action Alternative, EFO would continue to conduct site-specific NEPA analysis for ES&R treatments following wildfire events. All proposed treatments would be remain subject to project-specific site environmental review and individual consultations for NHPA and ESA. Treatment options under this alternative would remain constrained due to the regulatory need for rapid response and minimal environmental disturbance. Under this alternative, Reclamation would continue to limit treatments to non-ground disturbing activities that Reclamation can implement quickly post-fire using a categorical exclusion and require minimal consultation under ESA and NHPA. These limitations prioritize speed of compliance.

ES&R treatments would typically be implemented in the fall or winter following wildfire and site-specific NEPA. Some treatment examples include broadcast seeding and erosion structure placement (e.g. straw waddles). Non-ground disturbing facility repairs would continue to be a treatment option post-fire. Closures that occur during a wildfire under Reclamation authority 43 CFR 423.12 (b) – emergency situations – where delay would result in significant and immediate risks to public safety, security, or other public concerns may remain in effect under the no action, after a wildfire is contained. Site conditions (e.g., terrain type, elevation, proximity to streams, and season of planting) would be important for determining ES&R treatment types.

Analysis of the no action alternative is included to establish a baseline against which to compare environmental effects from the proposed action alternative, and to demonstrate the consequences of not meeting the need for the action.

2.2 Alternative B – Proposed Action

The proposed action is the application of a suite of ES&R treatments within the EFO boundary through a programmatic approach to improve soil and habitat conditions and protect facilities and infrastructure post-fire in areas already degraded or susceptible to degradation due to noxious and invasive weeds and/or wildland fire effects. Additionally, the proposed action includes a diversity of treatment options for specific landscapes, and due to the programmatic approach, would provide NEPA streamlining capabilities to ensure efficiency from ES&R planning to implementation phases. For the environmental analysis, vegetation management ES&R treatments are defined as actions that occur on Reclamation lands to meet Reclamation policy and land use plans. Treatment sites would be prioritized to locations that pose risks to facilities, public safety, cultural or natural resource values, and those that would not recover naturally. Reclamation may use timing restrictions or similar practices to reduce the level of risk to an acceptable level.

Monitoring of treated vegetation and soil would occur to determine the effectiveness of treatments and priority would be given to those areas where unique treatments were implemented or where resource values or public concerns are high. Physical limitations such as slope or soil type influence treatment applicability and effectiveness, and not all areas are feasible for treatment. Adjustment of ES&R treatments (i.e., adaptive management) would occur as needed over the life of the plan based on the results of monitoring and other emerging information. Treatments would often be adapted as they progress to address successes and failures of vegetation re-establishment or soil stability following wildfire.

Treatment types are discussed independently of each other, but they could be combined and implemented together depending on treatment design and/or site-specific resource conditions and needs. Common factors affecting placement and type of treatment would include, not be limited, to soils, federal and state T&E species habitat, presence of historic properties, vegetation type, topography, and burn severity and size. Environmental protection measures (EPMs) have been identified to avoid or minimize potential effects on sensitive resources (Appendix B). Possible ES&R treatments under the proposed action are grouped into categories and described in Sections 2.2.1 – 2.2.6:

- Seeding and Planting
- Integrated Weeds Management Plan
- Watershed Stabilization/Erosion Control Treatments
- In-channel Treatments
- Closures (e.g., Reclamation facilities, lands, or waterbodies)
- Facility Repair/Replacement and Safety Actions

2.2.1 Seeding and Planting

The primary vegetation management issues that arise following moderate- to high-severity or high-frequency wildfire are shifts in vegetation communities, including increases in annual invasive grasses and other non-native species and decreases in native species due to native plant mortality and seed sterilization. When native vegetation communities are determined to be unlikely to recover naturally by resource specialists, Reclamation would apply seeding and planting treatments to address post-fire ES&R, land health issues, or issues identified through monitoring. The treatments outlined below describe seedbed preparation, including treatment of noxious weeds and invasive plants, seed application, seed cover methods, and the seed selection process used for post-fire recovery. These treatments may be used individually or in combination with each other to achieve site-specific objectives. Seeding and planting methodology is briefly described in the following sections. For more information, the Reclamation Handbook Section 2.2.23 outlines seeding and planting methods and describes equipment needs, primary use, and method limitations.

2.2.1.1 *Seedbed Preparation*

Seedbed preparation is imperative after a fire to reduce competition of invasive plants, support the storage of soil moisture, create microsites for seedling germination and establishment, and increase

the survival rate of the seeded and/or planted species. Appropriate methods would be selected based on availability, cost, accessibility of treatment location, and site-specific conditions such as soil type, woody vegetation skeletons, debris, rocky soils, and steep terrain that can limit the techniques used. Often, seedbed preparation and seeding would be done simultaneously or in close succession, using equipment designed to prepare the soil, disperse seed, and press the seed into or cover it with soil. Methods used for seedbed preparation would include, but not be limited to, disking, plowing, chaining, harrowing, imprinting, and masticating. Care would be taken to not work soils where the risk of compaction and hardening of the soil surface exists. Seedbed preparation techniques including disking, harrowing, mastication, and chaining would directly disturb the soil surface and down to the upper 8 inches of soil horizons, exposing the soil surface to erosion. Seeding and planting methods are further described in Appendix D, Table 6.4-1.

Following a burn, herbicide application may be used to control noxious weeds and invasive species prior to seeding, specifically where these plants are expected to establish and lower the probability of seeding success, or when seeding treatments are delayed in areas where these plants are present. Section 2.2.2 describes the chemical weed control methods proposed for use prior to seeding.

Events that could cause a delay in seeding treatments, or in some cases result in no treatments, include:

- Late-season fire
- Weather constraints
- Large-acreage fire year(s)
- Lack of seed availability or funding to purchase seeds
- A disturbed site that needs additional seedbed preparation for improved seeding success

2.2.1.2 *Seed Selection*

Plant materials would be selected and seed mixtures would be designed to best meet the objectives identified in the site-specific post-fire recovery plans, land use plans, and/or activity plans. Native plant species would be prioritized, with the flexibility to include non-native plant species as well if not available. EFO natural resource specialist would determine the appropriate seed mix.

Parameters such as pre-fire vegetation, soil properties, erosion potential, aspect, elevation, precipitation zones, invasive plant and noxious weed competition, human use, potential plant community, watershed stability, seed availability, resistance/resilience, ecological site description, site potential, and cost would be evaluated in developing seed mixes for use on-site (Miller et al 2013). Shortages of native seed can occur at any time, even after the site-specific ES&R plans have been completed and approved. In these cases, a similar variety or species would be used. Mixtures of native and non-native plant species or strictly non-native plant species may be used.

Important factors that would be considered in selecting a seed mixture that includes native plants are:

- Availability at a reasonable cost per acre,
- Plant species suitability to the area proposed for treatment,

- Impacts of competition (from invasive plants, noxious weeds, other plants in the seed mixture, land uses) on native plant establishment and persistence; and
- Approved land use planning decisions.

The use of non-native seed would be appropriate if:

- The use of non-native plants would have no effect on T&E species or their habitat,
- Suitable native plant species are not available and there is a need to provide perennial plant cover,
- The natural biological diversity of the proposed management area would not be diminished,
- Non-native or naturalized plant species can be confined within the proposed management area,
- Analysis of ecological site inventory information indicates that a site would not support reestablishment of a species that historically was part of the natural environment,
- Resource management objectives cannot be met with native species, or
- Non-native species are proposed by the WDFW or other governmental organizations to help with their land use objectives.

2.2.1.3 *Seed Application*

A variety of seeding methods may be used for a burned area, including drill seeding, plowing, chaining, cabling, harrowing, and surface seeding. Seeding would occur during the appropriate season to ensure seed stratification, germination, and establishment of the plant species selected. Fall seedings would be prioritized to provide more favorable conditions for the establishment of herbaceous plant species, particularly under arid conditions. When conditions aren't favorable during the fall, a late winter or early spring seeding could be used.

2.2.1.4 *Seedling Plantings*

Hand planting of bare-root or containerized tree or shrub seedlings would be used when it is desirable to establish vegetation quickly within defined landscape boundaries. Fall is the preferred season for seedling planting but weather permitting seedlings could be planted in winter and spring.

2.2.1.5 *Seed Cover Methods*

A variety of seed cover methods (i.e. mulching, straw, woodchip) treatments would be used to cover seeds in order to increase seed-to-soil contact, promote germination and higher survival rates of desirable species, and limit the number of seeds available for animal foraging. Each method offers unique advantages depending on site conditions, seed type, and project goals.

2.2.2 Integrated Weeds Management Plan

Integrated weed management typically occurs in BAR plans years 3-5. Treatments would involve a combination of chemical treatments to directly control invasive species and mechanical seeding or planting to re-establish or enhance the cover of native species or native-like species (i.e. native to larger regions), with the objective of reducing the establishment and dominance of non-native

species[7]. The treatment sites would be monitored every year for about 5 years to ensure success and address issues as they arise.

Stand-alone chemical and mechanical treatment of non-native species would be applied when those species are limited in cover and can be addressed through spot treatments. In some situations, larger-scale stand-alone weed treatments might occur if there is sufficient retention of native species to fill in the gaps created by treatment of weeds. Alternatively, stand-alone seeding treatments may be used to provide competition from newly established weeds.

Standalone seedling planting treatments would be used primarily to address a missing vegetation component, such as shrub planting in an area where shrubs are not expected to return to the site in a reasonable amount of time (roughly 5 years). See Section 2.2.1 for more detail on proposed seeding and planting methods.

Prioritization of integrated noxious weed and invasive plant management would be based on management objectives that are influenced by noxious weed and invasive plant infestations and site susceptibility. Treatment priorities would be based on the type of plant to be treated and the size and type of infestation. In order of priority, the noxious weeds and invasive plants to be treated are:

1. Federally listed noxious weeds
2. State-listed noxious weeds – by Class A, then B, then C (see Appendix C tables 6.3-1 through table 6.3-3 for complete lists).
3. Other invasive plants deemed important for control in the EFO (e.g., cheatgrass (*Bromus tectorum*) and bulbous bluegrass (*Poa bulbosa*).

The following information related to size and types of infestations would be used to prioritize treatments:

First Priority: New, aggressive infestations in a formerly uninfested[8] area or newly discovered infestations in areas of special concern (e.g., historic trails).

Management objective: Eradicate.

Second Priority: Areas of high traffic or other sources of infestation and larger[9] infestations in areas of special concern (e.g., recreation sites, trails).

Management objective: Control.

Third Priority: Existing large infestations or roadside infestations where spread can be checked or slowed.

Management objective: Contain.

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[7] In some instances, native like and/or nonnative species may need to be used in order to stabilize the site from annual invasives.

[8] Current weeds data across the region is poor. Baseline is assumed that burn area was uninfested. EFO will rely on natural resource specialist knowledge of EFO lands and comparisons to unburned adjacent areas.

[9] Infestations based on density, spread rate, ecological risk, and proximity to valued resources, rather than a fixed acreage. For example, a 0.5-acre patch of invasive weeds in a popular recreation site may be treated as a high-priority "larger infestation" due to its visibility and impact, while a 10-acre patch in a remote area might be lower priority.

The selected method(s) would depend upon treatment objectives (contain, control, or eradicate); accessibility, topography, and size of the treatment area; vegetative conditions of the treatment area; characteristics of the target species and the desired vegetation; location of sensitive areas and potential environmental impacts in the immediate vicinity; anticipated costs and equipment limitations; and weather conditions at the time of treatment.

Reclamation would manage noxious weeds and non-native invasive plants using an integrated weed management approach, using a combination of manual, mechanical, biological, and chemical herbicide treatment methods (see Appendix C or visit the Washington State Noxious Weed Control Board[10] for a complete list by target species). Direct methods for treating noxious weeds and invasive plants would include manual pulling and hand-cutting, mechanical methods, biological control agents, and the use of chemicals (i.e., herbicides). Indirect methods would include seeding and seedling planting (see Section 2.2.1 above).

2.2.2.1 *Manual Weed Control Methods*

Manual treatment would involve the use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous and woody species. The tools used would include root talons, weed wrench, weed eating, rototillers, and other similar equipment. The areas selected for manual treatment would be accessed by passenger vehicles or utility task vehicles, or by foot if they are inaccessible to vehicles. Treatments would include cutting noxious and invasive weeds above the ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; cutting at the ground level or removing competing plants around desired species; or placing mulch around desired vegetation to limit competitive growth. Cleared vegetation would be disposed of by hauling off to waste bins or leaving exposed to sun.

Selection of areas for manual weed control would be most appropriately used in areas with sensitive habitats such as riparian areas, areas where herbicide application would not be appropriate, and areas that are inaccessible to ground vehicles (Department of the Interior Manual 517 DM 1).

2.2.2.2 *Mechanical Weed Control*

Mechanical treatment would involve the use of vehicles such as wheeled tractors, crawler-type tractors, or specially designed vehicles with attached implements designed to cut, uproot, or chop (masticate) existing vegetation. The selection of a particular mechanical method would be based on the characteristics of the vegetation, seedbed preparation and revegetation needs, topography and terrain, soil characteristics, climatic conditions, and an analysis of the improvement cost compared to the expected productivity. Mechanical methods that may be used by Reclamation include root plowing, tilling and drill seeding, mowing, roller chopping and cutting, blading, grubbing, and feller-bunching.

Mechanical methods would be used for removing thick stands of vegetation. Some mechanical equipment could mulch or lop and scatter vegetation debris, thus addressing debris disposal needs.

Mechanical methods would be considered where a high level of control over vegetation removal is needed, such as in sensitive wildlife habitats or near homesites, and would often be used instead of

[10] The Washington State Noxious Weed Control Board website can be accessed at https://www.nwcb.wa.gov/printable-noxious-weed-list.

prescribed fire or herbicide treatments for vegetation control in the wildland urban interface (Department of the Interior Manual 517 DM 1).

2.2.2.3 *Biological Weed Control*

Biological weed control is outlined in the Department of the Interior Manual 517 DM 1. Biological weed control would involve the intentional use of biological tools to weaken or destroy vegetation. Biological control treatments would introduce natural enemies specific to particular plants.

Plant-eating insects, nematodes, mites, or pathogens affect plants directly, by destroying vital plant tissues and functions, and indirectly, by increasing stress on the plant, which may reduce its ability to compete with other plants. The species used for biological weed control would be dependent on fire location and weed species present. The species would be selected to avoid harming desired vegetation or wildlife at the site.

2.2.2.4 *Chemical Weed Control*

Chemical weed control would be available for use within the EFO project planning area. Reclamation would use only herbicides approved by the State of Washington through the Washington Department of Transportation (WSDOT). Appendix G includes a list of herbicides that may be used by Reclamation to treat weeds (Table 6.7-1 and 6.7.-2). This list was reduced from the larger list of WSDOT-approved herbicides. Site-specific evaluations would determine what types of herbicides would be used and the specific EPMs to be applied (e.g., buffers from streams, Appendix B). Table 6.6-2 lists precautions, restrictions, and buffers recommended for specific chemicals as outlined by BLM (2018, 2020), NMFS (2024) and WSDOT (2025).

Application methods would include hand application, broadcast and boom spraying, and spot spraying, as described below. Worker health and safety during application, including the use of personal protective equipment to prevent exposure to chemicals, would be prioritized. Herbicides would be applied by state-licensed personnel. All instruction labels and Reclamation standards and policy (Directives and Standards SAF 01-01 & 02-01 & Policy SAF POI) would be followed.

2.2.2.4.1 Hand application/Spot Spraying

Hand applications would include the use of hand sprayers (e.g., backpacks) to apply herbicide. The site would be accessed on foot. Specific methods would include:

- **Wicking and wiping**: Involves using a sponge or wick on a long handle to wipe herbicide onto foliage and stems.
- **Foliar/spot application**: These methods apply herbicide directly to the leaves and stems of a plant. Spot applications spray herbicide directly onto small patches or individual target plants.
- **Basal bark**: This method applies to a 6- to 12-inch band of herbicide around the circumference of the trunk of the target plant, approximately 12 inches above ground. The width of the sprayed band depends on the size of the plant and the species' susceptibility to herbicide.

- **Frill method or cut-stump**: The frill method, also called the "hack and squirt" treatment, is used to treat woody species with large, thick trunks. The tree is cut using a saw or ax or drilled and herbicide is then immediately applied to the cut. The cut-stump method is often used on woody species that normally re-sprout after being cut. Herbicide is sprayed onto the exposed cambium layer (living inner bark) on the stump of a tree or shrub that has been cut down. The herbicide must be applied to the entire cambium layer within minutes after the trunk is cut.
- **Stem injection:** Herbicides can be injected into herbaceous stems using a needle and syringe. Herbicide pellets can also be injected into the trunk of a tree.
- **Spot spraying:** Spot spraying from motorized vehicles with spray hoses would be used to target individual plants within a large area. Herbicides would be applied to individual plants to avoid spraying non-target vegetation.

2.2.2.4.2 Broadcast and Boom Spraying

Broadcast spraying would involve using equipment to apply herbicide uniformly over an entire area. Broadcast would indiscriminately spray large areas without targeting individual or specific groups of weeds. The site would typically be accessed by vehicle and or Off-Road Vehicles (ORV). Broadcast spraying is typically completed using a boom.

A boom is a long, horizontal tube with multiple spray heads or wicking brushes that can be mounted or attached to a tractor, utility task vehicle, or other vehicle. The boom is then carried above or across the noxious weeds or invasive plants while spraying/releasing herbicide, allowing large areas to be treated rapidly with each sweep of the boom (Figure 2-1). The herbicide is carried in a tank and reaches the nozzles via tubing. Boom operations include electronic monitoring that delivers exact amounts of herbicides and keeps records on application rates.

Figure 2-1. Example of boom sprayer nozzles producing uniform spray of a treated area (USDA 1999).

2.2.2.4.3 Spot Spraying

Spot spraying from motorized vehicles with spray hoses would be used to target individual plants within a large area. Herbicides would be applied to individual plants to avoid spraying non-target vegetation.

2.2.3 Revegetation

Areas that have been treated for noxious and invasive weeds may require revegetation efforts to reduce their reinvasion and reduce the likelihood of soil erosion. The need for revegetation would be triggered by one of the following conditions:

- The area is heavily populated with weeds, treated extensively, and the likelihood for natural, native re-establishment of the area is low.
- The area is heavily populated with weeds, treated extensively, and the likelihood for soil erosion is high.
- Highly disturbed areas where the likelihood for reestablishment of weed species after extensive treatments is high.
- Areas that have been treated for weeds that also contain important wildlife habitat.

The means for revegetating a treatment area is described in Section 2.2.1, Seeding and Planting.

2.2.4 Watershed Stabilization and Erosion Control Treatments

Watershed stabilization and erosion control treatments would be used where applicable to address large-scale and small-scale soil and hydrologic issues following wildfire. These treatments would be applied to address threats to life and property from increased potential for runoff and soil movement, and site-specific erosion and hydrologic function issues that affect land health. These treatments would be prioritized in areas with concerns for safety of life and property and would be identified through hydrologic modeling conducted by modeling staff, soil burn severity sampling and mapping, and site-specific assessment and monitoring.

The following treatments would be used to reduce surface erosion potential, increase infiltration rates, control overland runoff, protect water quality, and stabilize roads and burned slopes.

2.2.4.1 *Log Erosion Barriers*

Log Erosion Barriers (LEBs) are logs placed in a shallow trench on the contour to intercept water running downslope and trap sediment. This treatment is also known as contour log felling, log terraces, or terracettes. Log erosion barriers such as Flowcheck™ Wooden Erosion Control Structures, contour log felling (contour log terrace), or straw wattles would be placed perpendicular to slopes of 30 to 60 percent. These structures would prevent erosion by increasing infiltration, adding roughness, reducing erosion, and helping retain small amounts of eroded soil on-site. LEBs should be effective for 1 to 2 years, providing short-term protection on slopes where permanent vegetation would re-establish and long-term erosion control (USDA 2012).

2.2.4.2 *Rock Structures*

Rock structures could be used in ephemeral or intermittent channels to capture wildfire-increased sediment and prevent nick points and head-cuts. These structures would trap suspended sediments, and control down-cutting for 1 to 3 years, then slowly release stored sediments as the check-dam material deteriorates. Rock check dams would be limited to use in open channels that drain 50 acres or less. These treatments would be used to reduce soil erosion by trapping sediments, improve infiltration, prevent slope riling, and replace woody material consumed by fire.

2.2.4.3 *Timber Slash*

Limbs and branches of trees and shrubs (slash) would be collected from on or near the site and spread on slopes to provide protection from raindrop impact. If the branches and limbs are crushed or worked into contact with the soil surface, the slash would break up concentrated surface runoff and reduce erosion.

2.2.4.4 *Trenches*

Hand-contour trenches would be installed on slopes between 20 and 40 percent. Trenches can trap sediments, improve infiltration, and prevent slope rills. Mulch material would be used to reduce soil erosion, retard overland flow, protect soil from raindrop impact, and increase soil moisture holding capacity. The materials would be sourced from on or near the site, and only certified noxious weed-free material would be used.

2.2.4.5 *Geotextiles and Erosion Cloth/Soil Netting*

Biodegradable erosion cloth/soil would be used to stabilize slopes above high-risk areas such as campgrounds and highly traveled roads. The cloth would be secured by stakes and/or rocks.

2.2.4.6 *Water Bars*

Water bars would be installed along fire lines and trails to control or eliminate soil erosion by breaking up runoff into small enough units and/or spreading the water, so it does not have enough energy to erode soils. Construction of soil, rock, or log water bars using hand tools and/or heavy equipment would direct water off trails and fire lines, discharging it to adjacent channels or vegetated areas.

2.2.4.7 *Road Stabilization*

Properly spaced rolling dips, water bars, and culverts would be used to move water past the road prism (cross-section) and reroute water and sediment to prevent erosion, road damage, slope failures, and delivery to streams[11]. These features would be installed with heavy equipment such as excavators, dump trucks, bull dozers, or similar equipment. Culverts would be inspected and, if

[11] This PEA does not address culvert replacement or other water crossing repairs or replacements on perennial or sensitive fish-bearing streams; additional NEPA analysis would be conducted for these actions if planned in the future.
[12]This PEA does not address in-channel treatments on designated critical habitat (CH) for Upper Columbia River steelhead and bull trout; additional NEPA analysis and consultation with National Marine Fisheries Service (NMFS) and USFWS would be conducted for these actions if planned in the future.

needed, maintained, repaired, or replaced to prevent road damage, subsequent accelerated erosion, and poor water quality.

2.2.5 In-channel Treatments

The following in-channel treatments would be applied as applicable to provide effective means to trap and stabilize in-channel sediment, control down-cutting, maintain the integrity of channel morphology by decreasing stream power, and minimize flash flooding[12].

- Post-assisted structures/beaver dam analogs would be used in stream channels to slow runoff flow velocity, retain excess sediment within a reach, support increased growth potential for stabilizing riparian plants, and promote habitat complexity for aquatic species, until the riparian vegetation can regrow and stabilize the stream banks.
- Straw bale, rock, and straw wattle check dams would be used to stabilize in-channel sediment, trap suspended sediments, and control down-cutting for 1 to 3 years, then slowly release stored sediments as the check-dam material deteriorates. Rock check dams would be limited to use in open channels that drain 37 acres or less. Only certified noxious weed-free straw would be used in straw bales and to construct straw wattles as specified in Reclamation's Handbook, Section 2.2.31.
- Silt fences would be used in channels to stabilize in-channel sediments, trap suspended sediments, and control down-cutting. Silt fences generally have a longer lifespan than straw bale check dams.
- Log dams and in-channel felling (preferably whole trees) could be used to slow flow and trap sediment in ephemeral and perennial streams.
- Woody riparian cuttings and materials from native trees found near project locations would be used to restore vegetation, stabilize stream banks, and/or help direct water movement through riparian systems. Woody species typically used would include willows (*Salix spp.),* aspen (*Populus tremuloides*), cottonwood (*Populus fremontii*), or other similar species. Cuttings taken from live trees planted directly into soils is the most common technique used for post-fire recovery; though stakes, posts, and wattles can also be generated from deceased or dormant trees and used to help facilitate recovery.
- Gabions (Figure 2-2) may be used to trap sediment and control down-cutting of severely eroded drainages. Gabions would typically be used in areas where facility damage potential is high from the effects of fire.

Figure 2-2. Example of gabions baskets used at a Reclamations Lake Roosevelt shoreline stabilization project.

2.2.6 Closures

Closures post-fire may be established under the authorities at 43 CFR 423.12 for public safety. In emergency situations where delay in closure would result in significant and immediate risks to public safety, security, or other public concerns, an authorized official may close all or portions of Reclamation facilities, lands including recreation sites such as campgrounds and hiking areas, grazing areas, and waterbodies including boat ramps without advance public notice. Closures may be implemented for public safety or to temporarily close the post-fire treated areas to uses (e.g., recreation, livestock, ORV) or access (e.g., motorized, non-motorized, horse, foot) to allow recovery, protect historic properties from looting, and prevent unacceptable resource damage (43 CFR 8364). Public use facilities (e.g. visitor centers, campgrounds), structures, and roads may also be closed for the same purpose. Public notices or signs necessary to close a trail would be posted or installed. Road and facility closures may include brightly colored or reflective traffic cones, barrels, delineator posts, or sets of interlocking barriers that can close off an entire lane or indicate that a road or facility is closed to traffic. The duration of each closure would be dependent on factors such as hazardous post-fire conditions, pre-fire resource conditions, fire severity and continuity, ES&R treatment type, and weather.

2.2.7 Facility Repair/Replacement and Temporary Fencing and Safety Actions

Replacement or repair of minor improvements (e.g. gravel roads) and facilities damaged by wildfire (e.g., recreational structures, fences, gates, water developments, and livestock handling facilities) and installation of fencing to protect ES&R treatments could be implemented under the proposed action. Actions that address health and safety would be implemented as a top priority. Repair or replacement of larger wildfire-damaged facilities such as pumping plants and canal infrastructure

may require separate NEPA analysis. Examples of minor facilities that may be repaired or replaced and actions to improve public safety include:

- Campgrounds, kiosks, signs, and recreation buildings may be repaired or replaced in coordination with Washington State Parks, WDFW and concessionaires.
- Existing fencing structures may be repaired or replaced.
- Temporary fencing structures may be placed around treatments.
- Public notices or signs necessary to warn of pending floods, notify of herbicide use, promote public safety, or otherwise assist with stabilization actions may be posted.
- Trees along trails or roads that pose a human health hazard and/or obstruct movement would be cut down.

2.2.8 Implementation of Proposed Action

If Reclamation determines post-fire actions are necessary, an ES&R plan would be developed within 21 days of fire containment by EFO resource staff as outlined in the Reclamation Handbook (Appendix J) to address public safety and resource concerns. Following completion of the ES&R plan, Reclamation would complete a Determination of NEPA Adequacy (DNA), or other appropriate documentation, to determine if ES&R actions in the plan are consistent with actions assessed in the PEA or whether subsequent NEPA analysis is necessary prior to implementation.

2.3 Alternatives Considered but Eliminated from Further Study

2.3.1 Use of Chemicals only

The EFO would authorize the treatment of noxious and invasive weeds using only herbicides and would not authorize the use of any other treatment method, such as mechanical, manual, biological, or prescribed burning. This alternative is inconsistent with Reclamation Policy, including DOI Manual 517-Integrated Pest Management Policy which directs Reclamation to use an integrated pest management approach when conducting vegetation treatments. Therefore, this alternative is not analyzed further.

2.3.2 No Use of Any Chemicals

The EFO would not use any herbicides when conducting vegetation treatments and would rely solely on mechanical, manual, and biological treatment methods. This alternative is inconsistent with Reclamation Policy, including DOI Manual 517-Integrated Pest Management Policy which directs Reclamation to use an integrated pest management approach when conducting vegetation treatments. The use of herbicides is an effective and integral integrated pest management method when used in combination with other treatment methods.

This alternative would also place an undue hardship on the EFO Weeds Program which is responsible for managing approximately 280,000 acres of lands for noxious and invasive species with limited staffing and tight budgets. The use of herbicides would allow the EFO Weeds Program

to be productive in spite of these limitations. This alternative would also limit the ability of cooperating local, state, and federal entities from performing their mandated duties. Therefore, this alternative is not analyzed further.

3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes existing physical, biological, social, and historic properties that could be affected by the no action alternative and the proposed action, described in **Chapter 2**. It also identifies potential environmental consequences –beneficial or adverse – to those resources that could result from implementing either of the two alternatives. The affected environment sections describe the existing conditions upon which the alternatives could have an effect. The environmental consequences sections describe the potential impacts of those alternatives, if implemented, on the resources evaluated.

Implementation of the EPMs is part of the proposed action and has been incorporated into the analyses presented in **Chapter 3**. EPMs that may be employed to reduce or eliminate environmental impacts during the ES&R plan implementation are listed in Appendix B. EPMs would be applied to individual ES&R treatments, as applicable, during ES&R plan implementation.

For this analysis, the following categories for impact duration are used:

- Temporary: impacts that would only occur during active implementation for a particular ES&R activity (such as seeding, installation of erosion barriers, etc.).
- Short-term: impacts that would occur for less than 5 years after initial activity implementation.
- Long-term: impacts that would occur for 5 years or longer after initial activity implementation.

For this analysis, the following categories for magnitude of effects are used:

• No: There would be no impact on the resource or indicator being evaluated, or the resource is not present in the project planning area or defined analysis area within the project planning area.

• Minor: The resource or resource indicator would experience a noticeable effect, but the impact magnitude would be small in comparison with the scale of the analysis. These effects would be detectable but localized and/or temporary.

• Moderate: There would be a measurable impact on the resource or resource indicator that does not rise to the level of a major impact because it is short-term in duration and isolated to a portion of the analysis area.

• Major: There would be a long-term impact on the resource or indicator that is substantial, highly noticeable, and widespread throughout the analysis area.

3.2 Assumptions for all ES&R Treatment Plans

The following assumptions common for no action and proposed action for analysis apply to all resources discussed in this chapter. Additional resource-specific assumptions are detailed under the livestock and grazing management resource section:

- The EFO would follow all applicable EPMs outlined in Appendix B to minimize direct and indirect impacts.
- While acres potentially available for treatment may be presented, not all these acres would receive treatment under any action alternative.
- ES&R post-treatment follow-up such as monitoring and retreatment, if necessary, would occur to achieve objectives in ES&R plans for up to 5 years.
- ES&R plans would be completed within 21 days post-fire and initial treatments would occur in the immediate fall or winter post-fire.
- All known Reclamation lands are mapped in the project planning area. Additional parcels of land may not currently show on the existing map but would likely fall within the project planning area. If unmapped lands in the future become available, a DNA (or other appropriate documentation) would need to be completed to determine if additional NEPA analysis is needed.
- Reclamation would work with affected parties (public and private) to reduce human disturbance in burned areas, e.g. public access may be temporarily limited in order to protect resources and public safety.
- Given the broader range of planting options available under the proposed action, it is reasonable to assume that ES&R treatments would be more effective at establishing vegetation compared to the no action alternative. Enhanced vegetation establishment, particularly in areas adjacent to water bodies, would likely contribute to increased shading and improved soil stability, thereby supporting the assumption that water temperatures could be lower under the proposed action than under the no action alternative.
- Any in-water work to occur on ESA listed streams and critical habitat would require consultation with USFWS and NMFS. In-water habitat restoration for critical habitats typically requires design and coordination with specialists and would be evaluated on a fire-by-fire basis if they occur where ESA fish and critical habitat occur.

3.3 Resources and Issues Considered for Analysis

Table 3-3-1 lists the resources addressed in this PEA, whether they are present within the project planning area, and whether they may be affected by the actions described in Chapter 2. Resources identified as present and may be affected are addressed in detail in the following sections. Rational for Elimination of resources for detailed analysis can be found in Appendix F, Table 6.6-1.

Table 3.3-1. Resources addressed in this PEA.

Resource	Status	Section
Air Quality	Present / Not Affected	
Historic Properties, Traditional Cultural Places & Paleontological Resources	Present / May Be Affected	Section 3.9
Socioeconomics	Not Present	
Fish and Wildlife (Excluding Listed Species)	Present / May Be Affected	Section 3.7 and Section 3.8
Endangered, Threatened, and Candidate Species	Present / May Be Affected	Section 3.7 and Section 3.8
Floodplains	Present / Not Affected	
Geology and Mineral Resources	Present / Not Affected	
Hazardous and Solid Wastes	Present / Not Affected	
Indian Trust Assets	Not Present	
Indian Sacred Sites	Not Present	
Public Health and Safety	Present / Not Affected	
Invasive Species and Noxious Weeds	Present / Not Affected	
Lands and Realty	Present / Not Affected	
Livestock and Grazing	Present / May Be Affected	Section 3.11
Migratory Birds	Present / Not Affected	
Recreation	Present / May Be Affected	Section 3.10
Soils	Present / May Be Affected	Section 3.4
Transportation	Present / Not Affected	
Vegetation	Present / May Be Affected	Section 3.6
Visual Resources	Present / Not Affected	
Water Resources	Present / May Be Affected	Section 3.5

3.4 Soils

This section describes the existing condition of soils within the project planning area and the potential effects of ES&R treatment implementation on soils that could occur on Reclamation lands under the no action and proposed action alternatives. The issue analyzed for soils is evaluating how mechanical, chemical, and erosion stabilization control treatments could impact soil stability.

3.4.1 Analysis Indicators

- Change in soil resources are erosion rates. Erosion rates are measured through creation of erosion features, such as rills, pedestals, and wind scour areas that occur outside of the range of natural variability.
- Changes in soil compaction resulting from ES&R treatments (i.e. heavy machinery used during seeding or chemical treatments).

3.4.2 Affected Environment

Soil conditions are created by underlying geology, soil-forming factors such as weathering and organic material input in combination with disturbance history including fire, agriculture, and livestock grazing. Soil within the project planning area can be classified under three major land resource areas (MLRAs). MLRAs are defined based on soil forming factors (NRCS 2006) within these areas (Appendix A, Map 3). The three MLRAs are:

- Columbia Basin MLRA: This MLRA encompasses about 289,260 acres or 80% of Reclamation lands within the project planning area and is located in the southern half of Grant County, western quarter of Adams County and western half of Franklin County. Dominant soil types include aridisols and entisols. The soils are generally moderately deep to very deep, well-drained to excessively drained, and loamy. Soils within the Columbia Basin MLRA are derived from find windblown glacial deposits called loess and silt and fine sand in lake deposits left behind during Pleistocene flood events. The fine-grained texture makes the soil derived from these deposits susceptible to wind and water erosion. These soils are also susceptible to invasion of undesirable plant species on rangeland (NRCS 2006).
- Columbia Plateau MLRA: About 65,816 acres, or 18% of the Reclamation land within the project planning area are within the Columbia Plateau MLRA. This area includes Reclamation lands in the northern half of Grant County, eastern three-quarters of Adams County, east half of Franklin County, all of Douglas County, and along the Okanogan River Valley in Okanogan County and along the Columbia River near Chelan and Bridgeport. This MLRA is almost entirely underlain by basalt, covered in many areas with loess and volcanic ash. The dominant soil type in this MLRA is mollisols. The soil is moderately deep to very deep, well drained, and loamy. As with the entisols in the Columbia Basin MLRA, mollisols, due to their fine-grained texture, are susceptible to wind erosion, water erosion, sedimentation of streams and invasion of undesirable plant species on rangeland (NRCS 2006).
- Cascade Mountains Eastern Slope MLRA: This MLRA is within a small part of the EFO project planning area and underlies about 4,940 acres or 1.3% of Reclamation lands within the project planning area. Reclamation lands near Conconully, in Okanogan County, and the higher elevations near Chelan in Chelan County are located within this MLRA. Dominant soil types are alfisols, andisols, inceptisols, and mollisols. Soil is moderately deep to very deep, well drained, and loamy or ashy. As with other soil types within the project planning area, the soil in this MLRA is also susceptible to wind and water erosion. It is also susceptible to surface compaction, stream and ditch sedimentation.

3.4.2.1 *Erosion*

In general, the soil types within the three MLRAs are similar in their susceptibility to wind and water erosion, and their organic topsoil content. Maintaining vegetation and topsoil is key to preventing erosion because they protect soil from wind and dampen and absorb intense rainfall events. Wind and water erosion causes instabilities in the soil therefore reducing its productivity.

Wildland fire removes the protection vegetation and topsoil offers, which increases the potential for rills and pedestals to form outside of the range of natural variability for a site. Wind erosion can

cause pedestalling around the plants that do survive the fire within the burn area and those on the burn's perimeter, as wind scour. Wind scour can remove remaining organic materials by reducing the soil's productivity. Winds can also shift fine soils creating dunes.

A fire's burn intensity can alter the soils' structure, making it "hydrophobic" reducing infiltration and its ability to absorb rainfall. Instead of infiltrating into the soil, water moves across the soil surface displacing and transporting soil, causing sedimentation into adjacent waterways. The steeper the slope and the more intense the rainfall event, the greater the potential for significant soil movement and debris flows. As slopes increase, the risk of soil instability following disturbance increases, particularly if cover, structure, permeability, or bulk density have been altered (Monsen et al 2004). Soils formed on slopes of 15 to 30 percent and having textures of loam, silt loam, very fine sandy loam, sandy clay loam, and clay and soils of all other textures formed on slopes greater than 30 percent have naturally higher water erosion and are more susceptible to wind erosion. Soils with surface textures that are highly susceptible to water erosion generally have a high proportion of fine sands, very fine sands, or silts with little binding material, such as clay or organic matter. The impacts of erosion would be measured by the percent increase in rill development over the natural average within the burned area.

3.4.2.2 *Compaction*

Compaction layers in soils form when repeated disturbances of the soil form a dense layer near the surface or at the bottom of tillage areas and occur more quickly with disturbance takes place when soils are wet. Wildfire can lead to soil compaction through heat related collapse of the soil structure and removal of organic matter. Soil compaction reduces water infiltration rates, increasing the potential for runoff through concentrated flow. This concentrated flow can lead to soil erosion through rill development. Compaction observed in the project planning area is associated with historic agriculture (prior to Reclamation acquisition) or ORV vehicle use lines or congregate.

3.4.3 Environmental Consequences

3.4.3.1 *No Action Alternative*

Erosion

Under the no action alternative, Reclamation may implement non-ground disturbing ES&R actions such as broadcast seeding and use straw waddles to re-establish vegetation and soil stability in burned areas. Vegetation treatment activities such as broadcast seeding are not as successful as the ground disturbing seeding methods but would continue at comparable levels, with no change in impacts to soil resources. Weed management within burn areas would continue to be done on a limited basis due to EFO's capacity to treat these areas. Sediment loss from wind erosion is most likely to occur in the first months following a summer wildfire; as vegetation establishes, the burned area's susceptibility to wind erosion would decline (Sankey et al. 2010). If burned areas are left untreated, erosion rates would typically decline in subsequent years as the site stabilizes, but the rate of recovery would vary, depending on pre-burn vegetation conditions, burn severity and post-fire vegetation recovery (Neary et al. 2005). Many areas would remain in or achieve a stable site condition at a level of function reduced from historic ranges. Areas with historic and ongoing disturbance high enough to increase bare ground over reference conditions would have higher sheet

flow, high rills, and perhaps higher densities and depths of gullies following wildfire (Pellent et al. 2005).

Compaction

The effects related to compaction are closely related to erosion. As noted under the erosion section above, ES&R treatments would continue through the use of mechanized equipment to broadcast seed and chemicals could be applied for weed management. Some compaction could occur during broadcast seeding or boom spraying for herbicide weed treatment. As presented under soil EPMs in Section 6.2.1, Appendix B to minimize soil compaction seeding and chemical treatments would occur when the soil surface is not water saturated, and the use of mechanized equipment is limited to what is required to complete the task. If burned areas are left untreated or limited in treatment tools it would take longer for the site to stabilize, slowing the rate of vegetation recovery at the site

3.4.3.2 *Proposed Action*

Under the proposed action alternative, Reclamation would respond to changes in the soil resource associated with wildfire that cause departures in indicators of soil and site stability such as erosion and compaction. Reclamation would have the suite of mechanical, chemical, and biological method treatments readily available to respond to wildfire impacts on the affected environment. The changes in the indicator erodibility of the soil resource are described below for areas following fire disturbance. Under the proposed action alternative, Reclamation would implement ES&R techniques on a subset of the wildfires that occur in the analysis area each year. Soil and site stability conditions in untreated areas impacted by wildfires under this alternative would be comparable to soil impacts described for the no action alternative. ES&R treatment components of the proposed action would affect soil erosion. Changes in erodibility of the soil resource attributable to Reclamation ES&R actions are described below.

Erosion

Reclamation would use mechanical, chemical, and biological treatments to respond to wildfire impacts. Each of these would directly affect soil erosion during implementation and indirectly affect soil erosion over time. Mechanical treatments affecting erosion would include stabilization, installation of erosion control structures, and access to ground disturbing seeding techniques. Stabilization/erosion control treatments include erosion barriers, erosion cloth, water-bars, rolling dips, check dams, and hill slope treatments (low stage check dams, straw bales and wattles, contour felled logs) would directly cause ground disturbance in the immediate area around installed structures, generally less than 1% of the burned area per fire, with very limited erosion due to installation.

Reclamation would focus erosion control treatments on hill slopes to prevent sediment delivery to waterways that include straw bales, gravel bags, straw wattles, and other structures that capture large material, allowing fine sediment to pass and decompose over time. Check dams would be rarely used since there is always a risk that sediment storage structures would fail, causing more damage to channels, aquatic habitat, and special status aquatic species when stored sediments are released (Rosgen 1996). Treatments including rolling dips, and water bars, would be used occasionally to move water past road cross-sections. Potential for erosion would exist until the

cutbanks, fillslopes, and/or road surfaces are stabilized. These relatively short-term, minor sediment increases would prevent road failures, culvert blowouts, mass wasting, slumping, and other potentially large-scale sources of sediment. When installed correctly, erosion control structures would capture and immobilize sediment and reduce overland flow. These treatments would likely result in immediate to long-term, direct reduction of erosion and increase in soil/site stability and hydrologic function in the action area.

Mechanical removal of vegetation would have similar effects on soil erosion to chemical application (below). Seedbed preparation techniques including discing, harrowing, mastication and chaining would directly disturb the soil surface and up to the upper 8 inches of soil horizon, exposing the soil surface to erosion. Mechanical seeding techniques would directly disturb the soil surface, increasing the potential for soil erosion the first year following treatment. The furrowing effect of drill seeding could increase runoff and erosion if drill rows are aligned with the slope (this is uncommon on steep slopes). Following successful germination of seeded species, treated areas are expected to have a long-term, indirect reduction in soil erosion following mechanical seeding compared to the no action.

Chemical treatments (application of herbicides) used in ES&R under the proposed action would have minor direct effects on erosion immediately following herbicide application, since most treated stems would remain in place. Reclamation ES&R plans include provisions for replacing all removed invasive or undesirable vegetation with desirable (predominantly native) vegetation. However, in the season following treatment but prior to replacement with desired vegetation, erosion may increase due to loss of root mass, ground cover, and litter. Large-scale (>100 acres) aerial herbicide treatments of annual vegetation would temporarily reduce vegetation cover and extend the time that the site is susceptible to wind and water erosion (up to 2 years).

Compaction

Under the proposed action alternative, Reclamation ES&R treatments would lead to a slight increase in soil compaction in treatment areas in the short-term if large equipment is used (tractor versus a utility vehicle or all-terrain vehicle). For the first 3 years following treatment, compaction would occur associated with large equipment operation during application of herbicides, removal of dead plant material (e.g., mowing, harrowing), and during seeding. However, the compaction that would result from the use of this equipment is outweighed by the long-term benefits of mechanical seeding. Mechanical seeding leads to higher sprouting rates than broadcast seeding because it improves seed to soil contact, and protects the seed from wind, birds and sun. As presented in the environmental commitments in Appendix B, equipment would not be used when soil is saturated, and the number of equipment passes would be limited to only those required to apply chemicals or apply seed.

3.5 Water

This section describes the existing condition of water resources within the project planning area and the potential effects of ES&R treatment implementation on soils that could occur on Reclamation lands under the no action and proposed action.

3.5.1 Analysis Indicators

- Stream temperature, turbidity, and nutrient levels, including nitrogen and phosphorus

3.5.2 Affected Environment

Water on or adjacent to Reclamation lands within the project planning area is primarily within the Upper Columbia River Basin with relatively smaller portions found in the Upper and Middle Snake River Basins. Main tributaries include the Methow and Okanogan Rivers. A river basin is the portion of land drained by a river and its tributaries. It encompasses the entire land surface dissected and drained by many streams and creeks that flow downhill into one another and eventually into one river. Each river basin is composed of smaller subbasins. Approximately 482 miles of stream or rivers and approximately 71,326 acres of ponds and lakes occur within Reclamation administered lands in the project planning area. Man-made waterways such as canals and ditches account for 1,230 miles on Reclamation administered lands in the project planning area. Waterbodies administered by Reclamation make up approximately 15% of the total man-made and natural stream length, as well as approximately 55% of the lakes and ponds in the project planning area.

Nearly 70 waterbodies within the project planning area are included in Category 5 of Washington Department of Ecology (Ecology)'s 2018 303(d) list of impaired waters[12]. These waterbodies intersect Reclamation administered lands and are primarily located in two subbasins in the southern portion of the project planning area: the Lower Crab and Upper Columbia–Priest Rapids Subbasins. The impaired waters include approximately 65 miles of streams and rivers and 91 miles of man-made waterways.

In the project planning area, the most common pollutants associated with listed waterbodies are elevated temperature, pH impairments, and bacteria. A smaller number of waterbodies are listed for pesticide or herbicide contamination. No waterbodies in the project planning area on Reclamation lands or immediately adjacent to Reclamation lands are listed for sediment or nutrient-related impairments.

Wildfire directly removes vegetation and reduces the ability of the soil to absorb water through compaction, the formation of hydrophobic soils, and surface sealing. This loss of vegetation and litter results in increased overland flow, which in turn leads to higher streamflow and increased stream temperatures (Tiedeman et al. 1979). When riparian vegetation is destroyed by fire, the stream surface is exposed to more direct sunlight, raising stream temperatures (Leach and Moore 2010). Research shows that large open areas can contribute to higher stream temperatures (Koontz and Thomas 2018). The effects on stream temperature can occur immediately after wildfire and may last for several years until the riparian canopy recovers. From 2014-2023, approximately 20 miles of canals and ditches, about 37 miles of streams and rivers, and about 900 acres of ponds and lakes on Reclamation administered lands within the project planning area were within 100 feet of a fire perimeter.

[12] A Category 5 designation indicates that water quality standards are not being met for one or more pollutants, and a total maximum daily load (TMDL) must be developed to address sources of pollution. Ecology leads the process for developing water quality improvement plans.

3.5.3 Environmental Consequences

Considering the existing identified water quality concerns and the effects of wildfires on local water resources within the project planning area, Reclamation used stream temperature, turbidity, and nutrient levels, including nitrogen and phosphorus, as indicators to evaluate changes in water quality. These indicators have been selected because they are commonly affected by wildfire impacts and provide meaningful insight into the condition of aquatic systems. Waterbodies already impaired, such as those listed for water quality issues, have greater risk of continued impairment. The rate of water quality improvement is closely tied to the recovery of the riparian community. As plant cover returns and soils stabilize, erosion declines, resulting in reduced sediment loads in waterbodies. Several studies have shown minimal or no impact on surface water quality when soil burn severity is low (Hampton et al. 2022 and Rust et al 2019).

Wildfire removal of vegetation and litter combined with soil disturbance and erosion leads to increased sediment input and turbidity in streams (Bixby et al. 2015). Following fire, increases in suspended sediment concentrations and turbidity can result from erosion and overland flow, channel scouring due to higher streamflow, or the accumulation of sediment in stream channels, or a combination of all these factors (Neary et al. 2005). Very high turbidity and total suspended solids, caused by suspended ash and clay-sized soil particles, represent a significant water quality issue after a wildfire and are often the most noticeable post-fire impact.

Following wildfires, aquatic systems often experience increased inputs of both nutrients and sediment (Ranalli 2004, McCullough et al. 2023, and Bélair et al. 2025). Sediment and ash entering surface waters can degrade water quality, particularly by elevating nitrogen and phosphorus levels. Initially, nitrate concentrations in surface waters tend to rise because some nitrogen is released into the air during the fire, or ammonium deposition from ash, followed later by nitrification processes (Paige and Zygmunt 2013). The primary source of phosphorus in burned watersheds is ash deposited directly into surface water. Post-fire erosion and flooding further contribute by transporting soil, ash, and other debris into streams and lakes.

Reclamation does not currently maintain consistent or detailed monitoring of stream temperature, turbidity, and nutrients in waters that intersect Reclamation property. The analysis in this PEA is based on water quality designations made by Ecology and reflects the responses typical of these indicators to wildfire disturbance.

3.5.3.1 *No Action Alternative*

Under the no action alternative, Reclamation would continue to perform site-specific NEPA reviews for ES&R treatments. Available treatment options would remain limited to non-ground disturbing actions that can be quickly deployed after wildfire using one or more categorical exclusions. These treatments may include broadcast seeding, weed management as described in Chapter 2, and the installation of erosion control structures such as straw wattles. ES&R activities would generally take place in the fall or winter following a fire. However, some methods like broadcast seeding may be less effective than alternative approaches, potentially leading to longer periods of elevated sedimentation.

In areas where treatments are less effective at stabilizing soils, or that remain untreated, wildfires could lead to increased turbidity, waterbody temperatures, and nutrient levels in waters near

Reclamation administered lands in the project planning area and in downstream aquatic systems. These water quality impacts would be relatively short-term for turbidity and nutrient levels or categorized as long-term-up to ten years-for water temperature. For each wildfire on Reclamation administered lands, only a limited number of waterbodies would be affected. Post-fire water quality impacts can extend well beyond the immediate burn area, with sediment and nutrient transport observed over long distances in connected watersheds (MacDonald et al. 2019 and Nicholset al. 2024).

Although the overall number of waterbodies directly impacted by the no action alternative would be relatively small, those impacts could degrade water quality in sensitive downstream ecosystems. The following sections outline how water quality indicators may respond in fire-impacted areas.

Turbidity

Under the no action alternative, some non-ground disturbing post-fire recovery treatments may still be implemented; however, these measures are generally less effective at stabilizing soils. As noted in Section 3.4.3 (Soils), erosion rates would likely remain at similar levels due to the limited scope and effectiveness of treatments. Untreated or less effectively treated areas could continue to deliver sediment to downstream waterbodies, potentially resulting in elevated turbidity levels that exceed typical seasonal conditions for several years until the site stabilizes. This ongoing sediment delivery could also affect stream channel stability, contributing to localized widening or braiding in some areas (Booth and Fischenich, 2015).

Stream Temperature

Under the no action alternative, Reclamation would not implement ground-disturbing replanting activities following fire damage. However, non-ground disturbing methods, such as broadcast seeding, may still be used, although their application could be delayed. In areas where fires cause high vegetation loss, water temperatures would rise. In watersheds where riparian areas are subjected to high severity burns, water temperatures could rise substantially and remain elevated until the riparian canopy cover naturally recovered.

Nutrients

Under the no action alternative, ES&R treatments available for use to stabilize soils and replant burned areas would be limited to non-ground disturbing activities and may be delayed due to compliance needs. Herbicide use would likely continue as one of the few available management tools to suppress invasive species, but this can indirectly contribute to nutrient loading by reducing vegetative uptake and leaving more nitrogen and phosphorus available for leaching and runoff. Nutrients like nitrogen and phosphorus could also reach waterbodies through the air or surface run-off, and more of these nutrients would wash into waterbodies on and near Reclamation administered lands. The increase in nutrient levels could also affect nearby waterways under other ownership. Elevated nutrient loads would likely continue for several years, until vegetation naturally recovered.

3.5.3.2 *Proposed Action*

Under the proposed action, Reclamation would develop a PESRP that would be responsive to the changes in soil dynamics associated with wildfire that have the potential to lead to increased upland

erosion and changes in stream hydrology and water quality. Reclamation would apply mechanical, chemical, and biological methods to address wildfire impacts in both upland and riparian areas where appropriate. Several EPMs for water quality are proposed to minimize impacts on water quality during ES&R treatments (Appendix B, Section 6.2.2). These include selecting herbicides with lower aquatic risk, scheduling treatments based on weather conditions and avoiding chemical applications during high winds or before storms. Site planning incorporates hydrogeologic review to avoid areas with shallow groundwater or high contamination potential, and operational safeguards include maintaining herbicide-free buffers, preventing sedimentation, avoiding tank rinsing near water, and restricting fertilizer use and equipment fueling near streams and wetlands. Together, these measures reduce the risk of herbicides, sediments, nutrients, and fuels entering water bodies. The following sections describe how water quality indicators may change in areas affected by fire and treated under the proposed action.

Turbidity

Under the proposed action, Reclamation would implement a variety of ES&R actions to reduce surface erosion and correct minor drainage issues, including some road crossings on Reclamation administered lands. These efforts may cause minor, temporary increases in turbidity, but would help lower turbidity levels over longer time horizons. Mechanical seeding with equipment or planting seedlings could introduce minor amounts of sediment into nearby waterbodies. Construction activities, including the installation of erosion control measures such as silt fences, matting, and gabions, or the repair of fences and infrastructure, may result in localized releases of fine sediment. These impacts would primarily occur near waterbodies, which make up a small portion of the planning area. Overall, however, these measures are intended to reduce sediment transport and associated turbidity. For additional details, see Appendix B, which outlines best management practices and environmental protection measures. These temporary turbidity increases would be hard to measure but are expected to affect only a few waterbody segments and result in minor impacts. These levels would still be lower than those caused by wildfire alone.

After one or two growing seasons, once Reclamation's initial stabilization efforts take hold, sediment leaving Reclamation lands would decrease. Some sediment coming from higher ground into Reclamation-managed lands would also be captured. These outcomes assume that the treatments implemented under the proposed action are more effective at stabilizing soils than those available under the no action Alternative. As a result, waterbodies in or downstream of treated areas would be expected to show lower turbidity than under the no action alternative. This reduction would likely persist for one to three years and would be observed in localized areas, typically within three miles downstream of burned land.

Additional work such as erosion control, controlling weeds, and planting native plants would help restore natural water flow in the treated areas and improve conditions downstream. As native vegetation establishes, the buildup of organic material on the ground would help absorb water, reduce the impact of rainfall, and increase the amount of water used by plants. These changes would help prevent water from flowing over the land surface, reduce erosion, and result in less sediment reaching nearby waterbodies.

Stream Temperature

Under the proposed action, Reclamation would plant vegetation in upland and riparian areas following wildfires. These efforts are expected to increase shading along waterbodies and help reduce warming. While the overall effect on water temperature across the project planning area would be relatively small due to the limited extent of Reclamation-administered waterbodies and treatment areas, the localized benefits could be meaningful. In watersheds where riparian vegetation was lost due to the high severity burns, water temperatures are expected to rise. However, because a broader range of more effective ES&R treatments would be available under the proposed action, vegetation is expected to be reestablished more successfully than under the no action alternative. As a result, water temperature increases in treated areas near waterbodies would likely be lower under the proposed action. These effects would continue as vegetation recovers across multiple waterbody segments.

Nutrients

Under the proposed action, Reclamation ES&R treatment activities such as soil stabilization, mechanical treatments, and the use of herbicides could result in a temporary increase in nutrients and potential toxic substances entering nearby waterbodies. To minimize this risk, Reclamation would apply design measures such as maintaining spray buffers, as defined in Appendix B, to reduce chemical movement into waterways. Any nutrient increases from these treatments would likely be minor and difficult to separate from the broader effects of wildfire across the watershed, especially on lands not administered by Reclamation. Within 1 to 3 years, the proposed action would help improve native plant cover and stabilize soils, which would reduce the movement of nutrients downstream.

3.6 Vegetation

This section describes the existing vegetation, including wetlands, on Reclamation lands within the project planning area and evaluates the potential effects of ES&R treatments under the proposed action and no action alternatives on these resources. Descriptions of the existing vegetation and wetlands on land within the PEA project planning area can be found in the following BLM NEPA documents and are incorporated by reference:

- *Spokane District Programmatic Noxious Weed & Invasive Plant Management Environmental Assessment*, DOI-BLM-ORWA-W0000-2017-0001-EA, August 2018 (BLM 2018; referred to as Noxious Weed EA)
- *Programmatic Emergency Stabilization and Rehabilitation Plan Environmental Assessment*, DOI-BLM-ORWA-W020-2021-0005-EA, November 2020 (BLM 2020; referred to from here on as Wenatchee PEA)

Impacts are described as either beneficial (improving condition or moving toward a desired state) or adverse (degrading condition or moving away from a desired state). Lands managed by Reclamation's EFO fall within the action areas of both EAs referenced. Additional vegetation details are provided in the following RMPS, also incorporated by reference: Columbia Basin Scattered Tracts RMP (Reclamation 1998), Banks Lake RMP (Reclamation 2001), and Potholes Reservoir RMP (Reclamation 2002).

3.6.1 Analysis Indicators

•Quality: Assessed based on functional and structural groups, ranging from early seral or non-native species (negative shift) to mid-/late-seral native communities (positive shift).

•Quantity: Measured by the number of acres restored or improved through ES&R actions.

3.6.2 Affected Environment

Federally Threatened, Endangered, and Proposed Plants

Four federally listed threatened plant species could potentially inhabit the project planning area (Table 6.8-2 Appendix H). Of these, suitable habitat is only present for three – White Bluffs Bladderpod (*Physaria douglasii ssp. Tuplashensis)*, Spalding's Catchfly (*Spiranthes diluvialis)* and Ute Ladies'-Tresses (*Spiranthes diluvialis).* White Bluffs Bladderpod and Spalding's Catchfly primarily occur in shrub steppe and upland shrubland, and Ute Ladies'-Tresses primary occur in riparian and wetland vegetation. These species existing habitats are described in more detail below. There is no suitable habitat for the Whitebark Pine (*Pinus albicaulis*) on or immediately adjacent to Reclamation lands in the project planning area and therefore this species is dismissed from further analysis. The project planning area contains critical habitat for the White Bluffs Bladderpod.

BLM Sensitive Plant Species

BLM identifies 63 sensitive plant species occurring within the Spokane District (BLM 2018). Reclamation does not maintain a separate list of sensitive plant species for this analysis and instead intends to incorporate by reference the list provided in the *Spokane District Programmatic Noxious Weed & Invasive Plant Management Environmental Assessment*, which completely overlaps Reclamation's project planning area. See appendix H, Table 6.8-3 for the full list of sensitive species.

Existing vegetation

Existing vegetation cover types within the project planning area are grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland, Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands (Table 3.6-1 and Appendix A, Map 4 through 9). Vegetation classification and cover types were derived using LANDFIRE (Landscape Fire and Resource Management Planning Tools). Existing vegetation type data was developed by the WFM programs of the U.S. Forest Service and the U.S. Department of the Interior. The BLM's Noxious Weed EA (BLM 2018) provides detailed descriptions of species associated with each cover type, based on NatureServe's Terrestrial Ecological Classifications (NatureServe 2018).

Invasive species and noxious weeds are widespread across EFO-managed lands and can significantly impact vegetation health, particularly following disturbances such as severe drought or wildfire. A list of common noxious weeds in Washington State is provided in Appendix C, Tables 6.3-1 to table 6.3-3. The most common upland noxious weeds in the project planning area include: cheatgrass (*Bromus tectorum*), knapweeds (*Centaurea* spp.), thistles (*Cirsium, Carduus, and Onopordium spp.*), rush skeletonweed (*Chondrilla juncea*), tamarisk (*Tamarix ramosissima*), and Purple loosestrife (*Lythrum salicaria*).

Table 3.6-1. Vegetation communities commonly found on Reclamation-managed lands within the EFO.

Vegetation Community	Existing Vegetation Cover Group Name	Total Acres
Shrub Steppe and Upland Shrubland	Big Sagebrush Shrubland and Steppe	89,785
	Grassland and Steppe	44,319
	Introduced Upland Vegetation	33,804
	Sparse Vegetation	14,589
	Grassland	7,891
	Desert Scrub	7,511
	Deciduous Shrubland	427
	Total	*198,326*
Forest and Woodlands	Ponderosa Pine Forest, Woodland and Savanna	3,976
	Douglas-fir-Ponderosa Pine-Lodgepole Pine Forest & Woodland	1,340
	Douglas-fir Forest and Woodland	57
	Total	*5,373*
Riparian and Wetland Vegetation	Introduced Riparian and Wetland Vegetation	24,321
	Western Riparian Woodland and Shrubland	10,647
	Depressional Wetland	1,899
	Freshwater Marsh	174
	Red Alder Forest and Woodland	50
	Total	*37,090*
Open Water	Open water *Total*	*72,335*
Agricultural	Pasture, hayland, wheat, row crops, orchards, vineyards *Total*	*31,447*
Developed	Developed (roads, commercial, and residential development) *Total*	*15,442*
	Total Acres	**360,015**

Shrub Steppe and Upland Shrubland

These habitats are found in low-precipitation areas and cover approximately 55% of Reclamation lands. They include big sagebrush shrubland, grasslands, desert scrub, and sparsely vegetated lands. Species composition is provided in Table 6.8-1 (Appendix H), with additional detail in the *Noxious Weed EA* and *Wenatchee PEA*. Invasive annual grasses are widespread, particularly following disturbance. Shrub-steppe and upland shrubland habitats are highly susceptible to degradation from wildfire and other disturbances. Fire kills big sagebrush (*Artemisia tridentata*) (Miller et al. 2013), and although some sagebrush species can gradually recover when nearby seed sources are present, reestablishing dominance within the plant community may take up to 50 years (Bunting et al. 1987).

Repeated fire events can alter plant community composition, deplete soil seed banks, and increase soil water repellency, further hindering timely recovery (Blaisdell 1953, Salih et al. 1973, Blank et al. 1995).

Forest and Woodlands

Forests and woodlands are typically located along higher-elevation streams and occupy approximately 4% of Reclamation lands within the project area. Dominant species include Douglas fir, ponderosa pine, Engelmann spruce, and quaking aspen. Additional species in this community are provided in Table 6.8-1(Appendix H). The primary disturbances in forest and woodland communities are insects, disease, and wildfire. While healthy stands can recover from low-level disturbances, high-intensity fires, especially in dense, fire-suppressed areas, can slow native vegetation recovery and increase vulnerability to invasive species. Although these areas are more resilient due to higher moisture levels, repeated high-severity fires may ultimately result in long-term shifts in community type toward shrublands or annual-dominated grassland communities, representing a negative trend along the functional and structural condition gradient.

Riparian and Wetlands

Riparian and wetland vegetation occurs along lakes, reservoirs, and streams and accounts for approximately 10% of Reclamation lands within the project planning area. Riparian and wetland vegetation communities, such as depressional wetlands, freshwater marshes, and native and introduced riparian woodlands and wetlands, are shaped by hydrology, geology, and land use. Most of the vegetation associated with these areas is flood-tolerant introduced woody wetland vegetation such as black cottonwood, quaking aspen, water birch (*Betula occidentalis*). Properly functioning riparian systems are generally resilient to wildfire and other disturbances such as flooding and debris flows, and fire can even stimulate growth by releasing nutrients like nitrogen. However, watershed degradation from activities such as timber harvest, road construction, grazing, and water diversions has increased vulnerability to invasive species. Reed canary grass (*Phalaris arundinacea*), originally introduced for erosion control, now dominates many wetlands in the project planning area, displacing native vegetation in shallow wetland zones. Invasive species such as reed canary grass, Russian olive, and purple loosestrife are widespread in these communities and require active management.

Open Water

Open water habitats cover approximately 20% of Reclamation lands within the project planning area, and include lakes, reservoirs, and other permanent water bodies, as well as adjacent features such as beaches, inflow zones, and outflow areas. Although fire does not directly impact open water features such as lakes, reservoirs, ponds, or perennial streams, adjacent upland and riparian zones may be indirectly affected. High-severity burns can lead to vegetation loss, soil destabilization, and altered hydrologic patterns. The effects of the no-action and proposed-action alternatives on water resources are addressed in Section 3.5 and, therefore, are not analyzed further in this section.

Agricultural Lands

Agricultural lands cover 9% of Reclamation lands within the project planning area, and are characterized by routine irrigation, soil tillage, and the deliberate selection of crop species – factors that distinguish them from natural systems such as shrub-steppe, forested, and riparian ecosystems.

Developed Lands

Developed lands cover approximately 4% of Reclamation lands within the project planning area. These include transportation and utilities corridors (e.g., roads, transmission lines), commercial areas, and residential developments.

3.6.3 Environmental Consequences

3.6.3.1 No Action Alternative

Under the no action alternative, vegetation recovery for sensitive plant species, federally threatened plant species, and native plant species would depend on pre-fire conditions, burn severity, and post-fire weather. Higher-elevation, moist areas or locations with low human activity may recover naturally. In contrast, lower-elevation, drier, and more developed areas are more vulnerable to degradation and invasive species. Non-ground-disturbing actions (e.g., seeding, erosion control, closures) may support recovery but are generally less effective than targeted suites of ES&R treatments. Overall, non-ground disturbing methods may fall short in addressing critical site-specific conditions such as soil compaction, hydrophobic soil layers, and the presence of deep-rooted invasive species, all of which influence the effectiveness of seeding strategies. While these treatments can provide short-term stabilization, they often lack the capacity to restore long-term habitat function and quality. In addition, treatments would remain subject to project-specific environmental review and individual consultations for NHPA and ESA which may result in some burned areas receiving delayed treatments, limited aces treated, or no treatments at all.

Shrub Steppe and Upland Shrubland

Shrub steppe and upland shrubland areas that were in or near reference conditions pre-fire may demonstrate slow but measurable recovery following wildfire disturbance depending on fire intensity. However, sites that are degraded, particularly those subject to repeated or intense disturbances, are more likely to experience a shift away from reference ecological conditions, even more so if the appropriate ES&R treatment is not readily available. This is often due to the establishment and spread of invasive annual grasses (e.g., cheatgrass), which can alter fire regimes by increasing fire frequency and continuity. These changes contribute to a downward trend along the functional and structural condition gradient, resulting in reduced native species composition, impaired soil stability, and diminished ecological resilience.

Forests and Woodlands

With limitations to types of ES&R treatments following high-intensity wildfire events, conifer regeneration may be significantly impaired due to altered soil conditions, loss of seed sources, and increased competition from invasive or early-seral species. Under no action alternative, forest and woodland landscapes may face increased vulnerability to soil erosion, invasive species encroachment, and declining habitat quality. These limited treatments, while useful for short-term stabilization, often lack the effectiveness needed to address more extensive high severity burn areas. As a result, the absence of more intensive ES&R interventions such as drill seeding, native shrub planting, or erosion control structures could lead to long-term degradation of ecosystem function and long-term

resilience. Over time, this could result in a plant community type conversion from forested systems to persistent shrubland or grassland states. Such a shift would reduce vertical and horizontal forest structure, diminish habitat complexity, and lower overall ecosystem resilience. These changes represent a negative departure from the reference condition along with the functional and structural condition gradient, with long-term implications for biodiversity, watershed function, and fire regime stability.

Riparian and Wetlands

Low-severity wildfires in riparian and wetland systems may allow for natural recovery of native vegetation communities in the absence of or use of limited, non-ground disturbing ES&R treatments, particularly where hydrologic function remains intact, and seed sources are nearby. However, high-severity burns can result in significant vegetation mortality, soil destabilization, and disruption of hydrologic processes. These impacts increase the vulnerability of these systems to colonization by invasive species such as reed canarygrass or cattails (*Typha spp.*), which can outcompete native species and alter ecosystem structure and function. Over time, this may lead to a net decline in both the quality (e.g., species diversity, habitat complexity) and quantity (e.g., areal extent) of riparian and wetland vegetation. Such changes represent a negative shift from reference conditions along the functional and structural condition gradient, with potential long-term consequences for water quality, wildlife habitat, and floodplain connectivity.

Agricultural Lands

Reclamation has canal easements crossing privately owned agricultural lands in the project planning area. Agricultural lands would continue to be managed under existing practices such as irrigation, tillage, and crop rotation. While these areas are typically maintained for production and are less directly affected by wildfire, adjacent non-agricultural lands may experience degradation due to vegetation loss, soil exposure, and increased vulnerability to invasive species. This can reduce the ecological stability and suitability of surrounding areas for native or desired plant communities. No action alternative would likely have minimal direct impact on agricultural productivity.

Developed Lands

Developed areas including roads, buildings, and other infrastructure are typically designed and maintained to withstand a range of environmental stressors, including wildfire. Under the no action Alternative, these areas would continue to be managed through standard maintenance protocols. Although structures may remain largely unaffected by fire, adjacent vegetated areas could be vulnerable to post-fire impacts such as vegetation loss, soil erosion, and the spread of invasive species. These indirect effects may reduce the ecological function of the surrounding landscape.

Potential effects on plants for federally-listed threatened and endangered plant species are expected to be similar to those for native plants under the no action alternative.

3.6.3.2 *Proposed Action*

The proposed action would include the ability to flexibly employ a broader suite of ES&R treatments including ground-disturbing treatments. It would also streamline environmental

compliance requirements, enabling more timely approval and implementation of treatments following wildfire events. These actions would aim to stabilize soils, reduce invasive species, and reestablish native vegetation, enhancing ecosystem resilience and reducing future fire risk. Due to the range of available ES&R treatments available under the Proposed Action, it is anticipated that more acres of vegetation would be treated post-wildfire than under the No Action Alternative and that there would be a positive shift in quality of vegetation communities following treatments.

Shrub Steppe and Upland Shrublands

Implementation of the proposed action would support the recovery of shrub-steppe and upland shrubland ecosystems by stabilizing soils, reducing the establishment and spread of invasive species, and promoting the reestablishment of native shrubs and perennial bunchgrasses. These treatments would help maintain or restore ecological processes such as nutrient cycling, water retention, and plant community structure. As a result, the treated areas would likely exhibit improved resistance to future wildfire and a positive shift along the functional and structural condition gradient, contributing to long-term ecosystem resilience and integrity.

Forests and Woodlands

Under the proposed action, ES&R treatments would help protect existing seed banks, promote conifer regeneration, and maintain forest structures following wildfire. These actions would support the recovery of native tree species and understory vegetation, helping to preserve ecological functions such as nutrient cycling, moisture retention, and habitat complexity. By reducing the likelihood of type conversion to shrubland or grassland, these treatments would enhance long-term forest resilience and contribute to a positive shift along the functional and structural condition gradient.

Riparian and Wetlands

Regardless of fire severity, implementation of the proposed action would support the recovery of riparian and wetland systems through actions such as native seeding, invasive species control, erosion prevention, and temporary closures to limit disturbance. These measures would help stabilize streambanks, reduce sedimentation, and protect water quality. Additionally, promoting the reestablishment of native riparian and wetland vegetation would enhance habitat structure, improve hydrologic function, and increase ecological resilience. Collectively, these outcomes would contribute to a positive shift in riparian and wetland conditions along the functional and structural gradient.

Agricultural Lands

Under the proposed action, treatments on agricultural lands would be limited to in scope to Reclamations easements through these lands and implemented strategically in coordination with landowners. Potential actions may include erosion control along field margins, installation of sediment barriers to protect adjacent natural resources, stabilization of fire-affected non-cultivated areas, and temporary fencing to prevent unauthorized access. Reclamation may conduct ES&R treatments within canal easements over agricultural lands if they were affected by wildfires. These measures would be designed to complement ongoing agricultural operations and would not interfere with existing irrigation systems, tillage practices, or crop production schedules. Implementation of ES&R treatments would not adversely impact agricultural productivity.

Developed Lands

Within developed areas, the proposed action would prioritize protection of infrastructure, utilities, and public safety following wildfire events. Treatments may include stabilization of road shoulders, installation of erosion control measures, and temporary closures or signage to manage access in vulnerable locations. These actions would be coordinated with transportation, utilities, and public works agencies to ensure consistency with existing maintenance standards and engineering requirements. In areas where development is on the edge of the wildland-urban interface, these treatments would help reduce the spread of invasive species, limit erosion, and maintain defensible space. Collectively, these efforts could benefit ecological function of the surrounding landscape.

Federally Threatened, Endangered, and Proposed Plants

Proposed ES&R vegetation treatments would impact threatened and endangered species similarly to native plant species. Long-term effects from implementing treatments are anticipated to be beneficial as native vegetation recovers, and habitat quality improves. Herbicide use would be limited by buffers, timing restrictions, and chemical-specific precautions to protect occupied threated and endangered species habitat. habitats. Biological control methods are expected to have low risk because they target specific non-native species and do not eliminate vegetation entirely. EPMs to protect plant species are outlined in appendix B, 6.2.3 Vegetation and include pre-treatment surveys by qualified specialists, avoidance buffers around occupied habitat, selective herbicide application methods, timing restrictions, equipment cleaning, and post-treatment monitoring. Revegetation with native species would be used where needed to prevent weed reinvasion. These measures are designed to avoid or minimize adverse effects to threatened and endangered plants while supporting long-term habitat quality.

3.7 Wildlife

This section describes wildlife species and their habitats in the project planning area, and components of terrestrial and wetland vegetation communities that are particularly important to their role in providing wildlife habitat. The EFO lands within the project planning area covered by this ES&R PEA are located within the BLM Spokane District Noxious Weed and Wenatchee EA action areas (BLM 2018, 2020). These two EAs contain relevant information needed to conduct an analysis of impacts from the no action and proposed action alternatives in this ES&R PEA, and they are hereby incorporated by reference. The discussion below summarizes some of the wildlife information contained in the BLM EAs in the context of Reclamation's EFO and the alternatives described in this PEA.

3.7.1 Analysis Indicators

- Habitat quality (suitability)
- Habitat quantity (acres)

3.7.2 Affected Environment

Wildlife resources in the EFO project area include terrestrial and some aquatic animal species and the habitats they depend on to survive and reproduce. Wildlife habitats provide animals with cover from weather and predators; food and water for nourishment; and space to obtain food and water and to attract a mate. Although all wildlife species are important members of native communities and ecosystems, most species are common and have wide distributions within the ES&R project planning area, the state, and the region. Consequently, the relationship of most of these species to the ES&R project is not discussed here in the same depth as the relationship of the species on which the decision-making agencies place management emphasis. Species that warrant increased management attention and thus will be discussed in more detail include ESA candidate, proposed, threatened, and endangered species; Washington endangered, threatened, sensitive, and candidate species; BLM and USFS special status species; migratory birds; raptors; and other species of socioeconomic importance (e.g., big game, furbearers).

Federally Threatened, Endangered, and Proposed Species

Eight federally threatened, endangered, or proposed wildlife species could potentially inhabit the Reclamation lands in the project planning area (Table 6.9-1, Appendix I). Of these, suitable habitat is only present for seven species; these species are described in more detail below. Critical habitat for Canada lynx has the potential to occur on the Reclamation lands and are analyzed with other wildlife species and their habitat below.

Washington State Threatened and Endangered Species

Twenty-nine species known or potentially present in the project planning area are listed or proposed for listing by the WDFW (WDFW 2024). Of these, nine are classified as endangered or state sensitive, and 20 are state candidates proposed for listing (Table 6.9-2; Appendix I).

BLM and USFS Sensitive Species

Over 50 species listed by the Interagency Specials Status/Sensitive Species Program are known or have the potential to occur within the project area (BLM 2021; Table 6.9-1, Appendix I). These include invertebrates, small and large mammals, birds, reptiles, and amphibians. Detailed descriptions of these groups of species are provided in the Spokane District Noxious Weeds EA (BLM 2018).

Wildlife Habitat

Wildlife species use a variety of habitats in the project area. These habitats provide important features such as foraging areas, breeding and wintering range, and cover for a range of birds, mammal, amphibian, reptile, and fish species common to central Washington and the Columbia Plateau.

In addition to large, contiguous areas of intensive agriculture interspersed with developed/disturbed areas associated with human settlements, existing vegetation communities in the project area and Columbia Plateau ecoregion can generally be categorized as shrub steppe and upland shrublands, forests and woodlands, and riparian and wetlands (Table 3.6-1). These three primary vegetation communities are described in detail in Vegetation 3.6. and are equivalent to the wildlife habitat types discussed in this section. Vegetation is the primary component of wildlife habitat, and the structure

and composition of vegetation affect the suitability of wildlife habitat. Vegetation provides cover for nesting/denning, hiding, and thermal regulation, as well as food.

Woody, long-lived species (e.g., shrubs, trees) provide key habitat for many species, but are less important for species that depend on early seral habitat conditions. A mix of seral stages across the landscape best supports diverse wildlife needs. Changes in vegetation structure after fire or disturbance can enhance habitat diversity, especially where non-native species are scarce. Habitats dominated by invasive species where native species groups have been displaced generally offer lower value for most wildlife. Shortened fire intervals typically result in long-term conversion to early-seral conditions dominated by invasive species. Invasive species are a serious and growing threat to Washington's native wildlife and biodiversity, second only to habitat fragmentation. Climate change is believed to accelerate these shifts by increasing the frequency, extent, and severity of wildfires (Wasserman and Mueller 2023).

Each of these habitat types exhibit existing fragmentation from land uses, such as roadway development, utility rights-of-way, agricultural use, livestock grazing practices, and wildfire. Very few large blocks of contiguous habitat occur throughout the project planning area. Wildlife populations in the vicinity of existing infrastructure (i.e., utility rights-of-way and roadway facilities and corridors) are likely to have already experienced impacts associated with habitat fragmentation and disturbance such as reduced carrying capacity, lower reproductive success, higher susceptibility to predation, and reduced mobility and restricted home ranges. Tables 6.9-2 and 6.9-3 (Appendix I) list some of the typical wildlife species expected to occur within each wildlife habitat type.

Shrub Steppe and Upland Shrubland Habitat

Shrub-steppe and upland shrubland habitats are the most common habitat type in the project area (Map 4 through 9, Appendix A). As the dominant habitat type in the Columbia Plateau ecoregion, it supports a wide diversity of wildlife species. At least 28 special status wildlife species are shrub-steppe associated; of these, many are sagebrush obligates such as pygmy rabbit and greater sage-grouse, meaning they are dependent on sagebrush for survival (Appendix I). These habitats also support a variety of migratory birds in general. Federally listed species supported by shrub-steppe and upland shrubland habitat and include Columbia Basin pygmy rabbit, North American wolverine, gray wolf, Mt. Rainier white-tailed ptarmigan, monarch butterfly, and Suckley's cuckoo bumble bee.

As discussed in Section 3.6, shrub-steppe and upland shrubland habitats have been heavily impacted by agriculture, grazing, development, wildfire, and invasive species. In shrub-steppe areas, shortened fire-return intervals have led to sagebrush loss, a key component for many wildlife species. As a result, wildfire is a major threat to these habitats and associated wildlife.

Repeated fire disturbance in shrub-steppe ecosystems promotes conversion to invasive annual grasses such as cheatgrass and medusahead (*Taeniatherum caput-medusae*). These monocultures reduce structural and compositional habitat complexity, leading to declines in native wildlife diversity. Additionally, habitat improvement potential declines as ecosystem functions, such as soil productivity and hydrologic retention, are degraded. Increased wildfire activity in the Columbia Plateau has led to the degradation of big game winter range and declines in sage-grouse and other shrub-steppe–dependent bird species. Sagebrush-obligate or sagebrush associated birds can be expected to decline following wildfire, especially in response to larger scale fire events. Dense infestations of invasive grasses like cheatgrass and medusahead can restrict movement of ground-

dwelling wildlife (e.g. reptiles, amphibians, and small mammals), particularly species with limited home ranges, potentially leading to local extirpation. Noxious weeds can spread beyond initial disturbance areas and invade a variety of vegetation types. Some wildlife, like small mammals, adapt quickly to post-fire increases in herbaceous cover. Most rodent populations recover rapidly due to grass and forb regrowth and high reproductive rates.

Forest and Woodland Habitat

Forest and woodland habitats, although uncommon in the project planning area, also support a large diversity of wildlife. Nearly half of the special status species listed in Appendix I and a wide variety of migratory birds are associated with these habitats. Forest and woodland habitat support federally listed species such as North American wolverine, northern spotted owl, Canada lynx, gray wolf, and their prey. Disturbances such as logging, clearing, fire suppression, and wildfires (both natural and human-caused) have altered forest structure, reducing habitat quality for species dependent on large, closed-canopy trees typical of old-growth forests. While invasive species are a concern, they are less of an issue than in shrub-steppe or upland shrublands. High-intensity fires in dense stands of small trees degrade habitat by consuming remaining snags and logs, creating short-lived snags, and slowing vegetation recovery, further compounding long-term habitat impacts. Stand-replacing fires remove shrubs, trees, and other vegetation that provide structural habitat, resulting in long-term loss of cover.

Riparian and Wetland Habitat

Riparian and wetland habitats support the greatest diversity of wildlife relative to their small footprint on the landscape. These habitats usually occur in association with shrub-steppe or forest and woodland habitats. Most wildlife species use riparian areas, with some being closely associated with, or entirely dependent on, these habitats. Riparian and wetland habitats are often less affected by fire than shrub-steppe or forested areas due to higher soil and vegetation moisture, especially in shrub-steppe regions, where limited surrounding fuels help buffer riparian zones from fire. However, riparian areas associated with forest habitat are sometimes susceptible to high severity fire. Remnant riparian areas are vital for wildlife after fire, offering shade, cover, food, and water, but they also attract cattle, which can hinder the recovery of burned vegetation. Riparian and wetland habitats support federally listed yellow-billed cuckoo.

3.7.3 Environmental Consequences

3.7.3.1 *No Action Alternative*

Under the no action alternative, wildlife habitat quality and quantity would likely decline over time for most species due to increasing fire frequency and the spread of invasive species. Non-ground-disturbing actions (e.g., seeding, erosion control, closures) may support recovery but are generally less effective than targeted suites of ES&R treatments. Overall, non-ground disturbing methods may fall short in addressing critical site-specific conditions which influence the effectiveness of seeding strategies. While these treatments can provide short-term stabilization, they often lack the capacity to restore long-term habitat function and quality. Generalist and early-seral-adapted species would be less affected, but habitat suitability would continue to decrease for more sensitive species adapted to later successional stages, or to landscapes with a diverse mix of seral conditions.

In addition, invasive species would spread, reducing habitat quality and supporting fewer small mammals, birds, reptiles, amphibians, insects, and big game like deer and elk. This decline in prey would also lead to fewer raptors and large carnivores.

Shrub-steppe and upland shrubland habitats would be most impacted under the no action alternative, as these areas historically experienced infrequent fire, but now burn repeatedly and more frequently. Without effective sagebrush planting, reestablishment may be slow or fail entirely, making habitats unsuitable or only marginally suitable for sagebrush-obligate species like the Columbia Basin pygmy rabbit and greater sage-grouse, leading to further population declines and loss of suitable habitat.

Forest and woodland and riparian and wetland habitats would be less affected by fire than shrub-steppe and upland shrublands. Their resistance to and resilience after fire are due to factors like higher elevations, greater precipitation, or proximity to the water table. These areas remain vulnerable to shifts in vegetation dominance, as invasive species can displace native plants and reduce both the quality and quantity of habitat.

Potential effects on habitat for federally-listed threatened, endangered, and proposed wildlife species are expected to be similar to those for general wildlife under the no action alternative.

3.7.3.2 *Proposed Action Alternative*

Under the proposed action, declines in wildlife habitat quality and quantity would be less than under the no action alternative. Potential effects on threatened, endangered, and proposed wildlife species and their habitat quality and quantity would be similar to that of general wildlife species and special status species under the proposed action. While federally listed and proposed species are not known to occupy Reclamation lands in the project planning area, suitable habitats may be present adjacent to ES&R treatment areas. While the proposed action cannot prevent all habitat loss from wildfire, the greater range of proposed action treatments and more effective streamlining of treatments would help maintain habitat suitability in the long-term by controlling invasive species and restoring native vegetation in priority areas. These efforts would also reduce the spread of invasives into adjacent untreated areas.

Re-establishing key native vegetation, such as big sagebrush in shrub-steppe or ponderosa pine in forests, would restore habitat for species of concern and federally listed species like pygmy rabbit, greater sage-grouse, and white-tailed jackrabbit in shrub-steppe and shrubland habitats, and northern goshawk and American marten in forest and woodland habitats.

Shrub-steppe and upland shrublands, which are especially vulnerable to frequent wildfire, would benefit most from invasive species control and native plant recovery. These actions would preserve early-seral habitat for species like the vesper sparrow and mule deer and improve floral resources for pollinators including the monarch butterfly and Suckley's cuckoo bumble bee, while supporting long-term recovery for mid- and late-seral species such as sagebrush sparrow, long-billed curlew, and Columbian sharp-tailed grouse. In forest and woodland habitats, maintaining structural diversity and suitable conditions supports prey bases for predators like great gray owl, Canada lynx, and gray wolf, while also benefitting prey like voles, snowshoe hare, and elk.

Riparian and wetland habitat restoration would enhance habitat and benefit a wide range of species, including migratory waterfowl (e.g., Sandhill crane, American avocet), amphibians like Columbia spotted frog and western toad, and songbirds such as yellow warbler and willow flycatcher and federally listed species like yellow-billed cuckoo.

Vegetation management may temporarily reduce habitat quality, especially when vegetation removal is necessary. Habitat quality may be impacted by accessing ES&R treatment sites with heavy equipment. Breakage or even incidental removal of individual plants in the short term would outweigh the benefits. Over the long-term however, vegetation treatments are expected to maintain or improve wildlife habitat quality, compared to the no action alternative.

3.8 Fisheries

This section describes fish distribution and abundance in the project planning area, and components of riparian and instream habitat that are particularly important to their role in providing fish habitat. The EFO lands within the project planning area covered by this ES&R PEA are located within the BLM Spokane District Noxious Weed and Wenatchee EA action areas (BLM 2018, 2020). These two EAs contain some of the relevant fisheries information needed to conduct an analysis of impacts, and they are hereby incorporated by reference. Information on life history of listed salmonids in the project planning area can be found in the *Upper Columbia Spring Chinook and Steelhead Recovery Plan* (UCSRB 2007). Information on recent trends in listed salmonid populations and runs can be found in USFWS (2024) and WSRCO (2024). The discussion below summarizes some of the fisheries information contained in the BLM EAs in the context of Reclamation's EFO and the alternatives described in this PEA.

3.8.1 Analysis Indicators

- Changes to Instream Habitat

3.8.2 Affected Environment

Fish species in the project planning area

Many parcels of land in the project planning area are adjacent to the mainstem Columbia River which provides important fish rearing and migratory habitat. Three tributaries in the project planning area, Sand Hollow, Lower Crab and Salmon creeks, are important to federally listed fishes in the basin. Sand Hollow is a small tributary that drains off the Columbia Plateau and contains approximately 1.5 miles of designated Critical Habitat (CH) for Upper Columbia River steelhead. Lower Crab Creek drains numerous lakes in the Columbia National Wildlife Refuge and provides approximately 40 linear miles of perennial fish habitat below O'Sullivan Dam (NPCC 2005). CH for Upper Columbia River steelhead is designated in approximately 54 miles of Lower Crab Creek. Salmon Creek, a tributary to the Okanogan River, also has Upper Columbia River steelhead CH from the Conconully Reservoir Dam downstream to its confluence with the river. Salmon Creek flows through approximately 3 miles of Reclamation property where steelhead CH is designated, and the Okanogan River flows through approximately 1.6 miles of Reclamation property where steelhead CH is designated. Since 2014, Reclamation has responded to four wildfires with

Reclamation lands directly adjacent to designated critical habitat for listed salmonids. No spills or large erosion plumes entering systems have been documented or observed.

Habitat conditions in these fish-bearing streams are largely unknown. Fish species known or suspected in the project planning area are detailed below. For purposes of this analysis, fish species are separated into two groups: a) salmonids listed under the ESA and b) sensitive fish species (i.e. resident salmonids) documented in the project planning area and potentially affected by the alternatives. Native non-sensitive species and introduced fish species are not further described and not used as indicators of the effects of the alternatives on the affected environment.

It is unlikely that wildfires would extirpate runs of sensitive fishes in the project planning area due to the facts that: a) fish avoid disturbances and re-invade wildfire-disturbed areas (Burton 2005); b) Reclamation lands are relatively small and fragmented within the range of sensitive fishes across the project planning area, c) most Reclamation lands within the project planning area are either along major rivers that have high volumes and rarely experience mass wasting disturbances, or in lower watershed areas away from sensitive headwaters areas; and d) wildfires can have positive long-term effects on salmon habitat in functioning forested systems.

Wildfires in the project planning area would not be predicted to have differential effects on cold water fishes or large system fishes. There are significantly more wildfires on lower elevation areas, and this could impact fish associated with slow moving systems on Reclamation lands. However, only one special status species fish (Tui chub) is known to be associated with this habitat type, and its distribution is not known fully.

Listed salmonids and their habitat characteristics

The project planning area supports the following three native species of fish listed under the ESA (50 CFR 402.02, USFWS 1999, NMFS 2005):

- Chinook salmon (*Oncorhynchus tshawytscha*): Upper Columbia River Spring Run Evolutionarily Significant Unit
- Steelhead trout (*O. mykiss*): Upper Columbia River Distinct Population Segment
- Bull trout (*Salvelinus confluentus*)

In the project planning area, recovery plans have been developed for steelhead and spring-run chinook salmon (NMFS 2009, UCSRB 2007). A Bull trout recovery plan has been developed for the mid-Columbia Recovery Unit (USFWS 2015).

Designated Critical Habitat for listed salmonids

Listed CH for salmonids is present in the project planning area. The lateral extent of designated CH for most listed species is the width of the stream channel defined by the ordinary high-water line. Reclamation manages areas with steelhead CH along Salmon Creek (approximately 3.3 miles), the Okanogan River (approximately 1.6 miles), Sand Hollow (approximately 1.3 miles), and Lower Crab Creek (approximately 8.6 miles). Reclamation also manages lands adjacent to approximately 1.2 miles of bull trout, Upper Columbia Spring Chinook salmon, and steelhead CH in the mainstem Columbia River.

Essential Fish Habitat for listed salmonids

Essential Fish Habitat (EFH) is defined as those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity. In the project planning area, designated EFH includes the Columbia River and its tributaries upstream to Chief Joseph Dam. This includes the Moses Coulee, Lower Crab, Upper Columbia Priest Rapids, Upper Columbia Entiat, Chief Joseph, and Okanogan watersheds (NMFS 2017). These watersheds have been designated as EFH for various life-history stages of Chinook salmon.

Sensitive Fishes

Although Reclamation does not maintain its own list of special status species for the project planning area, due to the overlap with the BLM planning area, Reclamation intends to adopt and utilize the BLM's list of special status species for project planning and environmental review purposes. Descriptions below are for fishes classified as special status species in Washington by the BLM, that are potentially present in the project planning area and potentially affected by the alternatives in this PEA (Table 3.8-1). Species descriptions are summarized from Wydowski and Whitney (2003).

Table 3.8-1 Special status species in Washinton.

Common Name	**Scientific Name**	**Habitat Requirements and Preferences**
Westslope Cutthroat Trout	*Oncorhynchus clarki lewisi*	Require diverse, well-connected habitats with structural elements like boulders and large wood.
Pygmy Whitefish	*Prosopium coulterii*	Relict populations in deep lakes (e.g., Lake Chelan) that need cool, well-oxygenated water of high quality.
Mountain Sucker	*Catostomus platyrhynchus*	Inhabit clear, cold mountain streams and prefer sand, gravel, or boulder substrates.
Tui Chub	*Siphateles bicolor*	Found in reservoirs, ponds, potholes, and warm, slow-moving parts of Lower Crab Creek (Columbia Basin).
Umatilla Dace	*Rhinichthys umatilla*	Benthic species in productive, low-elevation streams that prefer clean rock, boulder, or cobble substrates with moderate water velocity.
Leopard Dace	*Rhinichthys falcatus*	Live in flowing pools and gravel runs of creeks, small to medium rivers, and rocky lake margins. Typically found in slow-moving, deep waters.
Pacific Lamprey	*Lampetra tridentata*	Anadromous species with freshwater filter feeding larvae. Larvae require fine silt or mud substrates in backwaters and eddies of cold streams.
River Lamprey	*Lampetra ayresii*	Similar distribution, habitat, and life cycle as Pacific Lamprey.

Riparian and instream conditions in the project planning area

Riparian and instream conditions in eastern Washington, particularly within the project planning area, are shaped by their position within the Columbia River basin. These lotic systems (streams and rivers) and adjacent riparian zones vary based on elevation, temperature, precipitation, geology, and land use. In the project planning area, Reclamation-managed lands are often adjacent to BLM-administered lands. As described in BLM (2020), The BLM evaluates riparian-wetland health using the Proper Functioning Condition (PFC) framework, which measures a system's ability to maintain structure and function during high flows. Approximately 29% of the nearly 500 stream miles and 10% of the nearly 5,000 acres of mapped wetland and lake habitats within or near BLM-administered lands have been assessed with this framework. Based on this analysis, most streams in the project planning area are functioning well hydrologically, but many remain ecologically degraded due to historical human activities like mining, logging, road construction, and agriculture. These disturbances have reduced pool habitat, large woody debris, and aquatic diversity, and high road densities impact water quality and runoff patterns. Such changes have contributed to declines in both resident and migratory fish populations, with three species, Chinook salmon, steelhead and bull trout, being listed under ESA. See Section 3.5 for additional information on water resources in the project planning area.

Wildfire plays a natural role in maintaining watershed health by introducing sediment, nutrients, and large wood into aquatic systems. These wildfire events, however, can initially degrade local fish habitat by increasing temperatures and turbidity, displacing structural elements like large wood, and reducing pool depth. Culverts damaged by wildfire or post-fire debris flows could prevent or impair fish movement, particularly weak swimming fish such as suckers. The post-fire changes in habitat could locally displace or reduce salmonids, or other sensitive fish populations in the years immediately following wildfire. Increased fire frequency and intensity, combined with habitat fragmentation and thermal sensitivity (especially for species like bull trout), have made modern wildfires more disruptive. As a result, fish populations in affected areas may experience more severe, localized impacts than in the past. Reclamation manages limited upper watershed areas in the region, reducing its direct role in mitigating these impacts. For example, four wildfires have occurred on Reclamation lands within 50 meters of designated critical habitat for listed fishes in the project planning area since 2014, affecting approximately four miles of critical habitat.

3.8.3 Environmental Consequences

3.8.3.1 No Action Alternative

Under the no action alternative, Reclamation would develop an ES&R plan, but the plans would be limited to non-ground disturbing treatments. Creating a suitable habitat for fish post-wildfire is essential for their survival and well-being. Whether in a pond, lake, or river, fish need structures that provide shelter, breeding grounds, and food sources. Being limited to treatments such as broadcast seeding and straw waddles for erosion control may hinder riparian vegetation and streamside habitat development, as noxious weeds are more likely to outcompete native species due to the less successful seeding methods and potential seed washout. The result would likely be an increase in the spread of noxious weeds in riparian areas not receiving treatment and restoration. Stream function

would be impacted by decreasing mat-forming native vegetation and noxious and invasive plant species encroachment. Fish habitat would have higher deposition of fine substrates, pools would become shallower, and the width to depth ratio would increase, increasing water temperature and decreasing water quality.

The limit of the types of ES&R treatments implemented on uplands because of post-fire timing and compliance constraints could increase the risk of excessive sediment loading and channel degradation of streams, diminishing the quality and quantity of fisheries habitats. Habitat recovery would be slow since progress toward a properly functioning system would be impeded, especially in areas where large fires occur verses small acreages of burned habitats. Many areas would remain in or achieve a stable site condition at a level of function reduced from historic ranges. Areas with historic and ongoing disturbance high enough to increase bare ground over reference conditions would have higher sheet flow, high rills, and perhaps higher densities and depths of gullies following wildfire (Pellent et al. 2005). Without vegetation to stabilize soil, heavy rains could cause severe erosion and flash flooding.

Burned stream reaches with little riparian vegetation or substantially elevated fine sediments would not support all the life cycle requirements of native fish particularly salmonids and cold-water fishes. Native non-game fish can tolerate habitat conditions that are less suitable than special status fish and, therefore, may return to stream reaches with burned riparian vegetation sooner. In any event, native non-game fish returning to sparsely vegetated stream reaches are at an increased risk of predation and mortality due to lack of cover, loss of spawning habitat, elevated water temperatures, water quality impairment, and reduced streamflows.

Post-wildfire conditions would impact indicators of fish habitat at reach scales under the no action alternative. By limiting treatments to non-ground disturbing actions and requiring site-specific NEPA and ESA complioance, this alternative would result in increased dominance of invasive plants and noxious weeds in riparian and upland areas, which are less effective in stabilizing soils and maintaining hydrologic processes than perennial upland vegetation and could result in erosion of upland soils into streams supporting sensitive fishes or their critical habitat. In time, it is expected that habitats would recover from wildfire effects, but at a slower rate than would occur if a greater variety of ES&R treatments were available for application (see Section 3.5.3.1 for a discussion of effects on temperature and turbidity).

No action could prolong the temporary negative effects of wildfire on listed species but is unlikely to lead to extirpation of any species from watersheds, nor would it lead to the need to list any species currently classified as sensitive in the project planning area given the small amount of habitat adjacent to Reclamation managed lands. No action could also prolong the temporary negative effects of wildfire on CH for steelhead and EFH for Chinook salmon, due to increased periods of sediment production and loss of shade in watersheds identified as CH and EFH.

3.8.3.2 **Proposed Action Alternative**

Reclamation would use mechanical, chemical, and biological methods to respond to wildfire impacts to the affected environment, both in upland and riparian areas. The changes in federally-listed salmonid habitat indicators under the proposed action are described below. Reclamation ES&R treatments designed to stabilize and restore sites damaged by wildfire would lead to short-term negative effects to riparian and instream conditions and long-term improvements in these

conditions, generally at reach scales. During and following ES&R treatments such as upland drill seeding, installation of erosion control, and slope stabilization, sediment deposition and turbidity in streams could temporarily increase, but these increases would be hard to measure and are expected to be lower than those caused by wildfire alone (see Section 3.5.3.1). The amount of sensitive fish spawning habitat impacted by sediment inputs temporarily increasing embeddedness is expected to be small due to the limited amount of Reclamation riparian areas in the project planning area. However, these sediment inputs are expected to be lower than the no action alternative. The proposed action would have no direct effect on other physical or biological features needed to support listed salmonids. Implementation of EPMs would reduce or eliminate transport of herbicide or toxicants (e.g., fuel) into streams (Appendix B, Section 6.2.5).

ES&R treatments to control invasive plants and noxious weeds would expedite the recovery of both upland and riparian vegetation and hydrologic watershed processes, benefiting fish habitat in the long-run following establishment of native plantings. Appendix G tables 6.7-1 and 6.7-2 lists herbicides that Reclamation intends to use and describes herbicide use cautions, restrictions, and buffers outlined by NMFS (2024) and WSDOT (2025). Consultation with NMFS and USFWS would be needed prior to using herbicides near ESA-listed fish habitats, potentially delaying implementation of herbicide treatments as under the no action alternative.

Implementation of ES&R treatments, such as erosion control and restoration of native upland and riparian vegetation, would lead to long-term improvement in federally-listed salmonid physical or biological features in treated reaches. Specifically, ES&R treatments would improve treated reach water quality, substrate (spawning gravels and pool depths), and natural cover (shade and aquatic vegetation). The potential for large woody debris recruitment would increase over the long-term because of the increase in riparian forested area. Most fish species would benefit from re-establishing native woody plant species such as cottonwood, aspen, and willow along stream channels where burned woody vegetation would require significant time to recover. Restoring woody vegetation would expedite the recovery of vegetation that moderates water temperatures and provides woody debris to streams. Large wood and substrate input from wildfires would be maintained, in addition to the long-term improvements in the riparian habitat elements compared to no action areas receiving no, limited, or delayed treatment. Due to location of Reclamation lands, improvements to Chinook salmon and bull trout CH would occur in the migration corridor (i.e., Columbia River), with improvements in steelhead CH spawning and rearing sites within adjacent Reclamation lands (e.g., Sand Hollow, Salmon and Lower Crab creeks) if these areas burned and were treated.

The effects described above for listed salmonid habitat would similarly apply to species with comparable habitat requirements. Reclamation ES&R activities would potentially have small, short-term negative effects on water quality, but these effects are expected to be reduced relative to the no action alternative (e.g., less overall sediment input due to installation of erosion control structures). Reclamation ES&R treatments are expected to have larger positive long-term effects on substrate and cover. ES&R treatments would be applied to systems supporting salmonids, cold-water fishes, large system fishes, and fish associated with slow moving systems, benefitting sensitive species in all these groups. Due to the location of Reclamation lands and prevalence of wildfire, Reclamation estimates that ES&R treatments would be most frequently applied in smaller stream systems.

3.9 Historic Properties, Traditional Cultural Places, & Paleontological Resources

This section provides a general discussion and analysis of the historic properties, traditional cultural places and paleontological resources potentially affected by the project's alternatives. Historic properties include archaeological resources, traditional cultural places, and historically significant elements of the built environment. Pursuant to 36 CFR 800, 54 USC § 3016108, NHPA Section 106, Paleontological Resources Protection Act (PRPA (2009)), 16 USC § 470aaa-1, and given the lack of programmatic NHPA Section 106 consultation for ES&R treatment plans at EFO, it will be necessary to complete reviews for NHPA compliance prior to the implementation of any programmatic ES&R activities. These compliance reviews will often require Reclamation to consult with the Washington State Historic Preservation Officer and affected Tribes who attach religious and cultural significance to historic properties in the area considered in the scope of this PEA. Historic properties are defined as prehistoric and historic period sites which are listed or deemed eligible for listing in the National Register of Historic Places (NRHP). Historic properties can be districts, prehistoric sites and artifacts, historic period sites and artifacts, buildings and other structures, and natural features that are significant to human history or localities that possess traditional cultural or religious importance to Native American Tribes. Sites are evaluated, in consultation with WA-Department of Archaeology & Historic Preservation (DAHP), affected Tribes and interested parties, as applicable, for listing using criteria that determine historic significance, integrity and association; evaluations may be pending or incomplete and, in these instances, site locations must be protected and managed as potentially NRHP-eligible until determined otherwise.

Traditional Cultural Places (TCPs) are defined as places that are significant for their cultural, religious, or social practices and beliefs. TCPs can be, but are not limited to, religious areas, sacred areas, resource gathering areas (plant, animal, fish, and mineral), places associated with stories and legends, archaeological and ethnographic sites, habitation sites, camp sites, pictograph and petroglyph locations, special use sites, trails, and places with Indian names. All natural features, including but not limited to geological features, plant and animal communities, and waterways, have cultural significance beyond an economic interest to Native Americans. In addition, TCPs are recognized for their importance in maintaining the cultural identity of specific communities, particularly of Native Americans and Native Hawaiians. TCPs can be listed or eligible for listing in the NRHP if these meet listing criteria pursuant to 36 CFR 60.4. Executive Order (EO) 13007 allows Indian tribes to identify some locations as "sacred sites" because of the role that they play in the practice of traditional religions. These sacred sites may sometimes overlap with TCPs, but the two categories are not exactly the same. Federal agencies shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, 1) accommodate access to, and ceremonial use of, Indian sacred sites by Native Americans, 2) avoid adversely affecting the physical integrity of such sacred sites, and 3) ensure that reasonable notice is provided of proposed actions or land management policies that may restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.

The Paleontological Resources Protection Act (2009) establishes that such resources are defined as fossils, trace fossils and the geological contexts in which they exist. These resources possess non-renewable scientific value and need to be evaluated based on criteria that establish scientific significance.

3.9.1 Analysis Methods

Some lands in the project planning area have been surveyed for historic properties; however, the surveys have not necessarily been completed to current standards. Therefore, a necessary first step for implementation is to determine whether sites, TCPs and paleontological resources exist in a given ES&R treatment area. If pre-implementation surveys and/or consultations indicate that such resources are found to exist, then the issues for future analysis will be to evaluate how proposed treatments would impact sites' and TCPs' NRHP listing criteria for historic significance, integrity and association. Similarly, potential impacts to paleontological resources' scientific, educational, and contextual integrity would need to be evaluated prior to implementation.

3.9.2 Analysis Indicators

Due to the need for site-specific NHPA S.106 reviews and analyses, for the purpose of this PEA, high-level qualitative resource indicators are used.

- Changes to the integrity of paleontological resources and historic properties.

  Paleontological resources must possess physical integrity of the fossils themselves as well as the geological context of the fossils. Significance criteria are noted below.

  Historic properties that are deemed eligible for listing on the NRHP must meet integrity criteria including those of location; design; setting; materials; workmanship; feeling; and association with historic events or persons. In addition, they must also meet one or more criteria of historic significance, as noted below.

- Changes that would impact eligibility for significance of paleontological resources and historic properties.

  To be considered significant, a paleontological resource must meet all the following criteria:
  1) Resource quality: it is an outstanding fossil specimen; and
  2) Interpretive value: it possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of our nation's heritage; and
  3) Potential for Use: it offers superlative opportunities for recreation, public use and enjoyment, or scientific study; and
  4) Integrity: it retains a high degree of integrity as a true, accurate, and relatively unspoiled example of the resource.

  A historic property must meet one or more NRHP significance criteria:

  A. The property is associated with events that have made a significant contribution to the broad patterns of our history; or
  B. The property is associated with the lives of significant persons in our past; or
  C. The property embodies the distinctive architectural characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose

components may lack individual distinction; or

D. The property has yielded or may be likely to yield, information important in prehistory or history.

- For TCPs, resource indicators are preservation and tribal accessibility.
  The exact nature and location of all TCPs in the project area are not known to ES&R planners; however, tribal consultations will serve to inform planners so that TCPs can be preserved and tribal accessibility issues can be addressed if necessary.

3.9.3 Affected Environment

Prehistoric (~16,000 years before present to 1720 C.E.) and Historic Context (1720 C.E. to 1975)

Geologic and climatic events over the course of the last 17 million years have shaped much of the physiography of the Columbia Plateau and Columbia Basin. Flood basalts, periodically erupting over the course of millennia, have covered vast expanses of the landscape. Intermittently, during pauses in volcanic activity, sedimentary deposition through fluvial, aeolian, lacustrine and deltaic processes occasionally provided for favorable conditions in which fossil remains would form (Alt & Hyndman 1995).

During the Late Pleistocene-early Holocene (40,000-13,500 years ago) environmental conditions influenced the distribution of flora and fauna, as well as the eventual distribution of human populations that subsisted on these resources. Human populations are thought to have migrated to the Columbia Plateau about 16,000 years before present (B.P.) (Davis et al. 2022). Regional archaeological research and evidence indicates that indigenous populations have inhabited the Plateau since these times. Native peoples on the Columbia Plateau first encountered Euro-American explorers in the 18th century; the economic and political value of the American West was soon recognized and heralded an era of colonial expansion, displacement and the resettlement of Native populations by the late 19th century. On former tribal lands in the Columbia Basin, settlers established homesteads, farms, and ranches, but many ventures failed as desert conditions were unfavorable to agriculture. By the mid-20th century, Reclamation and Army Corps of Engineers had developed irrigation infrastructure to support large-scale agriculture and hydropower which promoted economic growth throughout the region (Reclamation 1978).

Archaeology

Some Reclamation-owned parcels within the wildfire ES&R project planning area have been surveyed for archaeological resources; however, much of the project planning area has not been examined, or current survey standards for intensive reconnaissance have not been met.

The Washington Information System for Archaeological and Architectural Records Data indicates that over 1,000 documented archaeological sites on Reclamation lands within the spatial scope of the PEA. Precontact sites include burials, lithic scatters, rock features, rock images, rock shelters, rock alignments, talus pits, pit house depressions, shell middens, resource-camp sites, former village sites, trail networks, and hunting blinds. Historic period sites include townsites, foundations, homestead cabins and associated structures, refuse scatters, agricultural fields, irrigation systems, fence lines, placer and ore-mines, mining adits and tailings, canals, ferry landings, electrical power-line segments, rail-line and road segments. Important concentrations of sites are significant enough to be grouped into archaeological or historic districts which are listed on National and/or State Historic Registers.

Archaeological Districts located on Reclamation lands in the project area include 45DT1; 45DT10; 45DT34; 45DT35; 45DT38; 45DT39; 45DT44; and 45DT108 (currently unevaluated for NRHP-listing). Important precontact sites that are individually listed in the NRHP are 45GR97 and 45GR145 and both lie within the project area. Eligible, but not yet nominated historic properties (both precontact and historic period) are far greater in number throughout the project planning area and unevaluated sites are equally as numerous.

To date, only one paleontological resource (45FR321) has been documented within the project planning area. These fossil remains require further investigations before their scientific significance can be ascertained.

Traditional Cultural Places

A broad definition of TCPs has been previously discussed; for purposes of the ES&R project, TCPs are significant to tribes whose traditional lands lie within the project planning area. A majority of the project planning area lies within the traditional lands of the Moses Columbia (or Sinkayuse, sk̓wáxc̓ənəxʷ) Tribe whose present-day constituents are members of the Confederated Tribes of the Colville Reservation (CTCR). In the northern part of the project planning area, traditional lands historically belonged to the Southern Okanogan, Methow and Chelan Tribes, who are also CTCR constituents. The Colville Reservation was created by Executive Order in 1872; however, its boundaries were subsequently revised and diminished. In 1892, an Act of Congress ceded the north half of the Colville Reservation to the United States which then returned this portion of the reservation to the public domain. The CTCR nevertheless retained rights to fish and hunt in perpetuity on these lands. The Moses Columbia Reservation (1879-1883) was the result of successful lobbying efforts by Columbia chief Moses. It was located in portions of what would later become Chelan and Okanogan Counties; under pressure from mining interests, the federal government returned this reservation's lands to public domain. Socio-economic, political and cultural relationships between respective indigenous tribes in the region developed and were nurtured since before contact with non-natives in the 18th century; those who may choose to claim cultural interests within the project planning area therefore also include the remaining constituent members of the CTCR (Entiat, Wenatchi, Colville, San Poil, Palus, Chief Joseph Band of Nez Perce, and Lakes). The location of many native villages, settlements and resource-specific camps occupied by ancestors of CTCR tribal members have been ethnographically documented in the Columbia Basin and a majority of these were established along stream corridors and confluences. These locations often have an archaeological footprint and serve to maintain tribes' cultural identities and connections to their past (Teit 1928; Ray 1936; Spier 1936; Cline et al. 1938; Smith 1983; Hicks 1998; Miller 1998; George 2011).

The project planning area also falls within the 9.5 million acres that were ceded to the US government under the terms of the Yakama Treaty of 1855; 14 bands and tribes of the Columbia Basin joined together to form the Yakama Nation, these included the Yakama, Palouse, Pisqiouse, Wenatshapam, Klikatat, Klinquit, Kow-was-say-ee, Li-ay-was, Skin-pah, Wish-ham, Shyiks, Ochechotes, Kah-milt-pay, and Se-ap-cat. The Yakama Treaty created, in part, the 1.3-million-acre Yakama Reservation for those signatory tribes who collectively ceded lands to the US government. These tribes retained rights to hunt and fish on ceded lands. The Pisqiouse tribe includes members of the Methowpam, Chelanpam, Entiatnapam, and Wenatshapam; historical ties to members of the

CTCR tribes connect the Pisqiouse to traditional village locations where Methows, Chelans, Entiats and Wenatchis once lived in the project planning area (Ray 1936; Schuster 1998; Oliver 2022).

Under terms of the subsequent federal Dawes Severalty (or General Allotment) Act (1887-1934) some tribal people in the Columbia Basin chose to formally claim specific parcels of land that held significant traditional value to their respective families or tribes. These parcels were officially patented as Indian Allotments; they can still be identified on many USGS maps and do exist within the project planning area. Presently, such localities have the potential to be important to tribal cultural identity, even if those parcels are no longer controlled by tribal members.

3.9.4 Environmental Consequences

Under both the No Action and Proposed Action alternatives, it may, in some cases, be possible to seek expedited consultation from the State Historic Preservation Office (SHPO) or Tribal Historic Preservation Officer (THPO) with jurisdiction as per 36 CFR 800.3(g), and this would mean that all the consultation regarding APE, LOE, and Finding of Effect could be compiled in a single consultation step. However, SHPOs and THPOs are not required to accept Federal agency requests for expedited consultation. When the request for expedited is accepted then consultation would be completed within the timeline needed to implement ES&R treatment.

3.9.4.1 *No Action Alternative*

Under the no action alternative, fire-suppression closures could be temporarily extended, and ES&R activities would be limited to non-ground disturbing treatments such as broad cast seeding and using straw waddles for erosion control. Extending fire closure orders may help to prevent vandalism and looting of vulnerable (i.e., accessible or visible) sites; however, the closures may prevent tribal access to resource acquisition areas or sacred places. If ES&R treatments do not successfully stabilize soils, then, if present within the treatment perimeter, historic properties, TCPs with an archaeological footprint, and paleontological resources could be directly adversely impacted by on-going erosion which could affect their respective criteria of integrity and significance. Under the no action alternative, the availability and quality of traditional plant resources may be adversely affected if native plant communities do not successfully recover using only non-ground disturbing treatments. The direct and indirect effects of the no action alternative upon other types of TCPs would need to be evaluated through tribal consultations and on a case-by-case basis (36CFR 800.3[c][f]).

3.9.4.2 *Proposed Action Alternative*

Many of the ES&R treatment options involve ground disturbance and these consequently have potential to physically impact the integrity of paleontological resources, historic properties (including surface distributions of artifacts and features and buried deposits) and could also affect locations possessing traditional cultural values like TCPs and scared sites.

Actions of concern include:

- Seedbed preparation where disking, harrowing, mastication, and chaining would directly disturb the soil surface and up to the upper 8 inches of soil horizons;
- Seeding and planting that require plowing, chaining, cabling, or harrowing;
- Weeds management that involves manual pulling, grubbing, or digging out root systems that

may extend deep into soil or are horizontally extensive; mechanical root plowing, tilling and drill seeding, mowing, roller chopping and cutting, blading, and grubbing;
- Erosion control measures requiring trenching, water bars, and heavy equipment to repair roads;
- In-stream treatments that require anchoring to stream terraces; and
- Facility repairs involving ground disturbing activities or involve physical repairs to historic structures.

Protecting the physical integrity of paleontological resources, as well as the surrounding soils and bedrock, is critical because these are key to understanding the nature of the remains and environmental contexts at the time of deposition.

The historical significance and integrity of both surface and subsurface archaeological sites may be directly affected by ground disturbing ES&R treatments. Ground disturbance has the potential to alter the physical integrity of sites by moving the distribution of artifacts, thereby altering the contextual relationship between artifacts, and can also damage the artifacts themselves. Sites that are especially vulnerable to ground disturbance include burials, lithic scatters, and middens. Negligent use of heavy equipment may damage rock image sites and adversely affect their integrity by irreversibly altering a rock image site's location, its setting, its materials and its workmanship. Ground disturbance can adversely affect Native American sacred sites and TCPs if it changes the physical characteristics of those sacred sites or destroys the tribal values associated with them.

Proposed treatments could serve to positively affect native plants traditionally used and currently harvested by tribal members if the treatments result in the development and expansion of mid-late seral stage plant communities.

While the use of chemical herbicides for weed management does not entail ground disturbance, it does have potential to adversely affect native plant populations and thus affect Tribes' traditional gathering activities on federally managed lands. These activities, among others, are federally protected rights. Tribal notification and sign postage could serve to mitigate this effect.

There is potential for indirect effects to TCPs and associated values from ES&R treatments, such as impacts to tribes' use of federal lands, and visual impacts to landform TCPs or topographic features associated with tribal history narratives; however, NHPA 106 reviews and consultations would offer opportunities to develop mitigation prior to implementation of treatments.

The potential consequences of ES&R proposed actions require NHPA Section 106 compliance review (36 CFR 800) prior to the implementation of any treatments. In part, this review entails receiving concurrence with the area(s) of potential effects (APE) from the Washington State Department of Archaeology and Historic Preservation (WA-DAHP) and consulting Tribes. The review may also entail historic properties inventories, based upon WA-DAHP state-wide site location probability modeling, to 1) assess the presence/absence of Historic Properties; 2) establish the level of effort (LOE) to be used in identifying historic properties; and 3) determine the historic significance of any sites in the APEs. Prior to project implementation, consultations will request WA-DAHP and Tribal concurrences with the Findings of Effect. Prior to implementation, a case-

by-case review of site-specific treatments, or treatment plans, consultations with WA-DAHP and affected Tribes, and full adherence to cultural resources protection measures (Appendix B) would ensure that adverse effects to historic properties would be avoided. The EPMs in Appendix B outline procedures that must be followed to protect historic properties, including the identification of avoidance and "no work" areas; prescriptions for work stoppage and stabilization of post-review discoveries, including the discovery of human remains; the creation of post-review discovery plans, if significant new finds are made; the creation of NAGPRA plans of action, if human remains are found; Tribal notifications of herbicide applications; reinitiating consultations with WA-DAHP and affected Tribes if the APE is revised or post-review discoveries are made.

3.10 Recreation

This section describes the existing condition of recreation resources within the project planning area and the potential effects of ES&R treatment implementation on recreation that could occur on Reclamation lands under the no action and proposed action.

3.10.1 Analysis Indicators

- Access to recreation areas and facilities, visitor use, and visitor experience.

3.10.2 Affected Environment

Lands managed by the EFO are designed to accommodate a variety of uses, including outdoor recreation activities such as camping, hiking, horseback riding, hunting, rock climbing, and off-ORV riding. The area's diverse wildlife (Section 3.7) provides ample opportunities for hunting, photography, and wildlife observation, while local lakes offer options for boating, fishing, and other water sports. The range of developed and dispersed recreational opportunities caters to the diverse needs and expectations of visitors. Popular destinations often feature water resources suitable for boating, swimming, and fishing, along with developed camping facilities, play areas, and trails. Most locations are easily accessible while still providing a primitive experience. Additionally, areas known for hunting and fishing, as well as those designated for ORV use, are regarded as high-priority sites for recreational activities.

Although most visitors to EFO lands engage in dispersed recreation, developed recreation sites remain popular. The EFO directly manages only two developed sites: Summer Falls Day Use Area and Scooteney Park & Campground. Other developed sites are managed by various partners and concessionaires. In the EFO's Columbia Basin Project, these include the WDFW, Washington State Parks, Coulee Playland Resort, the Town of Coulee City, and the Grant County Sheriff's Office. In the EFO's Okanogan Project, managing partners include WDFW, Washington State Parks, Liar's Cove Resort, Shady Pines Resort, and Kozy Kabins Resort.

WDFW attracts the majority of EFO's recreation visitors, with approximately 2.4 million people visiting Reclamation-owned lands in the Columbia Basin Wildlife Area in 2023. This Wildlife Area encompasses about 134,000 acres of EFO land and includes 26 recreation sites, most of which offer only basic facilities, such as vault toilets, gravel parking, and access to dispersed upland activities or a

boat launch. While some WDFW sites accommodate overnight campers, they do not provide RV hookups or more developed amenities.

Three Washington State Parks operate on EFO lands: Potholes, Steamboat Rock, and Conconully State Parks. These parks drew nearly 900,000 visitors in 2023, with Steamboat Rock State Park being the most popular, attracting around 550,000 visitors (Washington State Parks 2025)..

Recreational use of public lands in Washington State is projected to continue increasing, along with demand for opportunities and infrastructure. The Washington State Recreation and Conservation Office's 2018-2022 State Comprehensive Outdoor Recreation Planning report reveals visitor use trends for public lands, highlighting the prevalence of various recreational activities and public reliance on accessible recreational opportunities. Notably, nearly 80% of Washington residents engaged in outdoor activities in the past year, with the State's population growing by 2.5 million (a 63% increase) between 1980 and 2010 and projected to increase by another 2 million (or 26%) by 2040. By 2030, more than one in five Washington residents will be 65 or older, and by 2040, seniors will outnumber youth. As this age group becomes increasingly active, their recreational preferences may shift. A recent study indicates that current recreational facilities meet only 30-40% of statewide demand (Recreation and Conservation Plan for Washington State 2018-2022).

These findings suggest that the number of recreational users on Reclamation-owned lands, along with public demand for recreation opportunities, will continue to rise. Although Reclamation manages a small percentage of the overall land base in Washington State and in the project planning area, these public lands play a vital role in providing recreational opportunities for visitors.

3.10.3 Environmental Consequences

3.10.3.1 *No Action Alternative*

Under the no action alternative, access to areas and facilities, visitor use, and visitor experience would remain unchanged from the current status quo. However, if EFO is restricted to the existing ES&R activities under this alternative, closures of recreational areas may extend longer due to the need for site-specific NEPA analysis, which can take several months or longer depending on available funding and staff capacity. Some recreation facilities that could be impacted by wildfire that would result in delayed repairs may include vault toilets and restroom structures requiring excavation or foundation work, damaged boat ramps needing concrete replacement or shoreline grading, eroded access roads or parking areas that require regrading and culvert replacement or gravel resurfacing, campsite pads that may need soil compaction, re-leveling or replacement, or underground water infrastructure damage by fire debris.

Given the reduced suite of ES&R activities that may be implemented under the no action alternative and the potential delay in treatments, visitor experiences could be reduced if noxious weeds and invasive species establish following wildfires. Much of the outdoor recreation on EFO lands is closely tied to wildlife populations, including hunting, wildlife viewing, and nature photography. As a result, unhealthy or imbalanced vegetation communities stemming from the inability to perform ES&R activities could diminish the quality of recreational experiences by negatively impacting wildlife species and their abundance. As described in Section 3.7, invasive species would spread,

reducing habitat quality and supporting fewer small mammals, birds, reptiles, amphibians, and big game like deer and elk. This decline in prey could also lead to fewer raptors and large carnivores.

In the event of wildfire damage to recreational infrastructure[13], such as boat ramps or campsites, visitors would likely be displaced and need to find alternative locations until the infrastructure is stabilized and rehabilitated to a safe and usable condition. Under the no action alternative, this stabilization and rehabilitation process could take longer, leading to temporary or short-term decreased access, reduced usage, and overall poorer visitor experiences.

3.10.3.2 *Proposed Action*

Under the proposed action, the implementation of ES&R activities following wildfires would lead to positive impacts on outdoor recreation. Swift restoration of damaged recreational infrastructure, such as boat ramps and campsites, would ensure quicker reopening of affected areas, restoring access and allowing visitors to return to recreation activities sooner. Sites may be temporarily closed to the public during ES&R activities using fencing, signage, or gates, which would temporarily reduce access and visitor use. However, these closures are expected to be shorter in duration compared to the no action alternative, where sites may remain closed longer due to unsafe conditions. By focusing on the control of noxious or invasive species and the restoration of native vegetation, the proposed action would improve wildlife habitats essential for outdoor recreation activities like hunting, wildlife viewing, and nature photography, therefore enriching visitor experiences. Implementation of EPMs would also reduce or eliminate visual disturbances at recreation facilities in burned areas (Appendix B, Section 6.2.8). The proposed ES&R activities would facilitate timely recovery of recreational access and enhanced visitor experiences through improved wildlife habitats. The proactive implementation of ES&R measures would lead to a healthier, more resilient landscape, which can better withstand future disturbances. This resilience would support long-term recreational opportunities and improve the quality of visitor experiences over time. These actions would benefit outdoor recreation by ensuring areas impacted by wildfires are accessible, enjoyable, and sustainable for all visitors.

3.11 Livestock Grazing and Management

This section describes the existing condition of livestock grazing and management within the project planning area and the potential effects of ES&R treatment implementation on livestock that could occur on Reclamation lands under the no action and proposed action.

Assumptions used in this analysis are as follows:

- As necessary, Reclamation would temporarily close grazing parcels post-fire for two growing seasons or until adequate forage and access to water are available. The Authorized Officer of the Field Office has the discretion to open and close parcels to grazing and may open parcels

[13] Examples of damaged infrastructure at recreations facilities may include damaged boat ramps needing concrete replacement or shoreline grading, eroded access roads or parking areas that require regrading, culvert installation, or gravel resurfacing, campsite pads that have been compromised and require soil compaction, re-leveling, or replacement of their outside frame, underground water infrastructure damaged by fire or debris.

earlier if forage recovers sufficiently and water access is restored. Conversely, if recovery is insufficient, the Authorized Officer may keep parcels closed longer.

- ES&R techniques and efforts (including multiple revegetation entries as necessary) and adaptive management will continue post-fire until grazing parcel vegetation communities are restored.
- The replacement of grazing facilities such as water troughs, fences, or gates is required to keep livestock within grazing parcels.

3.11.1 Analysis Indicators

The indicators for identifying effects on livestock grazing and management relative to the baseline conditions are the following:

- Changes to the quality and quantity of forage available for livestock,
- Changes to livestock access to water, and
- Changes in livestock grazing operations

3.11.2 Affected Environment

Reclamation has the authority to offer lands it manages for livestock grazing. Reclamation allows year-round livestock grazing on a discretionary basis on designated EFO lands at a rate of $14.50 per acre in 2025. Livestock grazing in the EFO includes cattle, sheep, and, to a lesser extent, horses; however, permittees are not required to report livestock type or usage dates. Livestock usage is measured in Animal Unit Months (AUMs), defined by the Natural Resources Conservation Service based on livestock age, class, size, and monthly forage consumption. Of the 360,015 acres of Reclamation lands in the project planning area, 32,545 acres (9.5%) are available for grazing. All grazing parcels provide livestock with access to water sources, which may include streams, troughs, or developed springs. As of 2025, 58% of these lands have active grazing permits. Currently, there are 20 permits covering 19,241 acres, with 2,437 AUMs being actively grazed in the project planning area.

3.11.3 Environmental Consequences

3.11.3.1 *No Action Alternative*

The no action alternative poses risks to livestock grazing and management by keeping livestock off parcels longer than necessary due to insufficient recovery of forage species and unrepaired livestock facilities that provide access to water (e.g., troughs, spring developments) and maintain livestock within parcels (e.g., fences). The inability to use the parcels likely would lead to reductions in AUMs for operators. Additionally, inadequate ES&R response may allow undesirable forage species to outcompete desirable species, reducing quality of available livestock forage.

Currently, post-fire revegetation within EFO is only accomplished by broadcast seeding which can result in insufficient revegetation and restoration of grazing parcels. Inadequate recovery or delayed recovery of forage species may lead to extended closures due to inadequate quality and quantity of forage and could potentially risk permanent closure of these lands to grazing.

Under the no action alternative, Reclamation would continue to monitor invasive weeds and would have the ability to treat them under the authority of an existing categorical exclusion (DOI NPS 516 DM 12.5 E (6)). However, the length of time to prepare and approve the categorical exclusion checklist and complete associated site-specific NHPA and ESA consultations may lead to delayed herbicide application. Untimely treatments may allow weeds to outcompete desirable species and lead to insufficient recovery of forage for livestock. Parcels affected by invasive and noxious weeds may result in harm to the health of livestock, decreased quantity and quality of forage, and a reduction of AUMs.

Although replacement of fences and water troughs that do not require surface disturbance are permitted under the no action alternative, surface disturbing facility repairs require compliance with NEPA. Because the environmental compliance process for one-off actions typically take longer than 21 days to complete, delays in facility repairs would result in extended parcel closures, requiring operators to provide alternative accommodation for their livestock for longer periods of time.

3.11.3.2 *Proposed Action*

Effective post-fire ES&R treatments as planned under the proposed action are crucial for restoring grazing parcels, as they expedite grazing parcel recovery, mitigate the spread of undesirable species, and promote beneficial forage species growth.

Implementing seeding and planting methods that allow surface disturbance facilitate faster restoration of grazing parcels following a fire. Ploughing and harrowing soil, drill seeding, and hand-planting are typically more successful than broadcast seeding and accelerating the recovery process. Additionally, the timely application of integrated noxious weeds and invasive plant treatments help increase the prevalence of desirable forage within grazing parcels. A successful and faster recovery of forage leads to shorter closures and allows livestock managers to return to normal operations more quickly. Additionally, higher quantities of forages may lead to increases in AUMs; better quality forage supports healthier livestock.

Implementing watershed stabilization, erosion control, and in-channel treatments on parcels managed for livestock grazing can enhance water storage by minimizing water loss that occurs in the absence of these treatments through seepage, overflow, and inefficient travel routes. Improved water storage provides livestock with longer access to water and forage on grazing parcels and may decrease the need or number of times livestock are moved to different grazing lands.

Although grazing parcel closures require temporary livestock removal to provide alternate sources of forage and water during restoration, livestock would typically be allowed to return to affected parcels after two growing seasons when successful revegetation would be expected. Temporary closures provide an opportunity for vegetation to establish roots, grow, and regain vigor without the impact of livestock trampling and grazing. This leads to the successful restoration of adequate forage quantities and promotes sustainable grazing on the parcels in the long term.

Timely facility repairs are essential for returning livestock to affected grazing parcels and maintaining grazing operations. Most livestock facilities that contain livestock within grazing parcels or provide access to water require some surface disturbance. The ability to replace damaged livestock facilities without delay decreases impacts on operators by allowing livestock to return to grazing parcels expeditiously and resume normal operations promptly.

4 Consultation and Coordination

This chapter describes the consultation and coordination among other federal, state, and local agencies; Project Proponents and Native American Tribes; and the public in preparing the PEA. It also includes records of necessary compliance with other applicable statutes and permitting, and any public involvement activities.

4.1 Tribal Consultation and Coordination

On July 7, 2025, correspondence inviting consultation were sent to five Federally recognized Tribes (CTCR, Nez Perce Tribe, Confederated Bands and Tribes of the Yakama Nation, Spokane Tribe of Indians, Confederated Tribes of the Umatilla Indian Reservation) and one non-federally recognized group (Wanapum Band). These entities have traditional lands and interests in portions of the project planning area and are identified as having religious ties to and knowledge of cultural and natural resources in the project planning area.

One of the federally recognized Tribes responded with comments and requested formal government-to-government consultation, which was executed on Tuesday, September 2, 2025. Outreach and coordination with the Tribes will continue throughout the PEA development process to help ensure concerns are identified and considered. Additional consultation requests will be responded to and completed if and when requested to address areas and issues of concern to the Tribes. The importance of locations and uses to Tribes is defined through Tribal consultation.

No Indian trust assets were identified in the project planning area during the scoping process, such as those held in trust by the BIA for the benefit of Tribes or individual Indian trust landowners. As part of the scoping process, Reclamation researched Tessel, a Federal Geographic Information System (GIS) land database that includes federal lands held in trust for Tribes and Individual Indian trust landowners. This research indicated there are no Indian trust land assets in the proposed action area, but ITAs may exist that are not known to Reclamation, which could be discussed during ongoing collaboration and consultation.

4.2 Section 106 National Historic Preservation Act Consultation

The NHPA requires federal agencies to take into account the effects of their [14]"undertakings" on historic properties (36 C.F.R. 800.1). Historic properties are significant cultural resources included in, or eligible for inclusion in, the NRHP. Reclamation would initiate consultations with the WA-DAHP, and THPO with CTCR, the Confederated Tribes and Bands of the Yakama Nation, the Spokane Tribe of Indians, the Nez Perce Tribe, and the Confederated Tribes of the Umatilla Indian Reservation on proposed ES&R activities. Reclamation would also consult with a broader group of

[14] Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license or approval.

Tribes who attach religious and cultural significance to historic properties, or to lands, in the ES&R Project area. Consultations under Section 106 would be completed before implementation of any of the proposed activities.

Under NHPA 106 and 36 CFR 800.3 through 800.6, the consultation process must address the APE as well as research and survey findings, determinations of effect, and resolutions of adverse effects; concurrences on the APEs and findings from consulting parties must be received prior to ES&R implementations. Consultation by the agency official with the SHPO/THPO and other consulting parties may be accelerated and address multiple steps in §§ 800.3 through 800.6 when the agency official, the SHPO, and THPO(s) agree it is appropriate as long as the consulting parties and the public have an adequate opportunity to express their views as provided in § 800.2(d). In such instances, concurrences with NRHP eligibilities and determinations of effect must also be obtained from consulting parties prior to implementation of ES & R treatments. If proposed treatments are likely to have an adverse effect upon historic properties and/or TCPs because these resources cannot be avoided, then mitigations would be developed in consultation with WA-DAHP and consulting Tribes prior to implementation of treatments in those locations.

4.3 Washington Department of Archaeology and Historic Preservation Consultation

Regulations in 36 CFR 800.2(c), pertaining to NHPA Section 106, mandate that federal agencies consult with State Historic Preservation Officers on proposed federal undertakings and their potential effects to historic properties, as described above in Section 4.2; correspondingly, State Historic Preservation Officers are required to assist federal agencies in meeting their NHPA Section 106 responsibilities (NHPA Section 101b(3), 54 USC § 302303; Reclamation Manual Directives and Standards LND-02-01 (2018) specifically address agency consultation responsibilities with SHPOs to meet NHPA Section 106 requirements.

4.3 Endangered Species Act Section 7 Consultation

Under Section 7(c) of the ESA (16 U.S.C. 1531–1544), any federal agency (action agency) providing funding, providing oversight, or having the responsibility of issuing a permit(s) for the construction and/or operation of a "project" must consult with either the USFWS or the NMFS to assess whether the actions of that federal agency would affect any federally listed species under the protection and management jurisdiction of those two regulatory agencies. Therefore, to comply with ESA Section 7(a)(2) and 50 C.F.R. 402, Reclamation has prepared a biological assessment to determine the potential impacts of the proposed action on federally listed species and critical habitats in the project planning area. For this PEA Reclamation is not proposing to do any in water work that would need to occur in ESA Critical Habitat. Reclamation would require consultations with USFWS and NMFS prior to implementation in ESA Critical Habitat areas. Consultation with the USFWS on all other ESA listed species is anticipated to begin in January 2026.

During consultation, Reclamation will present the ES&R Plan to describe measures to reduce potential effects of the proposed action on listed, wildlife, and plant species in the project planning area. Programmatic ESA consultations with USFWS will help streamline post-wildfire compliance

by allowing agencies to address recurring stabilization and restoration actions under a single, broad agreement rather than initiating separate consultations for each individual project. This approach reduces administrative delays, ensures consistency in applying conservation measures, and provides stronger upfront protection for listed species and their habitats.

4.4 Scoping and Public Involvement

The EFO solicited public scoping comments from June 27 to July 11, 2025, to identify issues important to the public. Reclamation received two comment emails. This information was considered along with issues identified internally relevant to the proposed action. These issues are presented in Section 3.0 Affected Environment.

4.5 List of Preparers

This PEA was prepared by the individuals identified in Table 4-1.

Table 4-1. List of Preparers

Name	Role/Responsibility	Agency
Co-Lead Interdisciplinary	**Team**	
Shawna Castle	Project Manager, NEPA Lead	Reclamation
Jason Sutter	Vegetation/Wildlife	Reclamation
Cory Sandow	Water Resources	Reclamation
Shawna Castle	Endangered Species (Wildlife, Fisheries, Plants), Biological Assessment	Reclamation
Melinda Hernandez Burke	Indian Trust Assets	Reclamation
Becky Doolittle	Land use/Facilities	Reclamation
Zach Lugar	Livestock Grazing	Reclamation
Erika Lopez	Public Affairs Specialist	Reclamation
Julie McPherson	Recreation, Visual Resources	Reclamation
Françoise Sweeney/Gia Dimagio	NHPA Resources Review and Compliance Requirements	Reclamation
Rebecca Thompson	Natural Resources Management Oversight	Reclamation
Becky Doolittle	Soils	Reclamation
John Powell/Todd Anderson	Fish	Reclamation

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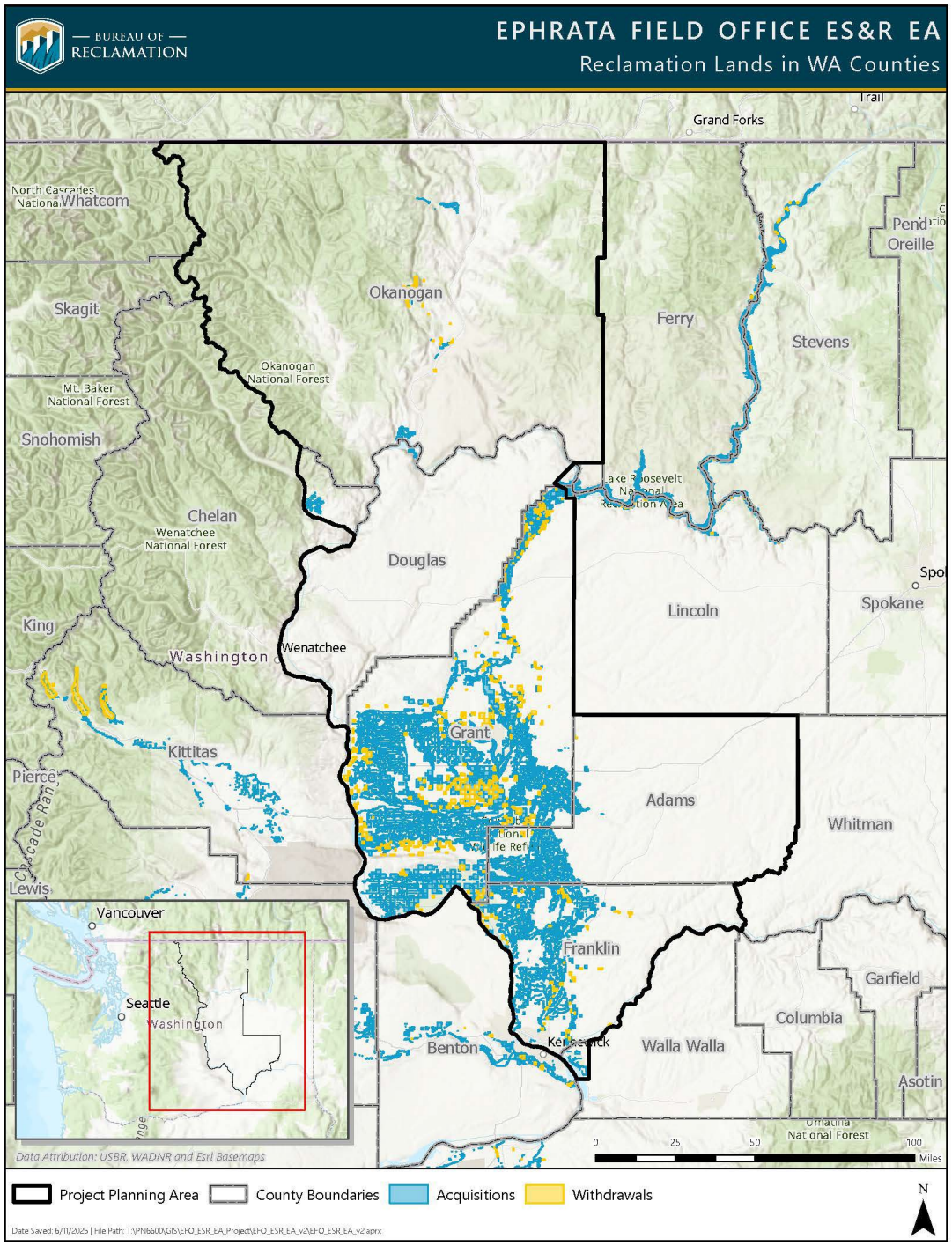
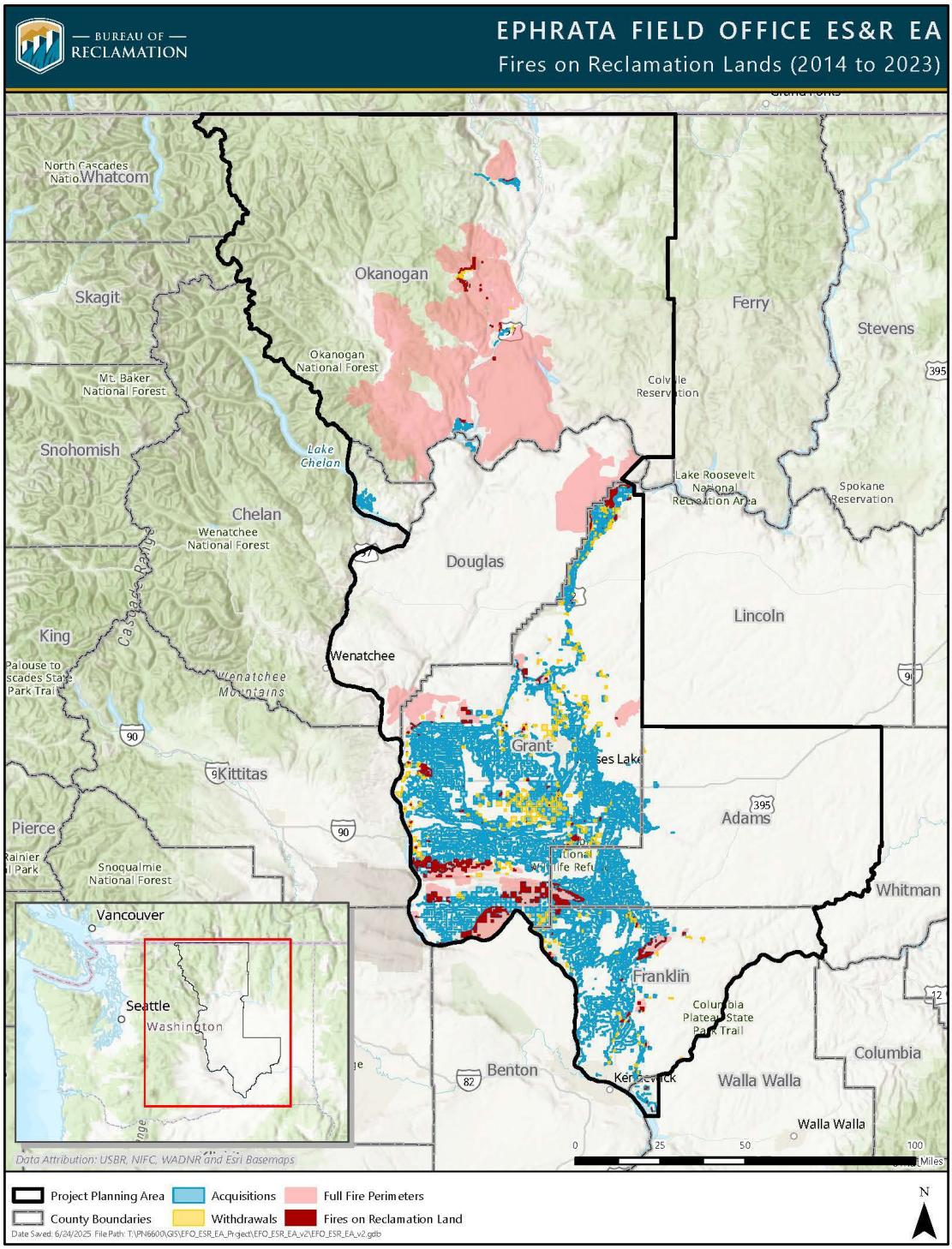
6 Appendices

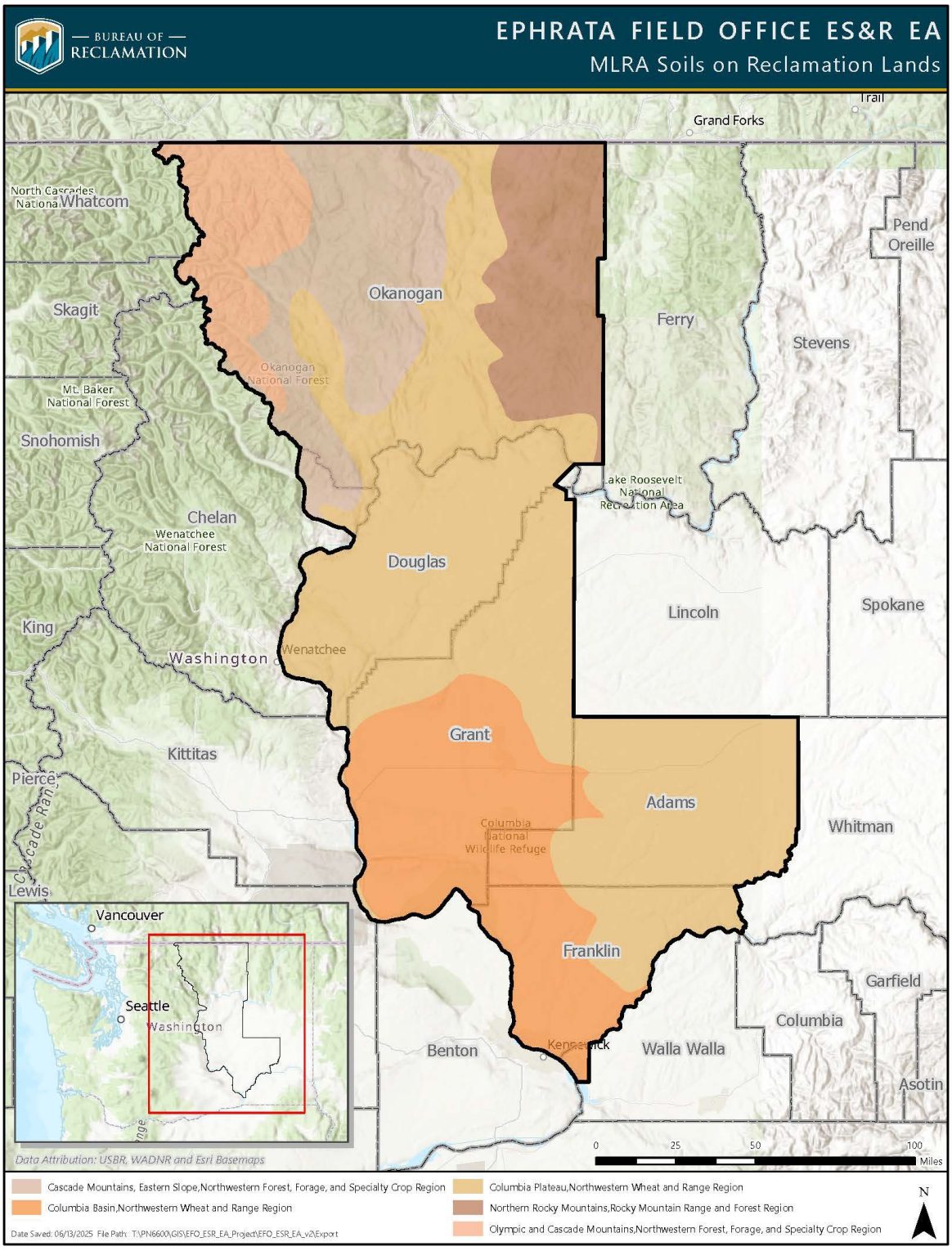
6.1 Appendix A – Maps



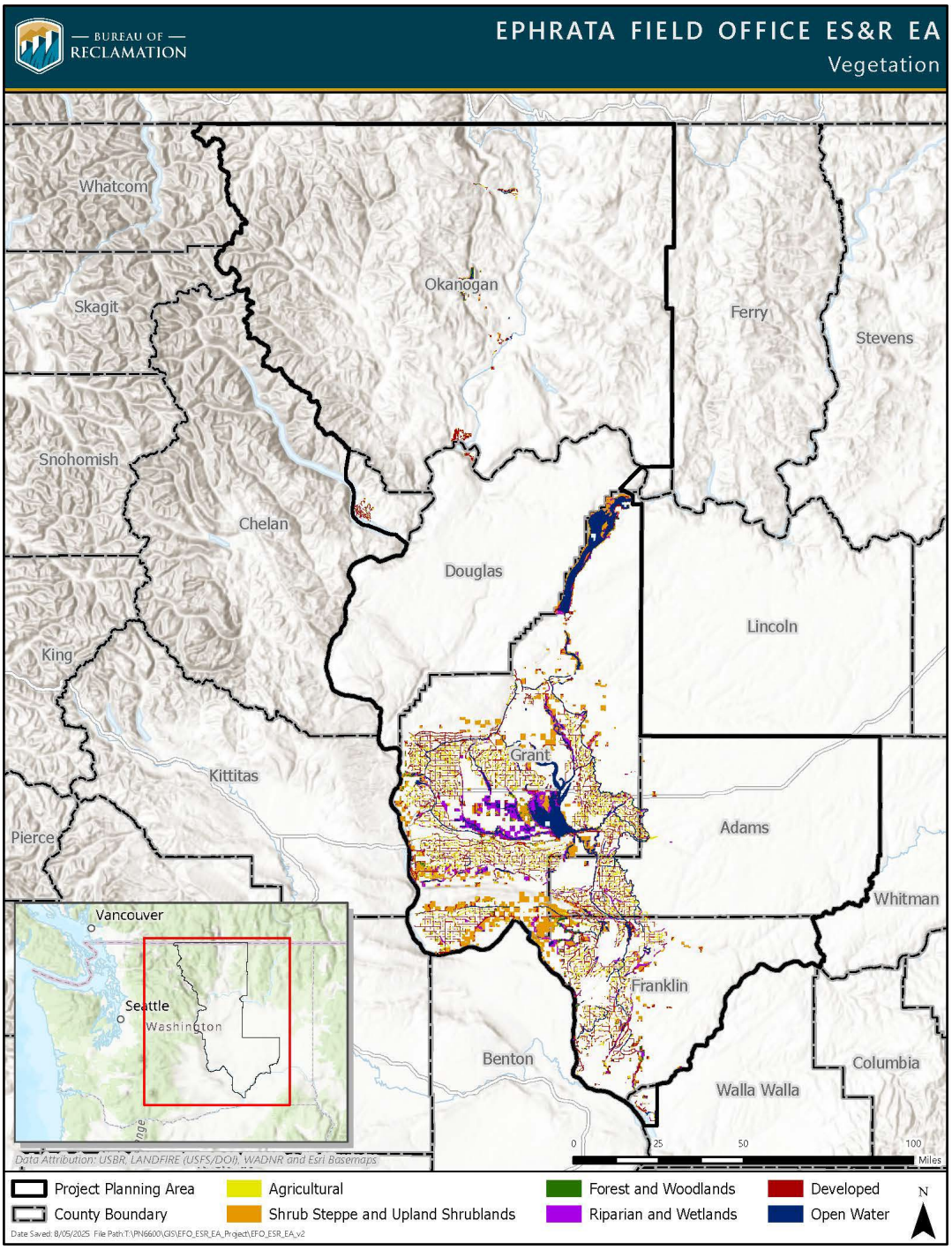
Map 1. This map shows the ES&R project planning area outlined in black for the EFO. Public lands administered by Reclamation in the project planning area are any real property under the jurisdiction of or administered by Reclamation, and include, but are not limited to, all acquired and withdrawn lands and lands in which Reclamation has a lease interest, easement, or right-of-way.



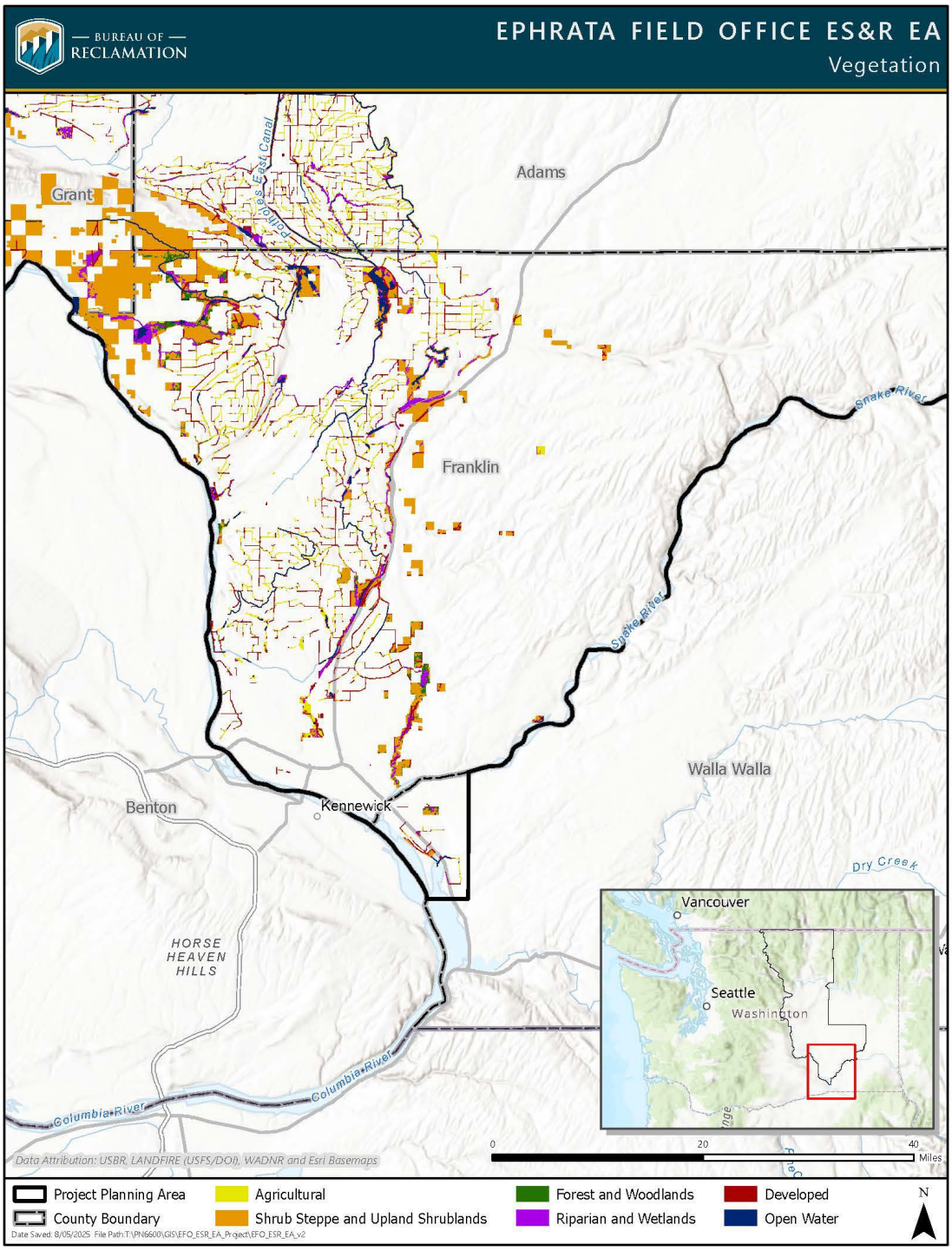
Map 2. Overlay of fire perimeters on Reclamation lands in project planning area from 2014-2023. An estimated 51,761 acres of Reclamation-administered public land in the EFO burned in wildfires from 2014 through 2023.



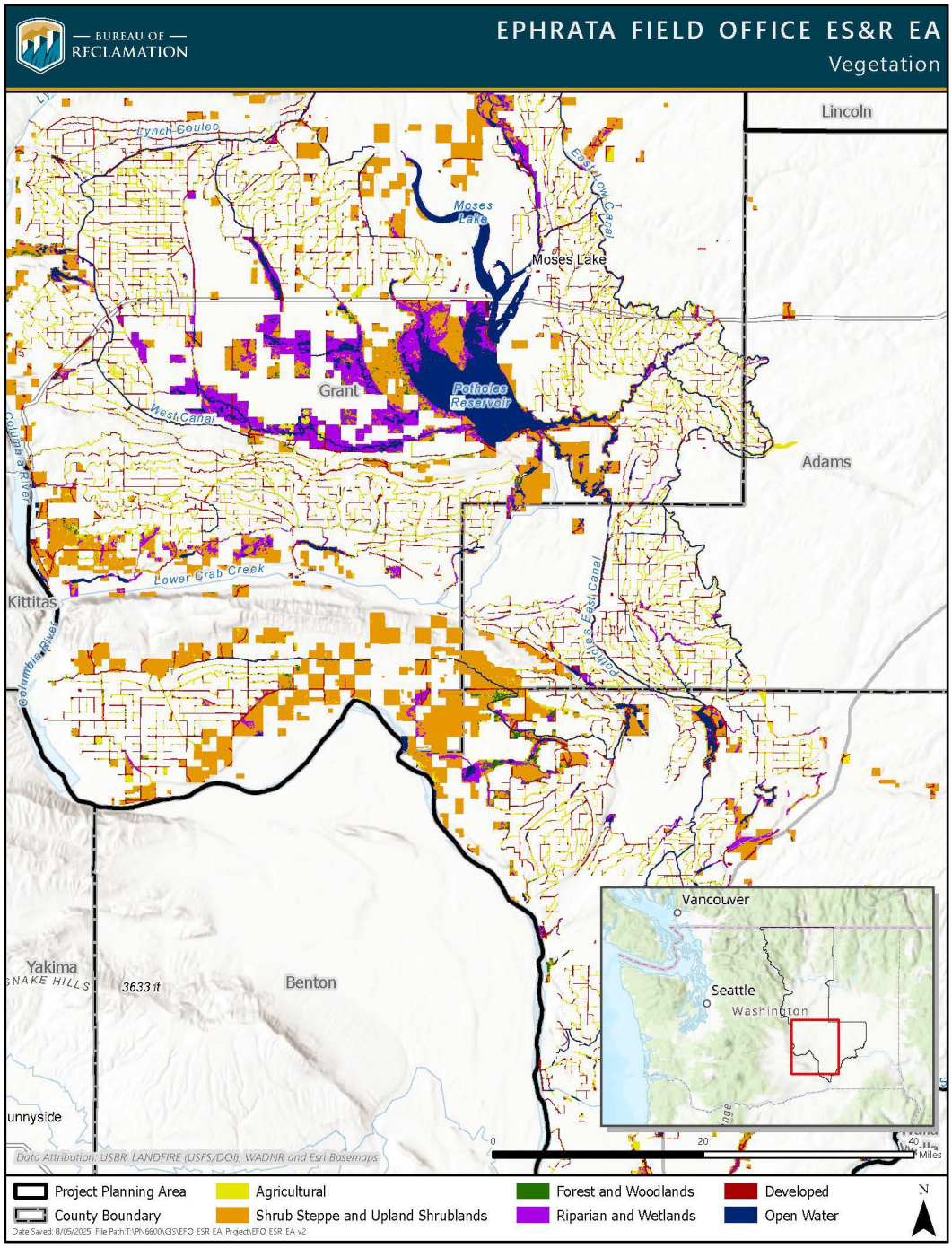
Map 3. This Map shows the major land resource areas in the project planning area.



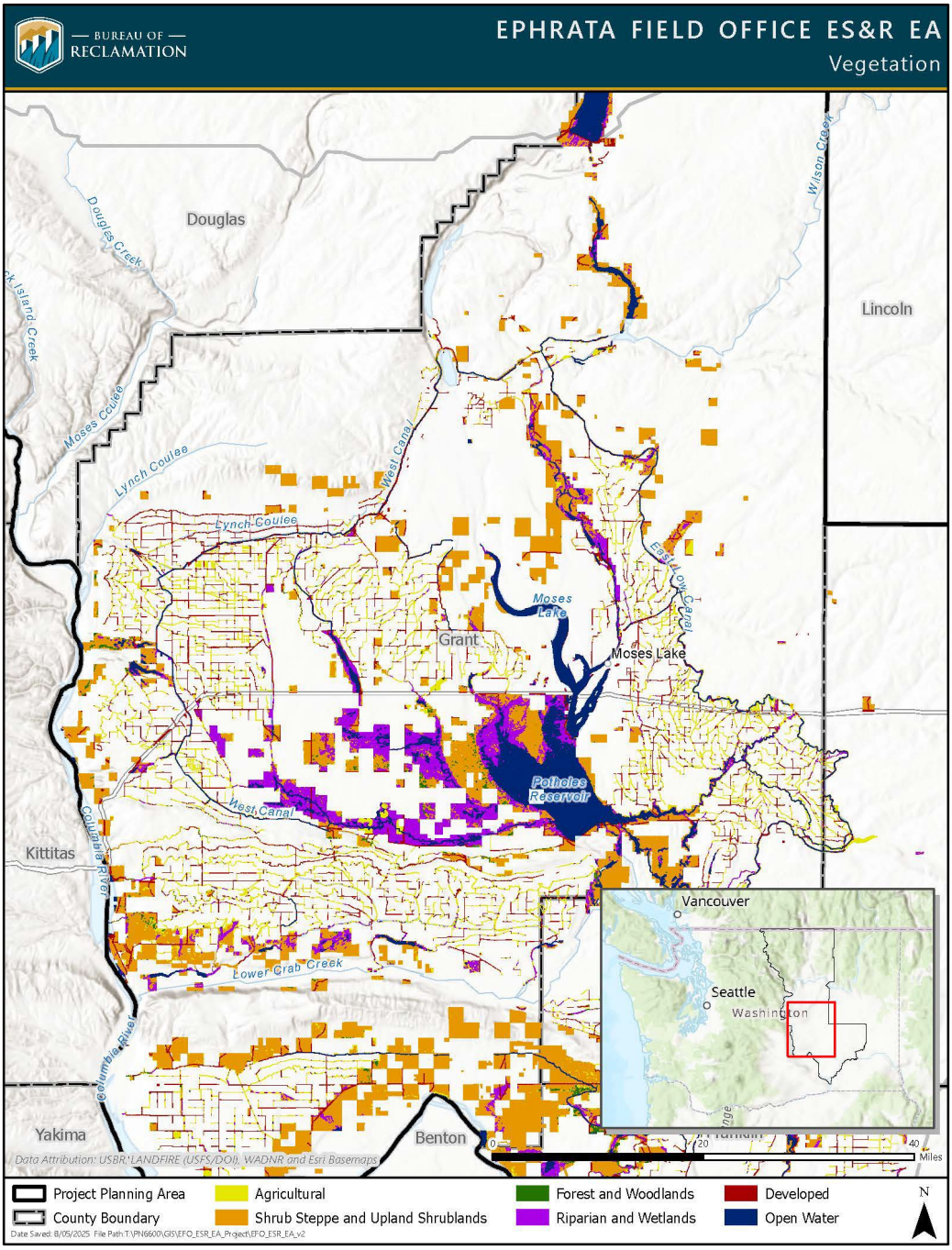
Map 4. This map shows vegetation cover types within the project planning area grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland (Conifer), Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands. Vegetation classification and cover types were derived using LANDFIRE.



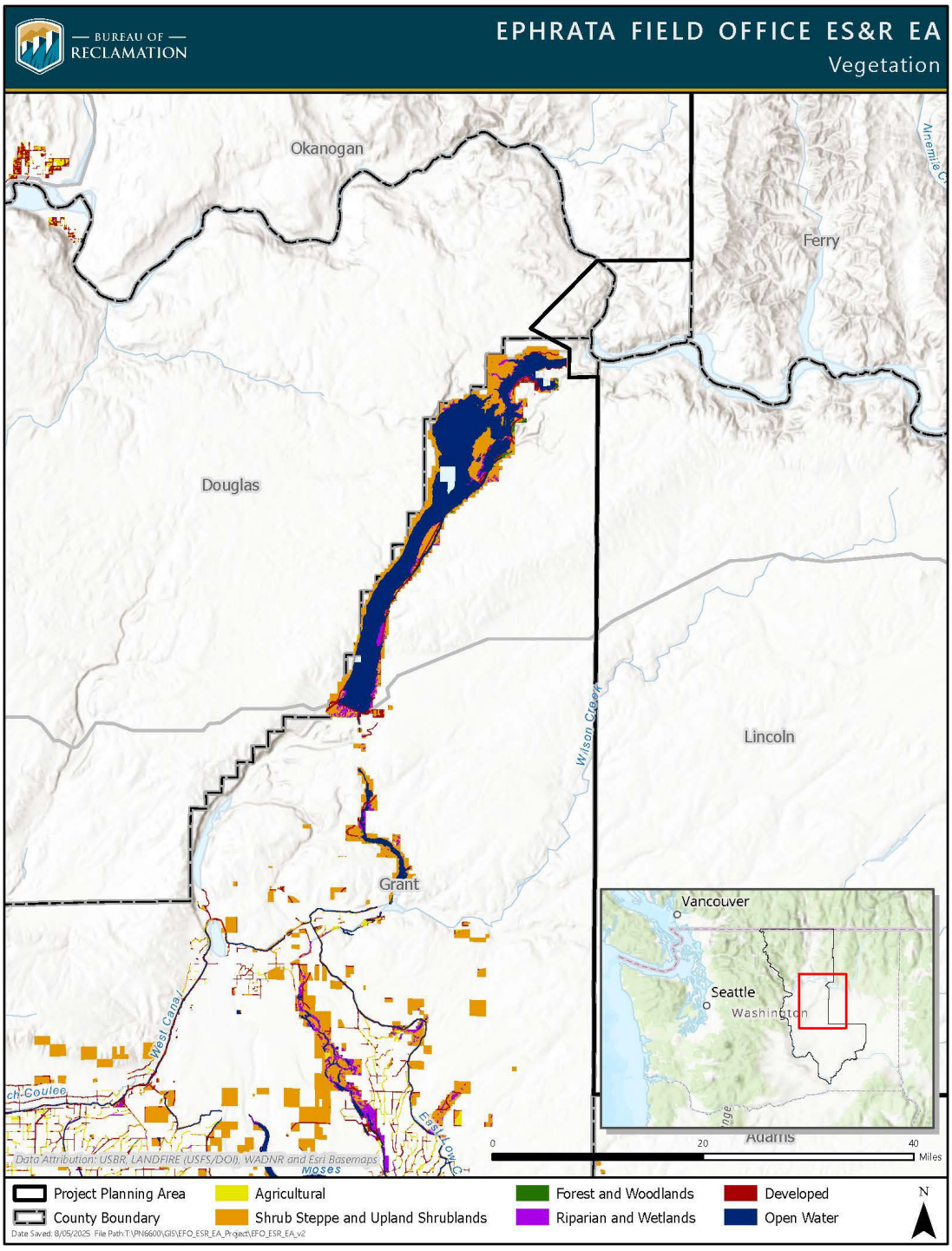
Map 5. This insert map shows vegetation cover types within the southern portion of the project planning area grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland, Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands. Vegetation classification and cover types were derived using LANDFIRE.



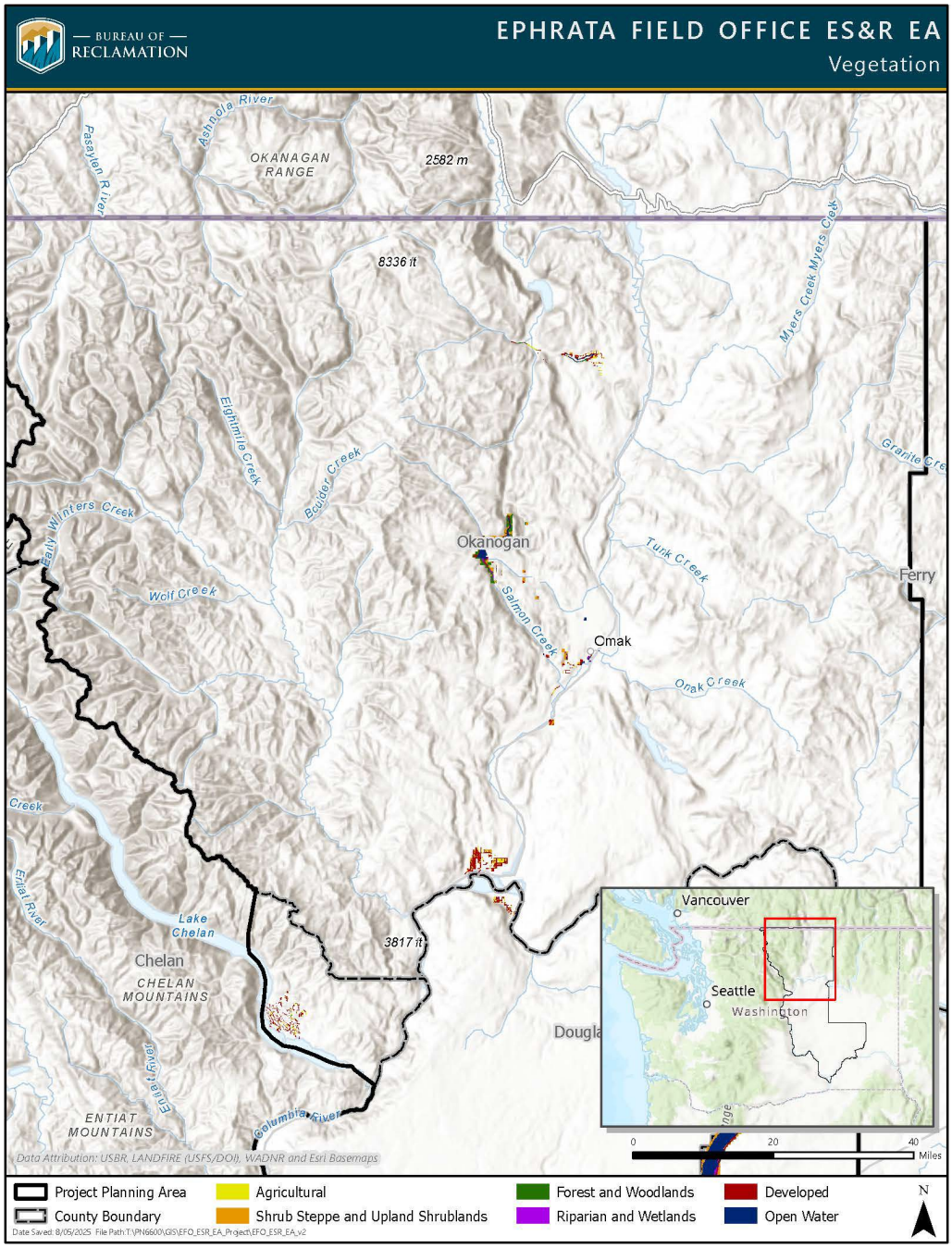
Map 6. This insert map shows vegetation cover types within the southwest portion of the project planning area grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland (Conifer), Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands. Vegetation classification and cover types were derived using LANDFIRE.



Map 7. This insert map shows the vegetation cover types within the middle section of the project planning area grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland, Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands. Vegetation classification and cover types were derived using LANDFIRE.



Map 8. This insert map shows vegetation cover types within the middle/east section of the project planning area grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland, Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands. Vegetation classification and cover types were derived using LANDFIRE.



Map 9. This insert map shows vegetation cover types within the northern section of the project planning area grouped into the following community classifications: Shrub Steppe and Upland Shrubland, Forest and Woodland, Riparian and Wetland Vegetation, Open Water, Agricultural Lands, and Developed Lands. Vegetation classification and cover types were derived using LANDFIRE.

6.2 Appendix B – Environmental Protection Measures

This Appendix includes a preliminary list of Environmental Protection Measures (EPMs) that may be employed for the ES&R PEA activities to reduce or eliminate environmental impacts when the ES&R plan is implemented. For site-specific herbicide treatments, the EFO will identify the applicable EPMs based on site conditions (e.g., soil type, rainfall, vegetation type, herbicide treatment method, and herbicide application rate). Reclamation may use timing restrictions or similar practices to reduce the level of risk to an acceptable level.

6.2.1 Soils

- Where practical, methods that reduce soil surface disturbance would be used on soils with high to very high wind erosion susceptibility.
- Temporary access roads. Existing roadways will be used whenever possible. Minimize the number of temporary access roads and travel paths to lessen soil disturbance and compaction and impacts to vegetation.
- Wet (saturated) soils would be minimally disturbed.
- Drill rows and all seed covering projects would run along the contours of the land, where possible, to reduce erosion.

6.2.2 Water Quality

- Select herbicide products to minimize impacts on water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments.
- Use local historical weather data to choose the month of treatment. Considering the phenology of the target species, schedule treatments based on the condition of the water body and existing water quality conditions.
- Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity.
- Review hydrogeologic maps of proposed treatment areas. Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. Minimize treating areas with high risk for groundwater contamination.
- Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies.
- Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies.
- Apply measures to prevent sedimentation into surface water from treatment areas.

- Use a selective herbicide and a wick or backpack sprayer.
- Use appropriate herbicide-free buffer zones for herbicides.
- Do not apply fertilizer within 25 ft of streams and supersaturated soils; apply fertilizer following labeling instructions.
- Within 150 ft of wetlands or riparian areas, do not fuel/refuel equipment, store fuel, or perform equipment maintenance (locate all fueling and fuel storage areas, as well as service landings outside of protected riparian areas).

6.2.3 Vegetation

- Disturbed areas would be revegetated to conditions similar to prework conditions by spreading stockpiled native materials (such as spoils, vegetation, rock, and woody debris), seeding, and/or planting with certified, weed-free seed mixes or native cultivars.
- Existing roadways will be used whenever possible. Minimize the number of temporary access roads and travel paths to lessen soil disturbance and compaction and impacts to vegetation.
- Mapped wetlands would be avoided during construction activities to the maximum extent practicable. Where practicable, no ground-disturbing activities would occur within a 50-foot buffer area of mapped wetlands.
- Clean Water Act permit will be secured, and terms and conditions followed, as applicable, where ground disturbance results in dredge or fill of federally regulated wetlands.
- Newly seeded or planted areas would be protected from livestock and/or wildlife to prevent consumption and trampling.
- Chemical treatments would be applied carefully to noxious weeds and invasive plants according to package instructions to prevent impacts to desired existing or newly planted vegetation.
- Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants.
- The treatment areas would be surveyed for invasive plant species prior to treatments. Areas with invasive weed infestations would be avoided where possible; if avoidance is not possible, the area would be pretreated using appropriate treatment to prevent the spread of invasive plant species.
- All equipment that is planned to be on-site would be inspected for invasive species (plant and animals) using properly trained staff, prior to entering the site. To avoid or reduce introduction of weed seeds and propagules to the project planning area, provisions would be followed to ensure all vehicles, earth disturbance, construction, and road maintenance equipment are cleaned and inspected prior to entering the project planning area Reclamation or their contractors must ensure all equipment is free of soil, seeds, vegetative matter, or other debris that could contain invasive seeds.
- All in-water equipment, including boats and equipment for water drafting and dust abatement, and personal gear would be inspected and sanitized to prevent aquatic invasive

species transmission and establishment. Sanitation is required if equipment or gear has been used in an area known to be contaminated with aquatic invasive species. Boats or barges found to have aquatic invasive species present are not allowed to launch until they have been treated and cleared for use.

- Threatened and endangered (T&E) plant occurrences would be buffered out of all treatment types. Buffer size for T&E plants vary by herbicide. Buffers are taken from June 2007 Vegetation Treatments on BLM Lands in 17 Western States Final BA and the April 2015 BA for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Lands in 17 Western States. Buffer sizes herbicides are found in appendix H.

- Spot treatments with herbicides using protective barriers, such as buckets or panels to block herbicide spray from around individual plants could occur on case-by-case bases with the Botanist on site during treatment (within the above designated buffers) when it has been determined that the invasive plants are threatened and endangered or Sensitive plant occurrence. These treatment methods and appropriate mitigation measures would be supervised by qualified personnel prior to manual, herbicide, and/or biological agent treatments in occupied threatened and endangered plant habitat. Otherwise, distances in appendix H table 6.8-3 would be used. Post-treatment monitoring for effects to T&E plants and habitat would also be done.

- Seeding and planting seedlings within sensitive plant populations would not be done, unless it is clearly beneficial for the sensitive plants occupying the site. Only native or native like species would be used if seeding or planting is deemed necessary.

- Projects proposed in areas with known threatened and endangered or sensitive plants would consider protecting these species, including fencing if necessary. If a proposed action is predicted to have an adverse effect on threatened and endangered or sensitive plants, the action would either be abandoned or redesigned to eliminate such adverse effects.

- The needs of sensitive plants would be considered when selecting herbicides and application methods. Non-herbicide treatment is preferred over one that uses herbicides. Herbicides that target only annual grasses would be used within sensitive plant habitats infested with non-native annual grasses. The treatment of invasive annual plants and noxious weeds would be a priority in sensitive plant habitats. Emphasis would be on hand spot spraying and mechanical control in order to avoid or minimize risk to sensitive plants. No chemicals would be applied directly on sensitive plants during spot applications. Applicators would be trained in sensitive plant identification for those habitats being treated.

- The potential presence of special status plants and their habitats in an area prior to wildfire will be determined using existing data and information. Populations, particularly undocumented special status plants, may be difficult or impossible to detect in the post-burn environment. If special status plant populations and their habitats are known to occur in a burned area, that area would be evaluated for post-fire habitat quality and the need for treatment. Planning treatments would take into account species biology, population ecology (e.g., disturbance and reproductive ecology), conservation status, seasonal sensitivities (e.g., growing or dormant periods), and current habitat condition. Appendix H lists special status plants known or potentially present in the EFO.

6.2.4 Wildlife

- The presence of birds protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act would be determined on burned areas that are proposed for treatment. This may include a combination of desktop exercise contacting local biologists to verify presence of migratory birds. If migratory birds are known or suspected to occur in a site-specific project area, the area would be examined for habitat quality and the need for treatment. Treatments would be designed to minimize potential impacts to migratory birds and their habitats. Specific mitigation/guidelines such as avoidance of occupied areas, distances from occupied habitat, etc. would be outlined in the site-specific ES&R plans. Many of the birds listed on the Migratory Birds Species of Conservation Concern are also designated as special status species. Design features for those migratory birds that are designated as special status species are listed below.
- Burrowing owl (Athene cunicularia): nest sites would be marked to avoid destruction/collapse of burrows; disturbance would be avoided within ½ mile of nest sites between February 15 and September 25 (WDFW 2005).
- Bald eagle:
    - Where feasible, avoid use of the following herbicides in bald eagle habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr.
    - Do not broadcast spray 2, 4-D, clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr within ¼ mile of bald eagle nest sites or winter roost sites;
    - If broadcast spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or adjacent to bald eagle habitat, apply at the typical, rather than the maximum, application rate.
    - If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in bald eagle habitat, utilize the typical, rather than the maximum, application rate.
- Ferruginous hawks:
    - Avoid or minimize activities that disturb nesting ferruginous hawks from March 1 to July 31 within 1.0 mile of occupied nests
- Use herbicides of low toxicity to wildlife, where feasible.
- Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area.
- Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife.
- Sage-grouse:
    - Sage-grouse would be used as an umbrella species when planning ES&R treatments in sagebrush steppe (Noss, 1990; Rich and Altman, 2001; Rowland, Wisdom, Suring, & Meinke, 2005). The assumption is habitat needs for other sagebrush-obligate and

sensitive species would benefit from protection, improvement, and restoration of sage-grouse habitat. Other sagebrush obligates include pygmy rabbit (*Brachylagus idahoensis*), Washington ground squirrel (*Urocitelus washingtonii*), sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), and Brewer's sparrow (*Spizella breweri*). Due to the similarities in behavior and habitat use, Columbian sharp-tailed grouse is also included. In some cases, some species may have habitat needs in addition to what is outlined for sage-grouse. Where identified, the interdisciplinary team would address unique habitat needs of other sagebrush obligates.

- The following EPMs would apply to sagebrush steppe habitats:

  •Fences would not be constructed within 400 yards of an occupied sage-grouse lek. Fences would be placed to avoid areas of high collision risk for sage-grouse through consultation with WDFW, using the Collision Risk model (Stevens and Naugle, 2012) or as new science dictates. If sage-grouse collisions are possible due to fence placement, repair of fencing, marking or flagging would be included.

  •Avoid potentially disturbing activities such as farming, mining, and recreation near leks (-2 km) between the hours of 1800 and 0900 during February-April. Disturbing activities are those which cause the birds to flush or alter their behavior for a substantial length of time. Persistent disturbing activities are a more serious problem; farming activities on a single day of the breeding season is not likely to be a significant problem (Stinson et al. 2004).

  •Where applicable, design treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns that benefit sage-grouse habitat.

  •Wherever possible, prevent disturbance in sage-grouse nesting and brood rearing habitat between March 1 and June 15 (Stinson et al. 2004).

- The potential presence of special status wildlife and their habitats in an area prior to a wildfire will be determined using existing data and information. Populations may be difficult or impossible to detect in the post-burn environment. If special status wildlife populations and their habitats are known to occur in a burned area, that area would be evaluated for post-fire habitat quality and the need for treatment. Planning treatments would consider species biology, population ecology (e.g., disturbance and reproductive ecology), conservation status, seasonal sensitivities (e.g., breeding or dormant periods), and current habitat conditions. Appendix I lists special status wildlife species known or potentially present in the EFO.

6.2.5 Fisheries Resource

- In-water work. Any work within 2-year floodplain of any fish bearing stream will follow WDFW guidelines for timing of in-water work. Fish passage will be maintained during all ES&R work. Isolate the construction area and remove fish from a project site for projects that include concentrated and major excavation at a single location within the stream channel.

- For treatment of aquatic vegetation, 1) treat only that portion of the aquatic system

necessary to achieve acceptable vegetation management; 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms; and 3) follow water use restrictions presented on the herbicide label.

- Minimize herbicide weed management treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used; use spot rather than broadcast or aerial weed management treatments.
- Pollution and Erosion Control. Wherever hazardous materials including fuels will be present within riparian areas, follow Pollution and Erosion Control Measures in NMFS 2013. These include not storing hazardous materials within 300 feet of flowing streams and maintaining materials for emergency erosion and hazardous materials control onsite (silt fence, straw bales, oil absorbing floating booms).
- All equipment used for instream work will be cleaned for petroleum accumulation, dirt, and plant material (to prevent the spread of noxious weeds), and leaks repaired prior to entering the project area.
- Hazard trees. If possible, fell hazard trees within riparian areas towards a stream. Keep felled trees on site to meet coarse large wood objectives for instream habitat.
- Herbicides. Within 300 feet of streams supporting federally listed fishes, herbicide active ingredients are restricted to the following chemicals: aminopyralid, chlorsulfuron, clopyralid, dicamba, aquatic glyphosate, imazapic, imazapyr, picloram sethoxydim, sulfometuron methyl, aquatic triclopyr, and/or aquatic 2,4-D. The only surfactants and adjuvants[1] permitted are those allowed for use on aquatic sites, as listed by the Washington State Department of Ecology: https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Aquatic-pesticide-permits.
- Herbicide buffers. Herbicide drift and leaching will be minimized. Reclamation to follow buffer widths as BLM is using (BLM 2018, 2020) for herbicide spraying near any waterbodies in watersheds supporting federally listed fish. For most herbicides used by Reclamation, no broadcast spray within 100 feet of flowing streams, no spot spraying within 50 feet of flowing streams and no hand application below bank full elevation (Appendix G). For intermittent systems, these buffer widths change to no broadcast spray within 50 feet, no spot spraying within 0 feet, and no hand application within 0 feet.
- Herbicide application. Limit vegetation treatment to manual application when adjacent to ESA Critical Habitat streams
- Any equipment – including hoses or pumps – placed in streams, lakes, ponds, or reservoirs would be cleaned/inspected/sanitized for invasive species and disease.
- Any water drafting for watering plants for ES&R treatments will adhere to the water drafting guidelines in the NOAA Fisheries WCR Anadromous Salmonid Design Manual (NMFS 2022).
- Use appropriate waterbody buffer zones based on herbicide label and risk assessment guidance.

[1] An adjuvant is a supplemental substance added to a chemical mixture, particularly in the context of pesticides, to enhance its performance and application characteristics

- Treatments near or adjacent to special status species habitat would typically be designed to occur outside the sensitive periods of a species life cycle or habitat (e.g. breeding season, winter habitat). However, there may be situations where completing the project during the sensitive period may be more beneficial to the species over time than if the project was not done at all. Treatments occurring during sensitive periods would be designed to minimize potential impacts to special status species and their habitats. Specific mitigation/guidelines such as avoidance of occupied areas and applying buffer distances from occupied habitat, would be outlined in the individual site-specific ES&R plans.
- Do not apply fertilizer within 25 ft of streams and supersaturated soils; apply fertilizer following labeling instructions.

6.2.6 Historic Properties, Traditional Cultural Places & Paleontological Resources

As part of Reclamation's requirements under NHPA Section 106 & 36 CFR 800.3-800.6, consultations will occur with Washington State Department of Archaeology & Historic Preservation (WA-DAHP) and Affected Tribes' THPOs on individual ES&R treatment plans, prior to implementation, to determine the APEs and the level of effort necessary to identify historic properties, traditional cultural places and paleontological resources. Historic properties identified during the surveys would be fully documented and evaluated for historical significance.

CRM professionals may determine that non-ground disturbing treatments have no potential to cause effect to historic properties. If findings of "no historic properties affected" or "no adverse effect" are made, but properties are present in the treatment area(s), then complete avoidance of these properties will be required. Implementation monitoring by CRM professionals may be required to prevent inadvertent damage (adverse effects) to significant historic properties that are in proximity to ES&R treatment areas.

In the event of a short timeframe within which to implement ES&R treatments, Reclamation may seek a shorter review period for NHPA 106 compliance, as allowed in 36 CFR 800.3(g). Once all consulting parties, typically WA-DAHP, Affected Tribes' THPOs, and Reclamation, have agreed upon the APEs, level of effort required to identify historic properties, and appropriate documentation and reporting methods, then a concurrence request timeline can be agreed upon to help meet ES&R implementation needs.

EPM Descriptions

- Adverse effects to historic properties will be avoided, minimized, or mitigated to the maximum extent practicable. If mitigation is necessary, then it will be completed in consultation with WA-DAHP and consulting Tribes.
- In the event of a post-review discovery of previously unknown or un-recorded historic properties, materials, or sites, ground-disturbing activities in the immediate vicinity would cease until a Secretary of the Interior qualified archaeologist or historian, State Historic Preservation Officer, and potentially affected Native American Tribes are consulted.
- In the event of a post-review discovery of previously unknown or unrecorded historic

property or paleontological resource, a discovery plan would be developed for activities involving ground disturbance.

- In the event of a discovery of human remains, ground-disturbing activities in the immediate vicinity would cease and the finds secured until a Secretary of the Interior qualified archaeologist and potentially affected Native American Tribes are contacted. Ground disturbing activities will not re-commence until after the creation and implementation of a NAGPRA Plan of Action.
- Post-review discovery plans would be developed for activities involving ground disturbance
- If the APEs changes, then concurrences with its definition/boundaries will be requested from WA-DAHP and consulting Tribes.
- For herbicide application in known tribal traditional gathering areas, provide early tribal notification & signage/postings on site; recommend signs remain posted long-term if repeated treatments are deemed necessary.
- Historic property avoidance, minimization, or mitigation measures may be marked as avoidance areas on implementation drawings and flagged under direction of agency approved archaeologists as "no-work/no disturbance areas" in the field prior to ground disturbance.
- Temporary fencing may be installed, or law enforcement patrols may be called upon to protect historic properties from unauthorized human activities.

6.2.7 Hazardous Materials

- Herbicides proposed for use are listed in Appendix G and must follow applicable Reclamation Safety and Health Standards.
- Standard operating procedures shall be followed for use, storage, and disposal of all hazardous materials.
- A Spill Prevention, Control, and Countermeasure (SPCC) plan shall be prepared and followed for the use of potentially hazardous materials and petroleum products.
- Product labels shall be followed for use and storage of chemicals.
- Review, understand, and conform to the "Environmental Hazards" section on the herbicide label.
- Material Safety Data Sheets (MSDSs) shall be reviewed and kept at work sites.
- Dispose of unwanted herbicides and other chemicals promptly and correctly.
- Appropriate signage shall be posted in areas where hazardous materials are used.

6.2.8 Recreation Resources

- Minimize impacts to visual resources through location and design; by repeating form, line, color and texture (BLM Manual 8400 Visual Resource Management, Handbook 8410-1 Visual Resource Inventory, Handbook 8431-1 Visual Resource Contrast Rating). Objectives for restoration include reducing long-term visual impacts by decreasing the amount of

disturbed area and blending the disturbed area into the natural environment while still providing for project operations. This includes:

o Mulching cleared areas

o Utilizing existing roads

o Choosing native plant species that match surrounding area

o Enhancing planting success by mulching and watering

o Replacing soil, brush, rocks, etc. over disturbed area

o Selecting colors for structures that blend in with the landscape

o Avoiding excess cut or fill, avoid side-casting

o Retaining existing rock formations, vegetation, drainage, etc. wherever possible

o Avoiding disturbing soil types that will generate strong contrasts

o Using scalloped, irregular cleared edges (avoid straight lines)

o Using irregular clearing shapes

o Feathering/thinning edges of the cleared edges so they blend in with existing vegetation

o Using natural appearing forms to complement landscape character

o Recontouring and roughening slopes to blend in with existing earth form

- Designs, materials, and colors that blend with or complement the surrounding landscape would be selected.
    - Examples include seeding and planting - selecting native species that match the surrounding landscape and using mulching to reduce visual contrast.
    - Watershed Stabilization/Erosion Control – recontouring slopes, avoiding excess cut/fill, and using design or construction techniques that mimic the natural shapes, contours, and textures found in the surrounding landscape.
    - In-channel Treatments – minimizing visual disruption by retaining natural features and using materials that match the surrounding environment.
    - Facility Repair/Replacement and Safety Actions – selecting colors and materials that blend with the landscape and avoiding stark contrasts in design.

6.2.9 Health and Safety

- Employees or contractors applying herbicides shall hold application licenses and follow standard operating procedures for use, storage, and disposal, see Section 3.01 in Reclamation Safety and Health Standards.
- Employees or contractors shall develop and conform to a pesticide use plan, which contains information on the use of herbicides.
- Employees or contractors applying herbicides shall use protective equipment as directed by

the herbicide label and Reclamation standards outlined in Reclamation Safety and Health Standards Section 1.07.

- Herbicide containers shall be secured during transport. Product labels shall be followed for use and storage of chemicals.
- Material Safety Data Sheets (MSDSs) shall be kept at work sites.
- Public access to areas sprayed with herbicides shall be controlled and temporarily closed.
- Treated areas shall be posted with appropriate signs at common public access areas.
- Notify adjacent landowners prior to herbicide treatment; establish a 100-foot buffer min. between treatment areas and private residences.
- Areas identified post-fire as posing public health and safety risks shall be temporarily closed to the public.
- Aerial spraying of herbicides shall not be applied.
- Broadcast and boom spraying of herbicides shall be restricted to periods of calm (<10 mph) or no winds.
- Only USEPA-approved herbicides should be used. Product label directions and "advisory" statements should be followed.

6.2.10 Air Quality

- After a wildfire, soils are hydrophobic, vegetation is gone, and surfaces are extremely dry and powder-like. Heavy equipment and vehicle traffic can generate dust, affecting workers, communities, and downstream recovery efforts. The goal is to stabilize disturbed surfaces quickly, protect newly installed treatments, and minimize repeated soil disturbance.
    - Schedule high-dust activities (hauling, grading, tree felling) for mornings or cooler, higher-humidity periods.
    - Prioritize rapid stabilization of high-traffic corridors and staging areas.

6.3 Appendix C – Noxious Weed List

Washington State Noxious Weeds List

The Washington state noxious weeds list is broken down into category A, B, and C for noxious weeds (Washington State Noxious Weed Control Board 2025; Table 6.3-1, 6.3-2 and 6.3-3). The EFO uses this list as their noxious weeds list.

Table 6.3-1 Class A Weeds: Non-native plant species whose distribution in Washington is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. *Eradication of all Class A plants is required by law.*

Scientific Name	Common Name	Scientific Name	Common Name
Alliaria petiolata	garlic mustard	*Impatiens parviflora*	small-flowered jewelweed
Amaranthus palmeri	Palmer amaranth	*Isatis tinctoria*	dyer's woad
Brachypodium sylvaticum	false brome	*Limnobium laevigatum*	South American spongeplant
Butomus umbellatus	flowering rush	*Ludwigia peploides*	floating primrose-willow
Carduus cinereus	thistle, Turkish	*Mirabilis nyctaginea*	wild four-o'clock
Carduus pycnocephalus	thistle, Italian	*Myriophyllum heterophyllum & hybrid*	variable-leaf milfoil and hybrid
Carduus tenuiflorus	thistle, slenderflower	*Pueraria montana var. lobata*	kudzu
Celastrus orbiculatus	round leaf bittersweet	*Salvia aethiopis*	sage, Mediterranean
Centaurea calcitrapa	purple starthistle	*Salvia pratensis*	meadow clary
Centaurea macrocephala	knapweed, bighead	*Salvia sclarea*	sage, clary
Centaurea nigrescens	knapweed, Vochin	*Schoenoplectus mucronatus*	ricefield bulrush
Cirsium palustre	thistle, marsh	*Silybum marianum*	thistle, milk
Clematis orientalis	oriental clematis	*Solanum elaeagnifolium*	silverleaf nightshade
Crupina vulgaris	common crupina	*Sorghum halepense*	Johnsongrass
Euphorbia oblongata	eggleaf spurge	*Spartina alterniflora*	cordgrass, smooth
Galega officinalis	goatsrue	*Spartina anglica*	cordgrass, common
Genista monspessulana	French broom	*Spartina densiflora*	cordgrass, dense-flowered
Glyceria maxima	reed sweetgrass	*Spartina patens*	cordgrass, saltmeadow
Helianthus ciliaris	Texas blueweed	*Spartium junceum*	Spanish broom
Heracleum mantegazzianum	giant hogweed	*Zygophyllum fabago*	Syrian beancaper
Hydrilla verticillata	hydrilla		

Table 6.3-2 Class B Weeds: Non-native plant species presently limited to portions of Washington state. Species are *designated* for required control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal.

Scientific Name	Common Name	*Scientific Name*	Common Name
Abutilon theophrasti	velvetleaf	*Alhagi maurorum*	camelthorn
Amorpha fruticosa	indigobush	*Anchusa officinalis*	bugloss, common
Anthriscus sylvestris	wild chervil	*Bassia scoparia*	kochia
Berteroa incana	hoary alyssum	*Bryonia alba*	white bryony
Buddleja davidii	butterfly bush	*Cabomba caroliniana*	fanwort
Carduus acanthoides	thistle, plumeless	*Carduus nutans*	thistle, musk
Carex pendula & subspecies	hanging sedge	*Centaurea × gerstlaueri*	knapweed, meadow

Scientific Name	Common Name	*Scientific Name*	Common Name
Centaurea diffusa	knapweed, diffuse	*Centaurea jacea*	knapweed, brown
Centaurea melitensis	Malta starthistle	*Centaurea nigra*	knapweed, black
Centaurea solstitialis	yellow starthistle	*Centaurea stoebe*	knapweed, spotted
Chaerophyllum temulum	rough chervil	*Chondrilla juncea*	rush skeletonweed
Clinopodium vulgare	wild basil	*Conium maculatum*	poison hemlock
Cynoglossum officinale	houndstongue	*Cyperus esculentus*	yellow nutsedge
Cytisus scoparius	Scotch broom	*Daphne laureola*	spurge laurel
Echium vulgare	blueweed	*Egeria densa*	Brazilian elodea
Epilobium hirsutum	hairy willowherb	*Euphorbia myrsinites*	spurge, myrtle
Euphorbia virgata	spurge, leafy	*Fallopia × bohemica*	knotweed, Bohemian
Fallopia japonica	knotweed, Japanese	*Fallopia sachalinensis*	knotweed, giant
Ficaria verna	lesser celandine	*Foeniculum vulgare (except var. azoricum)*	common fennel
Geranium lucidum	shiny geranium	*Geranium robertianum*	herb-Robert
Hieracium aurantiacum	hawkweed, orange	*Hieracium subgenus Hieracium*	wall hawkweeds
Hieracium subgenus Pilosella	meadow hawkweeds	*Impatiens glandulifera*	policeman's helmet
Jacobaea vulgaris	tansy ragwort	*Lamiastrum galeobdolon*	yellow archangel
Lepidium latifolium	perennial pepperweed	*Linaria dalmatica ssp. dalmatica*	Dalmatian toadflax
Ludwigia hexapetala	water primrose	*Lycopsis arvensis*	bugloss, annual
Lysimachia vulgaris	loosestrife, garden	*Lythrum salicaria*	loosestrife, purple
Lythrum virgatum	loosestrife, wand	*Myriophyllum aquaticum*	parrotfeather
Myriophyllum spicatum	Eurasian watermilfoil	*Nymphoides peltata*	yellow floatingheart
Onopordum acanthium	thistle, Scotch	*Persicaria wallichii*	knotweed, Himalayan
Phragmites australis	common reed (nonnative)	*Picris hieracioides*	hawkweed oxtongue
Potentilla recta	sulfur cinquefoil	*Rhaponticum repens*	knapweed, Russian
Sagittaria graminea	grass-leaved arrowhead	*Tamarix ramosissima*	saltcedar
Tanacetum vulgare	common tansy	*Thymelaea passerina*	spurge flax
Tribulus terrestris	puncturevine	*Tripidium ravennae*	Ravenna grass
Tussilago farfara	European coltsfoot	*Ulex europaeus*	gorse

Table 6.3-3 Class C Weeds: Noxious weeds that are typically widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows county weed boards to require control if locally desired, or they may choose to provide education.

Scientific Name	Common Name	*Scientific Name*	Common Name
Aegilops cylindrica	jointed goatgrass	*Ailanthus altissima*	tree-of-heaven
Alopecurus myosuroides	blackgrass	*Ammophila spp.*	beach grasses
Artemisia absinthium	absinth wormwood	*Arum italicum*	Italian arum
Berberis vulgaris	common barberry	*Cenchrus longispinus*	longspine sandbur
Centromadia pungens	spikeweed	*Cirsium arvense*	thistle, Canada
Cirsium vulgare	thistle, bull	*Clematis vitalba*	old man's beard
Convolvulus arvensis	field bindweed	*Cortaderia jubata*	jubata grass
Cortaderia selloana	Pampas grass	*Crataegus monogyna*	English hawthorn
Cuscuta approximata	alfalfa dodder	*Daucus carota*	wild carrot
Dipsacus fullonum	common teasel	*Elaeagnus angustifolia*	Russian olive
Gypsophila paniculata	babysbreath	*Hedera helix & H. hibernica (cultivars)*	English ivy (4 cultivars)
Hyoscyamus niger	black henbane	*Hypericum perforatum*	common St. Johnswort
Hypochaeris radicata	common catsear	*Impatiens capensis*	spotted jewelweed
Iris pseudacorus	yellow flag iris	*Ilex aquifolium*	common holly
Lepidium appelianum	hairy whitetop	*Lepidium draba*	hoary cress
Leucanthemum vulgare	oxeye daisy	*Linaria vulgaris*	yellow toadflax

Scientific Name	**Common Name**	*Scientific Name*	**Common Name**
Myriophyllum spicatum × *M. sibiricum*	Eurasian watermilfoil hybrid	*Nanozostera japonica*	Japanese eelgrass
Nymphaea odorata	fragrant waterlily	*Pentaglottis sempervirens*	green alkanet
Phalaris arundinacea	reed canarygrass	*Potamogeton crispus*	curlyleaf pondweed
Rorippa austriaca	Austrian fieldcress	*Rubus bifrons (R. armeniacus)*	Himalayan blackberry
Rubus laciniatus	evergreen blackberry	*Secale cereale*	cereal rye
Senecio vulgaris	common groundsel	*Silene latifolia*	white cockle
Solanum rostratum	buffalobur	*Soliva sessilis*	lawnweed
Sonchus arvensis	perennial sowthistle	*Sphaerophysa salsula*	Swainsonpea
Taeniatherum caput-medusae	medusahead	*Tripleurospermum inodorum*	scentless mayweed
Typha species (excl. T. latifolia)	nonnative cattail species & hybrids	*Ventenata dubia*	ventenata
Xanthium spinosum	spiny cocklebur		

6.4 Appendix D – Seeding and Planting Methods

Table 6.4-1. Seeding and planting methods for ES&R treatments. Methods outlined below are not all-inclusive; other similar methods or equipment may be considered if they are deemed to be more appropriate and have similar effects.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
Disking and Plowing	**X**	**X**		**Disk Plow:** Single row of disks mounted on a frame.	Disks and plows are designed to turn over the soil, mix in the surface debris, and break up roots of existing vegetation to prepare the site for planting. Plowing and disking open furrows for planting seed. Disks and plows are pulled by tractors or dozers. Some types of disk plows can be fitted with seed boxes. Some limitations common to all types of plowing are that it loosens the soil structure resulting in seeds being planted too deep and increased loss of soil moisture. Inadequate soil moisture can be detrimental to seedling germination and survival.	Limited to areas without rocks and large debris such as shrub and tree skeletons. Requires a lot of power to operate. Can increase soil erosion until plants establish.
	X			**Off-set Disk:** Two rows of disks mounted on a frame set at opposite angles to each other. First row turns soil, second row turns it the other direction.		Cannot be used in rocky soils or on slopes of greater that 30%. Can increase soil erosion until plants establish.
	X			**Brushland Plow:** Pairs of opposite disks attached to heavy duty 3-wheeld frame by independent spring-loaded arms.		Adapted for shallow soils in moderately rough or rocky terrain. Difficult to transport.
	X			**Root Plow:** Straight or V-shaped blade attached to shanks and a wheeled frame. Can be attached to a tractor or dozer.		Can not be used in rocky, wet, or shallow soils. Designed to undercut existing vegetation. Not as effective at opening furrows for planting.
	X			**Moldboard Plow:** Large curved bottom blades with wings, attached to a frame in a single row. Can be spring loaded to avoid some obstacles.		Mainly used in rock and debris free soils. Can increase soil erosion until plants establish.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
Chaining	**X**		**X**	**Smooth Anchor Chain:** A ship anchor chain with each link weighing 40-160 lbs. Length between 90 and 350 feet. Swivels attached at each end and sometimes in the middle.	Pulled along the ground between two crawler tractors in a "J" or "U" shape, covering swaths with widths dependent on chain length. This method uproots burned woody tree and shrub skeletons, breaks up understory vegetation, scatters crushed and uprooted plant debris, and scarifies the soil creating microsites. This treatment aids in moisture retention, erosion control, shading of the soil surface, provides varying depths for seeds to settle, covers broadcasted seed, as well as contributes decaying material to the nutrient cycle. Can be used both before and after seeding.	Chaining can be implemented on terrain where pulling a rangeland drill is impractical or even impossible. Rides over more flexible burned vegetation, instead of knocking it over.
	X		**X**	**Ely-Anchor Chain:** A ship anchor chain weighing between 40-160 lbs. per link, with steel bars or railroad rails welded perpendicular to the chain links. Length between 90 and 350 feet. Swivels attached at each end and throughout.		Chaining can be implemented on terrain where pulling a rangeland drill is impractical or even impossible. Large woody skeletons can get hooked in the chain and are dragged along and rolled towards the middle of the chain, raising the chain off the ground and reducing efficacy.
	X		**X**	**Dixie Sager:** A ship anchor chain weighing between 40-160 lbs. per link, with railroad rails welded in line on each side of the chain links. Length between 90 and 350 feet. Swivels attached at each end and throughout.		Chaining can be implemented on terrain where pulling a rangeland drill is impractical or even impossible. Large woody skeletons can get caught in the railroad rails and are dragged along, raising the chain off the ground and reducing efficacy.
Cabling	**X**		**X**	**Cable:** A cable between 1.5 and 2 inches thick and 100-550 feet long, with swivels at both ends and throughout.		Not as effective at scarifying the soil or uprooting woody tree and shrub skeletons as smooth, Ely, or Dixie Sager Anchor chains. Can also be implemented on terrain where pulling a rangeland drill is impractical or even impossible.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
Harrowing	**X**		**X**	**Pipe Harrow:** Spiked pipes attached to a spreader bar by swivels.	Pulled behind a single tractor. Used to break up the soil and remove herbaceous plants from the soil surface. This treatment scarifies the soil surface which aids in moisture retention, erosion control, shading of the soil surface, provides varying depths for seeds to settle, covers broadcasted seed, as well as contributes decaying material to the nutrient cycle. Can be used both before and after seeding.	A harrow can be used on most soil types and is easily adjusted to suit planting conditions. Works well in rocky soil and can be used on uneven terrain.
	X			**Disc Chain (Disc chain Harrow):** Discs connected together buy a series of hook and eye connections forming a chain. Connected to a rigid frame either in an "A" or a diamond shape, to keep the discs in position.		Limited to use in areas where a tractor can operate safely.
	X		**X**	**Chain harrow:** Flexible links joined together to form a rectangle. Many have spikes attached on the bottom side.		Limited to use in areas where a tractor can operate safely.
Surface Seeding	**X**	**X**	**X**	**Land imprinter:** consists of a large drum filled with water to provide weight, with numerous V-shaped protrusions arranged around the circumference rolled on an axle.	Used to compact the soil and create impressions that trap additional moisture. Seed is dispersed in front of the imprinter pressing the seed into the soil, increasing seed to soil contact. This seeding method is best used in arid to semi-arid environments and can be used on most soils.	Well suited for seeding on loose, unstable soils and barren areas following a wildfire. Limitations of land imprint seeders include equipment availability and poor design of imprint seeders (i.e., wide, shallow imprints) which may result in thin and uneven stands of vegetation.
		X	**X**	**Brillion Seeder:** have two cultipacker rollers, with a seed box between the two rollers.	The leading roller crushes clods and forms a smooth seedbed in front of the seed drop. The trailing roller presses the seed into the soil. The rollers are notched to create little pockets to trap moisture. Seed is	Only useful on open ground with flat topography that is devoid of rocks. The Brillion seeder requires a well-prepared seedbed with loose surface soil to plant the seed properly.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
					dispersed uniformly, eliminating the row effect, resulting in a more natural effect.	
	X	X	X	**Seed Dribbler:** This technique involves dribbling seed from a container attached to the crawler tractor above the tracks. The seed is pressed into the soil as the tractor treads roll over it.	Shrub seed (mainly antelope bitterbrush, *Purshia tridentata*) may be planted with a seed dribbler.	Limited to seed that can be planted without soil covering. Can be used in conjunction with chaining and cabling. Does not handle fluffy seed well which eliminates some desirable species from this method.
Masticating (roller chopper)	X		X	**Masticator:** is a toothed drum implement which can be attached to a variety of machines (i.e., excavators, front end loaders, or track hoes). The masticator grinds the skeletons to the ground and disperses the mulch in all directions. Mulch piles would be no greater than 6 inches deep and would contain no residual piece of mulch greater than 2' long and 4" in diameter.	A masticator is used on areas where burned woody tree and shrub skeletons inhibit drill seeding. Broadcast seeding can occur ahead of, or simultaneously with masticating. Seeds are pushed into the ground and covered with soil and litter. Creation of a good seedbed, seed coverage, litter for seedling protection, and moisture retention allow for seedling germination and establishment.	Most useful in areas where a significant amount of burned woody vegetation is present following a fire.
Interseeding	X	X	X	**Interseeders:** consist of a one- or two-way scalper or furrow opener and a heavy-duty seeder. Seeders are driven by rotation of a press wheel. Seed is metered out by a fluted shaft or a spoked wheel with cups attached on the spoke ends.	Interseeders are designed to seed desirable species into existing vegetation with minimal disturbance.	Restricted to use on soils that are relatively rock free and lacking stumps and roots. Also limited to terrain that a tractor can operate on safely.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
				Scalp or furrow depth can be regulated with a depth regulator wheel or hydraulics of the tractor. Seed is covered by the press wheel or drag chain.		
Drill Seeding	**X**	**X**	**X**	**Rangeland Drills:** create furrows that vary considerably depending on soil texture, soil moisture, and existing grass sod, but usually average 1-2 inches deep, with rows spaced at approximately 6-12 inch intervals. Rangeland drills can be equipped with depth bands to control depth of furrow openings. Seeds are dropped from a seed dispersal tube placed directly above each furrow.	Rangeland drill seeding can be used in a broad range of applications. This seeding method is typically used on open, relatively flat topography, which is absent of larger rocks (8-10 inches in diameter).	Limited to use in flat open terrain.
		X	**X**	**No-Till Drills:** These drills are equipped with up to three seed boxes from which to disperse seeds, allowing for a variety of plant species to be seeded simultaneously. Differ from rangeland drills in that the furrows opened in front of the seed dispersal tubes are much narrower and shallower.	The no-till drill is used to minimize soil surface disturbance, effectively planting small seed at appropriate depths, and optimizing seed to soil contact. No-till drills are well adapted to planting seed in burned areas with few rocks and can be used to plant both small and large acreages. When practical, the no-till drill or other low impact drills would be used in areas where sizable amounts of remnant biological crusts remain after a wildfire.	Limited to use in flat open terrain.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
Broadcast seeding		**X**		**Ground broadcasting:** seeding done using a motor vehicle, all-terrain vehicle mounted, or hand "whirly-bird" seeder.	Ground broadcasting of this nature would be used in areas too rocky for drill seeding, in areas with small acreages, and along fire lines (e.g., dozer lines, hand lines) and impacted roads from fire suppression activities that are impractical for aerial seeding application.	Time consuming and limited to small acreages.
		X		**Aerial Broadcasting:** Broadcast seeder attached to, carried by, or integrated into aircraft.	Seed is broadcasted from aircraft. Aerial broadcast seeding is done on large areas where ground machines cannot operate efficiently (e.g., rugged topography, steep slopes), in Wilderness and wilderness project planning area with management restrictions, or to plant seed types that do not tolerate soil covering. It can also be accomplished on wet soils and applied at a quicker rate than can be done using ground equipment.	Requires more seed per acre than drill seeding. Major revegetation projects can often be more successful by using aerial broadcasting in conjunction with chaining than with drill seeding, as plantings can be completed during short windows of favorable weather and seedbed conditions.
Cultipacking			**X**	**Cultipacker:** consists of a heavy roller or sets of wheels that roll across the ground.	Provide soil compaction and improve seed to soil contact.	Cultipackers are generally only used in areas of flat terrain that are largely rock free, since they are poorly adapted to rough, rocky, steep, and/or brushy terrain.
Transplanting	**X**	**X**	**X**	**Mechanical Planter:** consists of a heavy frame, a furrow opener, compacting wheels, a seat for the operator, and a place to store seedlings. It is mounted to or pulled by a tractor, four-wheel drive vehicle, or crawler.	Mechanical or hand planting of bare-root or containerized tree or shrub seedlings are normally used when it is desirable to establish vegetation quickly within defined landscape boundaries. Seedling planting may be done where excessive soil erosion may	High cost compared to using seed. The timeframe for growing out seedlings adds months to years to a project. Availability of containerized or bare-root stock can be limiting also. Labor intensive.

Method	Seedbed Prep	Seeding	Seed Cover	Description of Equipment	Primary use	Limitations and/or advantages
					precipitate mass soil wasting	
		X	**X**	**Hand Planting:** Planting methods include the use of digging bars, hodads, augers, and shovels.	and/or there are potential source areas for debris flows due to root rot of dead, burned trees. Shrub seedlings and tree saplings are typically planted in the late fall or early spring to take advantage of seasonal precipitation. Seedling plantings can be used in habitats for big game, greater sage-grouse (Centrocercus urophasianus), or other habitats where shrubs or trees provide critical forage or habitat function. Seedling planting guidelines found in BLM approved technical references (e.g., TR 6711-1) and/or applicable scientific literature would be followed to ensure the highest establishment and survival rate possible.	High cost compared to using seed. Timeframe for growing out seedlings adds months or even years to a project. Availability of containerized or bare-root stock can be limiting. Labor intensive.

6.5 Appendix E – Regulatory Compliance

This PEA documents compliance with all applicable laws, executive orders, and secretarial orders relevant to the proposed action. Site-specific compliance will be confirmed through DNAs

- Federal Noxious Weed Act of 1974
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA
- The National Environmental Policy Act (NEPA)
- The Endangered Species Act (ESA)
- The Fish and Wildlife Coordination Act (FWCA)
- The National Historic Preservation Act (NHPA)
- Native American Graves Protection and Repatriation Act (NAGPRA)
- Paleontological Resources Protection Act (PRPA)
- The Clean Water Act (CWA)
- Migratory Bird Treaty Act (MBTA)
- Antiquities Act (1906)
- Archaeological Resources Protection Act (1979)
- American Indian Religious Freedom Act (1978), as amended 1994
- Reservoir Salvage Act (1960)
- Executive Order 11990, *Protection of Wetlands*, dated May 24, 1977
- Executive Order 11988, *Floodplain Management*, dated May 24, 1977
- Executive Order 13007, *Indian Sacred Sites,* dated May 24, 1996
- Executive Order 13175, *Consultation and Coordination with Tribal Governments,* dated November 6, 2000
- Executive Order 13112 on Invasive Species (1999)
- 36 CFR Part 800 Protection of Historic Properties
- 43 CFR Part 3 Preservation of American Antiquities
- Department of Interior DM 426 Protection of National Register listed Properties (1985)
- Dept of Interior DM 519 Preservation of American Antiquities (1994)
- Department of Interior Secretarial Order 3317 Policy on Consultation with Indian Tribes (2011)
- Reclamation Manual, Directives and Standards, ENV 01-01 (10-17-96), Pest Management/Resources Protection (1PM) Program
- Reclamation Manual, Directives and Standards, ENV 01-02 (3-4-98), Public Notification of

Aerial Pesticide Applications on Lands Managed Directly by Reclamation

- Reclamation Manual, Directives, and Standards, ENV 02-03, Pollution Prevention -Hazardous and Solid Waste Minimization
- Reclamation Manual, Directives and Standards, PEC 10-29, Reclamation Standard Water-Related Contract Articles, Article 29: Pest Management
- Reclamation Manual, Policy ENV P02, Pest Management

Other state, local, or county regulations may apply if warranted.

6.6 Appendix F – Resources Summary

Table 6.6-1 Rational for elimination of resources for detailed analysis.

Resource	Not Present	Present/ Not Affected	Present/ May be Affected	Rationale/Analysis Section
Air Quality		x		The use of diesel- or gasoline-powered equipment would contribute minor amounts of particulate matter local to the project area. Ground-disturbing work would release dust into the air; however, this would be mitigated using environmental protection measures for dust abatement, section 6.2.10. All air quality impacts would be minor and temporary. There are no air quality nonattainment areas in Washington State.
Historic Properties & Traditional Cultural Places & Paleontological Resources			x	Analyzed in Sections 3.9 and 4.2.
Socioeconomics		x		The is a possibility for short-term negative direct and indirect socioeconomic impacts due to potential temporary closures of livestock grazing and recreation facilities following wildfire. These closures are expected to be negligible as they are temporary closures and exclusions and therefore not brought forward for detailed analysis. These impacts would give way to long-term range and habitat resilience. Benefits to wildlife, water quality, and fire risk abatement offers considerable non-market and market socioeconomic benefit.
Fish and Wildlife (Excluding Listed Species)			x	Analyzed in Section 3.7 for wildlife species and Section 3.8 for fish species.
Endangered, Threatened, and Proposed Species			x	Analyzed in Section 3.6 for ESA plant species and Section 3.7 for ESA wildlife species
Floodplains	x			There are no designated floodplains.

Resource	Not Present	Present/ Not Affected	Present/ May be Affected	Rationale/Analysis Section
Geology and Mineral Resources		x		The mineral resources present within the Ephrata Field Office project planning area consist of small sand and gravel pits used by the irrigation districts for facility operations and maintenance. No modifications to operations through the proposed action would occur, therefore this resource is not carried forward for further analysis. The geologic features of the Columbia Basin are known for Pleistocene-aged coulees and river channels; these would not be affected by the proposed action, and therefore not carried forward for analysis.
Hazardous and Solid Wastes	x			Hazardous or solid waste materials management involves the prevention of illegal hazardous materials or solid waste actions on public lands; the proper authorization, permitting, and regulation of the uses of hazardous materials and solid wastes; and the timely, efficient, and safe responses to hazardous materials incidents or illegal solid waste dumps. Hazardous materials, including petroleum products and herbicides, may be present; however, their presence and potential impacts would be minimized through the implementation of EPMs, BMPs, and SPPC measures. (Appendix B).
Public Health and Safety		x		Public safety hazards that may occur post-wildfire would be addressed under both alternatives; however, the efficiency of addressing some hazards, such as removal of standing hazard trees, would be more efficiently addressed under the proposed action. Most of the project planning area contains low gradient slopes with well-drained soils and documented past landslides have affected less than 0.001% of the area. Therefore, landslide risk is not considered a public health and safety issue. Given the required regulations and standard operating procedures for use of herbicides, the predominance of well-drained soils (Section 3.4), and the minor amount of steep slopes, forests and woodlands (Section 3.6) and/or developed recreation areas (Section 3.10) in the project planning area, the risk to public health and safety from proposed post-fire activities is considered negligible to minor and would not lead to significant impacts. Herbicides would be used in the project planning area as one of the options to manage weeds. Environmental protection measures, such as temporary area closures, appropriate conditions for spraying, and prohibiting aerial spraying (Appendix B) would be followed to reduce the potential for overspray and exposure to the public. Employees or contractors applying herbicides would hold application licenses and would be in conformance with

Resource	Not Present	Present/ Not Affected	Present/ May be Affected	Rationale/Analysis Section
				standard operating procedures for use, storage and disposal and would be required to develop and conform to a pesticide use plan - reducing the potential for adverse exposure impacts for herbicide to a negligible level (see Appendix B).
Indian Sacred Sites	x			No Indian trust land assets were identified in the project planning area during the NEPA process, such as those held in trust by the BIA for the benefit of Tribes or individual Indian trust landowners. As part of the scoping process, Reclamation researched Tessel, a GIS land database that includes Federal lands held in trust for Tribes and Individual Indian trust landowners. Based on this research, Reclamation is not aware of any Indian trust land assets in the project planning area; however, ITAs may exist that are not known to Reclamation, which could be discussed during future tribal collaboration and consultation.
Invasive Species and Noxious Weeds			x	Invasive and noxious weed species are present within the project planning area and are managed in coordination with land managing partners and irrigation districts. Invasive and noxious weed management is a component of proposed ES&R actions (Section 2.2.2) The potential for spread of invasive species and noxious weeds is addressed in specific resource sections as applicable (e.g. Section 3.6) but not analyzed in detail as standalone resource issue. Weed management would have a beneficial impact.
Lands and Realty		x		There would be no modifications to land use authorizations through the proposed action, therefore no impacts would occur.
Livestock and Grazing			x	Potential effects to livestock and grazing from the proposed action are addressed in Section 3.11. No significant effects are expected to occur from either alternative.
Migratory Birds			x	Impacts from the proposed action and no action on migratory birds and their habitats would be similar to that described for fish and wildlife in Sections 6.2.2 and 6.2.12 respectively and are therefore not analyzed in detail. Proposed actions for noxious weed and invasive plant species control and ES&R rehabilitation of burned areas would increase surface disturbance and human presence within migratory bird habitats in the short term and maintain and improve them in the long term. The distribution and composition of migratory bird species within proposed treatment areas would change slightly due to changes in the structure and

Resource	Not Present	Present/ Not Affected	Present/ May be Affected	Rationale/Analysis Section
				composition of vegetation. However, overall treatments would increase landscape-level habitat quality for migratory birds in upland and riparian areas. The treatment-by-treatment interdisciplinary review of each proposed treatment area and application of EPMs in Appendix B, which have been proven to mitigate impacts on migratory birds, would minimize or eliminate disturbance impacts to migratory bird species and their habitats during all life cycles.
Recreation			x	Analyzed in Section 3.11
Soils			x	Analyzed in Section 3.4.
Transportation		x		Roads would be closed as needed for public safety following wildfire regardless of post-fire treatment implementation. Soil stabilization and safety actions (e.g. hazard tree removal) would ensure public safety once areas reopen. Closures may also be implemented to temporarily close post-fire treated areas to motorized use to allow for recovery of burnt and rehabilitated areas (see Section 2.2.6). Potential impacts to access from these closures would be temporary, with the areas likely becoming available for use more quickly than if no treatments were applied. Increase in transportation in the project planning area during post-fire treatments would be negligible. No further analysis is needed.
Vegetation			x	Analyzed in Section 3.6.
Visual Resources		x		The nature of the proposed alternative is not expected to substantially affect visual resources in the project planning area due to the temporary nature of the vegetation treatments. No new roads are proposed in the project planning area. While wildfire impacts would noticeably affect the viewshed, it is unlikely that the public would perceive the large-scale vegetation treatments as altering the landscape. The treatments are expected to be effective in both the short term by stabilizing and restoring vegetation quickly and the long term by promoting healthy, resilient plant communities that enhance the overall visual quality of the area.

Resource	Not Present	Present/ Not Affected	Present/ May be Affected	Rationale/Analysis Section
Water			x	Analyzed in Section 3.5
Wetlands and Riparian Zones			x	Analyzed in Section 3.6.

6.7 Appendix G – Chemical Weed Control

Reclamation intends to use only WSDOT-approved herbicides, with site-specific evaluations determining the type of herbicide and required EPMs. Precautions, restrictions, and buffers for each chemical are outlined in Tables 6.7-1 and 6.7-2 below, based on guidance from BLM (2018, 2020), NMFS (2024) and WSDOT (2025).

Reclamation Proposed Herbicide List

When making herbicide applications:

1. Always read and follow product labels

2. Always use personal protective equipment when mixing, loading, and applying

3. Limit vegetation treatment to manual application when adjacent to ESA Critical Habitat streams (Salmon and Crab creeks and Columbia River).

Table 6.7-1. Reclamation Proposed Herbicide List (WDFW 2025)

Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/Recommendations
2,4-D	Weedar 64, Amine 4, Veteran 720 Curtail WeedDestroy Platoon Crossbow Escalade Weedmaster Solution Savage Weedone LV4	Growth regulator - phenoxy synthetic auxin (4)	Noxious and nuisance weed control, tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Ester and acid formulations of 2,4-D may provide a good alternative to amine formulations. Several of the 2,4-D products come premixed with other herbicides.
Aminocyclopyrachlor	Method 240SL	Growth regulator - mimics plant hormones, synthetic auxin (4)	Nuisance and noxious weed control Zones 2 and 3, Plainview is a bare- ground mixture	Depending on which mixture, can be either selective broadleaf or non-selective pre-emergent control	Each product is premixed with other herbicide to achieve either selective or non-selective control

Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/Recommendations
Aminopyralid	Milestone VM	Growth regulator - mimics plant hormones, synthetic auxin (4)	Nuisance and noxious weed control Zones 2 and 3	Selective broadleaf treatment	Effective on many perennial weed species due to some amount of soil residual activity on suppressing seed germination
Bromacil	Krovar 1 DF Hyvar	Photosynthetic inhibitor - photosystem II, site A (5)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Krovar is premixed with diuron
Bromoxynil	Buctril 2EC BroClean Brox 2E	Photosynthetic inhibitor - photosystem II, site C (6)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Effective broadleaf weed control without grass seed suppression
Chlorsulfuron	Telar XP Landmark XP	Amino acid synthesis inhibitors - ALS inhibitor (2)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Product highly effective on difficult perennials such as Canadian thistle and horsetail. Landmark is premixed with Oust
Clopyralid	Transline Curtail	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Cutail is premixed with 2,4- D, Pathfinder is premixed with triclopyr
Dicamba	Vanquish Veteran 720	Growth regulator - benzoic acidsynthetic auxin (4)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Vanquish is the dicamba formulation without 2,4-D
Dichlobenil	Norosac 4G Casoron	Cell wall (cellulose) synthesis inhibitor (20)	Ornamental planting beds	Pre-emergent weed control in ground cover beds. Post emergent control of grasses.	Highly effective for preemergent control of unwanted weeds in ornamentals
Diflufenzopyr	Overdrive	Auxin transport inhibitor (19)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	

Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/Recommendations
Diuron	Karmex Diuron 4 L, Diuron 80 DF	Photosynthetic inhibitor - photosystem II, site B (7)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Cost effective weed control for Zone 1 in Eastern Washington
Flumioxazin	Payload Lock Down SC	Cell membrane disrupter - PPO inhibitor (14)	Zone 1 bare-ground	Nonselective pre-emergent weed control	Requires constant agitation to keep in suspension
Fluroxypyr	Vista	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Highly effective on Kochia
Fosamine	Krenite S	Growth regulator - inhibits bud and leaf formation (27)	Tree and brush control in Zones 2 & 3	Selective broadleaf treatment	Effective broadleaf tree control without visual impacts
Glyphosate	Roundup Pro Razor Pro Buccaneer Aquaneat Rodeo Aquamaster	Amino acid synthesis inhibitor - EPSP sythase inhibitor (9)	Zone 1, spot spray around shrub and tree plantings, aquatic weed control (Rodeo, Aquamaster)	Nonselective control of all vegetation	Rodeo, Aquamaster and Aquaneat are approved for use in or over water.
Metsulfuron-methyl	Escort XP Metsulfuron Methyl 60 DF	Amino acid synthesis inhibitors - ALS inhibitor (2)	Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3	Selective broadleaf and conifer treatment	Good control on many difficult perennials.
Picloram	Tordon	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Highly effective for conifer and broadleaf weed control in Eastern Washington
Triclopyr Ester	Garlon 4 Crossbow Pathfinder	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well for cut-stump or basal treatments applications. Crossbow is premixed with 2,4-D, Pathfinder with clopyralid

Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/Recommendations
Oxadiazon	Ronstar G Ronstar WSP	Cell membrane disrupter – PPO inhibitor (14)	Turf & Ornamental	Pre-emergent weed control in ground cover beds	Works well by itself or with Gallery
Pendimethalin	Pendulum 2G Pendulum Aqua	Seedling growth inhibitor - microtubule assembly inhibitor (3)	Zone 1 Turf & Ornamental	Nonselective/Selecti ve depending on rate, Pre-emergent grass and weed control	
Picloram	Tordon	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, Zones 2 and 3	Selective broadleaf treatment	Highly effective for conifer and broadleaf weed control in Eastern Washington
Rimsulfuron	Laramie Matrix SG	Amino acid synthesis inhibitors - ALS inhibitor (2)	Zone 1 bare-ground	Nonselective pre- emergent weed control	Effective control of annual weeds such as marestail, crab grass, cheat, and
Sulfentrazone	Portfolio	Cell membrane disrupter - PPO inhibitor (14)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Use caution in sandy soils
Sulfometuron-methyl	Oust Landmark XP	Amino acid synthesis inhibitors - ALS inhibitor (2)	Zone 1 bare-ground	Nonselective pre/post emergent grass and weed control	Landmark is a premix with Oust and Telar
Tebuthiuron	Spike 80DF	Photosynthetic inhibitor- photosystem II, site B (7)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Ornamental pre-emergent weed control
Topramezone	Frequency	Bleaching - carotenoid biosynthesis inhibitor (12)	Zone 1 bare-ground	Nonselective pre-emergent grass and weed control	Use in combination with another bare-ground chemical
Triclopyr Amine	Garlon 3A	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well for scotch broom control and seedling trees

Chemical Name	Product Names	Mode of Action (WSSA Class)	Where Used	How/Why Used	Notes/Recommendations
Triclopyr Ester	Garlon 4 Crossbow Pathfinder	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well for cut-stump or basal treatments applications. Crossbow is premixed with 2,4-D, Pathfinder with clopyralid
Triclopyr Choline	Vastlan	Growth regulator - pyridinecarboxylic acid synthetic auxin (4)	Noxious and nuisance weed control, tree and brush control, Zones 2 and 3	Selective broadleaf treatment	Works well in combination with Milestone or Method for tree and brush control

Table 6.7-2. Herbicide use cautions, restrictions, and buffers outlined by NMFS (2024) and WSDOT (2025).

Chemical Name	*Product Names*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 300m buffer*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 25 ft. Ground, 10 ft handheld*	*WSDOT (2025) Restrictions*	*Cautions*
2,4-D	Weedar 64 Amine 4 Veteran 720 Curtail WeedDestroy Platoon Crossbow Escalade Weedmaster Solution Savage Weedone LV4		Adverse effects are likely to both fish and invertebrates via drift and /or runoff from terrestrial applications of the 2,4-D ester. Adverse effects are likely to both fish and invertebrates from direct application to water.	Amine formulations of 2,4-D are restricted for use within 60' of all water	Amine formulations cause irreversible eye damage and are highly toxic to rainbow trout. All 2,4-D products pose risks when applied near grapes and other sensitive crops.
Aminocyclopyrachlor	Method 240SL	Adverse effects are not likely.	Adverse effects are not likely.	No WSDOT use restrictions beyond those specified on product labels	May cause damage to nearby mature trees through root uptake
Aminopyralid	Milestone VM	Adverse effects are not likely.	Adverse effects are not likely.	No WSDOT use restrictions beyond those specified on product labels	Refer to product label
Bromacil	Krovar 1 DF Hyvar	Adverse effects are not likely.	Adverse effects are likely to fish via runoff from terrestrial applications.	Westside - Restricted use Eastside - Krovar restricted for use within 60' of all water	Bromacil is potentially mobile in soil, use caution if rain is possible.
Bromoxynil	Buctril 2EC BroClean Brox 2E			Westside - Restricted use Eastside - Restricted for use within 60' of all water	Can cause irreversible eye damage, highly toxic to fresh water fish

Chemical Name	*Product Names*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 300m buffer*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 25 ft. Ground, 10 ft handheld*	*WSDOT (2025) Restrictions*	*Cautions*
Chlorsulfuron	Telar XP Landmark XP	Adverse effects are not likely.	Adverse effects are not likely.	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels
Clopyralid	Transline Curtail	Adverse effects are not likely.	Adverse effects are not likely.	Curtail and Pathfinder are restricted for use within 60' of all water because of mixture with other restricted herbicides.	Curtail contains 2,4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout
Dicamba	Vanquish Veteran 720	Adverse effects are not likely.	Adverse effects may occur when exposures occur on a chronic basis.	Veteran 720 is restricted for use within 60' of all water because of 2,4-D amine content	Veteran 720 contains 2-4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout
Dichlobenil	Norosac 4G Casoron			Restricted for use within 60' of all water	Dichlobenil is highly toxic to aquatic insects
Diflufenzopyr	Overdrive	Adverse effects are not likely.	Adverse effects are not likely.	No WSDOT use restrictions beyond those specified on labels	Refer to product label
Diuron	Karmex Diuron 4 L Diuron 80 DF	Adverse effects are not likely.	Adverse effects to aquatic invertebrates are likely via drift and runoff, when applications are made within 100 ft of aquatic habitats.	Westside - Restricted use Eastside - Restricted for use within 60' of all water	Highly toxic to fish.
Flumioxazin	Payload Lock Down SC	Adverse effects are likely to fish and aquatic invertebrates when aquatic applications are made directly upstream of	Adverse effects to fish and aquatic invertebrates are likely when aquatic applications are made directly upstream of species	Restricted for use within 60' of all salt water	Highly toxic to estuarine invertebrates

Chemical Name	*Product Names*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 300m buffer*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 25 ft. Ground, 10 ft handheld*	*WSDOT (2025) Restrictions*	*Cautions*
		species or designated critical habitats.	or designated critical habitats.		
Fluroxypyr	Vista	Adverse effects are not likely.	Adverse effects are not likely.	No WSDOT use restrictions beyond those specified on product labels	Highly toxic to Eastern Oyster, high surface runoff potential
Fosamine	Krenite S			No WSDOT use restrictions beyond those specified on labels	Refer to product labels
Glyphosate	Roundup Pro Razor Pro Buccaneer Aquaneat Rodeo Aquamaster	Potential for adverse effects to aquatic invertebrates via drift. In general, adverse effects are not likely.	Adverse effects are likely to fish and aquatic invertebrates via runoff and drift from terrestrial applications, as well as resulting from aquatic applications.	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels
Metsulfuron-methyl	Escort XP Metsulfuron Methyl 60 DF	Adverse effects are not likely.	Adverse effects are not likely.	No WSDOT use restrictions beyond those specified on product labels	Refer to product labels
Picloram	Tordon	Adverse effects are not likely.	Adverse effects to fish may occur, based on the existence of incident data.	Westside - Restricted use Eastside - Restricted for use within 60' of all water	Highly mobile in soil and readily adsorbed through roots of desirable trees
Triclopyr Ester	Garlon 4 Crossbow Pathfinder			Restricted for use within 60' of all water	Highly toxic to fish

Chemical Name	*Product Names*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 300m buffer*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 25 ft. Ground, 10 ft handheld*	*WSDOT (2025) Restrictions*	*Cautions*
Oxadiazon	Ronstar G Ronstar WSP			Restricted for use within 60' of all water, gardens, plants bearing edible fruit	Highly toxic to fish
Pendimethalin	Pendulum 2G Pendulum Aqua			Westside - Restricted use Eastside - Restricted for use within 60' of all water	Highly toxic to fish, high potential for loss on eroded soil
Picloram	Tordon	Adverse effects are not likely.	Adverse effects to fish may occur, based on the existence of incident data.	Westside - Restricted use Eastside - Restricted for use within 60' of all water	Highly mobile in soil and readily adsorbed through roots of desirable trees
Rimsulfuron	Laramie Matrix SG	Adverse effects are not likely.	Adverse effects are not likely.	Restricted for use within 60' of all water	Can move off target in porous soils with heavy rainfall, potential damage to nearby vegetation or aquatic ecosystems. Site-specific soil conditions and weather forecasts should be carefully evaluated before application to minimize environmental impact.
Sulfentrazone	Portfolio			Westside - Restricted use Eastside - Restricted for use within 60' of all water	High surface runoff potential, potentially mobile in soil if rain is possible.
Sulfometuron-methyl	Oust Landmark XP			No WSDOT use restrictions beyond those specified on product labels	Oust has been proven to move with wind if not watered in to the ground

Chemical Name	*Product Names*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 300m buffer*	*NMFS Potential Impacts to Species and Habitats (NMFS 2024) 25 ft. Ground, 10 ft handheld*	*WSDOT (2025) Restrictions*	*Cautions*
Tebuthiuron	Spike 80DF	Adverse effects are not likely.	Adverse effects to aquatic invertebrates may occur if exposed on a chronic basis. In general, adverse effects are not likely.	Westside - Restricted use Eastside - Restricted for use within 60' of all water	High surface runoff potential, potentially mobile in soil if rain is possible.
Topramezone	Frequency			No WSDOT use restrictions beyond those specified on product labels	Refer to product label
Triclopyr Amine	Garlon 3A			No WSDOT use restrictions beyond those specified on product labels	Can cause irreversible eye damage
Triclopyr Ester	Garlon 4 Crossbow Pathfinder			Restricted for use within 60' of all water	Highly toxic to fish
Triclopyr Choline	Vastlan			No WSDOT use restrictions beyond those specified on product labels	Refer to product label

6.8 Appendix H– Vegetation Characteristics and Threatened and Endangered Plants

The following tables summarize existing vegetation communities and special-status plant species within the project planning area. These tables describe the primary vegetation cover groups occurring across Reclamation lands, identify federally listed threatened and endangered plant species with potential to occur in the area, and provide recommended protective buffers for herbicide use near sensitive plant species. Together, they establish the baseline vegetation conditions and highlight plant resources that may require special management consideration during project activities.

Table 6.8-1 Characterization of existing vegetation cover groups within vegetation communities on Reclamation lands within the EFO.

Vegetation Community	Existing Vegetation Cover Group Name	Characterized By
Shrub Steppe and Upland Shrubland	Big Sagebrush Shrubland and Steppe	Patchy shrubs and grassland: big sagebrush, juniper, greasewood, saltbush, gray and green rabbitbrush, antelope bitterbrush, mountain snowberry, Indian rice grass, blue grama, thick spike wheatgrass, Idaho fescue, cheatgrass.
	Grassland and Steppe	Bunchgrass-dominated grassland or steppe: scabland sagebrush, wild buckwheat, one spike oatgrass, bottlebrush squirrel tail, Idaho fescue, Sandberg bluegrass, narrowleaf mock golden weed
	Introduced Upland Vegetation	Common noxious weeds include cheatgrass, knapweeds (diffuse, spotted, Russian), Canada thistle, pepper weed, kochia, Dalmatian toadflax, and purple loosestrife.
	Sparse Vegetation	Barren and sparsely vegetated sites of steep cliff faces, canyons, and smaller rock outcrops; includes nonvascular lichens and mosses with widely scattered trees, shrubs and grasses.
	Grassland	Grasses include blue bunch wheatgrass, Idaho fescue, mountain rough fescue, needle and thread, Scribner needlegrass, giant and Great Basin wildrye, June grass, western wheatgrass, Sandberg bluegrass, and annual grasslands dominated by cheatgrass and Kentucky bluegrass.
	Desert Scrub	Widespread grasses including blue bunch wheatgrass, Indian rice grass, blue grama, salt grass, Sandberg bluegrass, and cheatgrass, with open shrub to dense woody layer with four wing saltbush, big sagebrush, rabbitbrush, and winter fat.

	Deciduous Shrubland	Usually on steep slopes of canyons and include mallow ninebark, bitter cherry, chokecherry, wild rose, smooth sumac, Rocky Mountain maple, Saskatoon serviceberry, snowberry, ocean spray, and grasses such as fescue, pinegrass, sedges, blue bunch wheatgrass, Sandberg bluegrass, and prairie June grass.
Forest and Woodland	Ponderosa Pine Forest, Woodland and Savanna	Woodland and savanna landscape, including primarily ponderosa pine, Douglas fir, and limber pine, with understory shrubs including big sagebrush, Greenleaf manzanita, Kinnikinnick, curl-leaf mountain mahogany, mallow nine-bark, antelope bitterbrush, snowberry, chokecherry, Saskatoon serviceberry, and wild rose. Open stands include blue bunch wheatgrass, needlegrasses, sedges, and fescue.
	Douglas-fir-Ponderosa Pine-Lodgepole Pine Forest and Woodland	Coniferous forests of ponderosa pine and Douglas fir with lodgepole and western white pine, western larch, Engelmann spruce, and grand fir, with an understory of grasses, sedges, and common shrubs.
	Douglas-fir Forest and Woodland	Ponderosa pine, Douglas fir, limber pine, antelope bitterbrush, big sagebrush, mallow ninebark, snowberry, spirea, blue bunch wheatgrass, Sandberg bluegrass, needlegrass, bottlebrush squirrel tail.
Riparian and Wetland Vegetation	Introduced Riparian and Wetland Vegetation	Riparian areas dominated by non-native invasive species like knotweed and knapweed species, Russian olive, reed canary grass, salt cedar, purple loosestrife, and Eurasian watermilfoil.
	Western Riparian Woodland and Shrubland	Conifer and aspen woodlands that line montane streams: subalpine and Douglas fir, Englemann and blue spruce, quaking aspen, Rocky Mountain juniper, gray alder, dwarf and red birch, red osier dogwood, willow species.
	Depressional Wetland	Playas that are seasonally too semi-permanently flooded, featuring salt-tolerant species such as desert salt grass, Lemmon's alkali grass, Sandberg bluegrass, Muhly grass, creeping wildrye, alkali and Chairmaker's bulrushes, and seaside arrowgrass.
	Freshwater Marsh	Sedges, rushes, longleaf pondweed, knotweed, waterlily, Phalaris, duckweed, water shield, watermilfoil, hornwort, Elodea.
	Red Alder Forest and Woodland	Forests and tall shrublands on floodplains or lower terraces of rivers and streams, featuring bigleaf maple, red alder, black cottonwood, willows, red osier dogwood.

Table 6.8-2 Threatened and endangered plant species that occur or with potential to occur in the project planning area.

Status	Species	Scientific Name	Critical Habitat
Threatened	Spalding's Catchfly	*Spiranthes diluvialis*	N/A
Threatened	Ute Ladies'-Tresses	*Spiranthes diluvialis*	N/A
Threatened	White Bluff's Bladderpod	*Physaria doublasii spp. tuplashensis*	Yes
Threatened	Whitebark Pine	*Pinus albicaulis*	N/A

Table 6.8-3 Buffers recommended herbicide use near sensitive plant species (BLM 2018).

Common Name	Scientific Name	Buffer size
Bristleleaf sedge	*Carex eburnea*	100 feet if soil saturated, 20 feet if soil is dry
Adder's-tongue	*Ophioglossum pusillum*	50 feet
American pillwort	*Pilularia americana*	50 feet
Arrow thelypody	*Thelypodium sagittatum ssp. sagittatum*	20 feet
Arthur's milkvetch	*Astragalus arthurii*	20 feet
Baker's linanthus	*Leptosiphon bolanderi*	50 feet
Barrett's penstemon	*Penstemon barrettiae*	20 feet
Basalt daisy	*Erigeron basalticus*	20 feet
Beaked cryptantha	*Cryptantha rostellata*	50 feet
Black snake-root	*Sanicula marilandica*	50 feet
Bradshaw's desert-parsley	*Lomatium bradshawii*	20 feet
Chelan rockmat	*Petrophytum cinerascens*	20 feet
Columbia cress	*Rorippa columbiae*	25 feet from water edge on bank(s) closest to occurrence.
Columbia milkvetch	*Astragalus columbianus*	20 feet
Constricted Douglas's onion	*Allium constrictum*	20 feet
Coyote tobacco	*Nicotiana attenuate*	100 feet
Diffuse stickseed	*Hackelia diffusa var. diffusa*	20 feet
Drummond's mountain-avens	*Dryas drummondii var. drummondii*	20 feet
Dwarf evening-primrose	*Eremothera pygmaea*	50 feet
Dwarf phacelia	*Phacelia tetramera*	20 feet
Fremont's combleaf	*Polyctenium fremontii*	20 feet
Geyer's milkvetch	*Astragalus geyeri var. geyeri*	20 feet
Gray cryptantha	*Cryptantha leucophaea*	50 feet

Common Name	Scientific Name	Buffer size
Green keeled cotton-grass	*Eriophorum viridicarinatum*	100 feet if soil saturated, 20 feet if soil is dry
Green-band mariposa-lily	*Calochortus macrocarpus var. maculosus*	20 feet
Hoover's desert parsley	*Lomatium tuberosum*	20 feet
Hoover's tauschia	*Tauschia hooveri*	20 feet
Least bladdery milkvetch	*Astragalus microcystis*	20 feet
Little bluestem	*Schizachyrium scoparium var. scoparium*	20 feet
Longsepal globemallow	*Iliamna longisepala*	20 feet
Many-headed sedge	*Carex sychnocephala*	100 feet if soil saturated, 20 feet if soil is dry
Mousetail	*Myosurus clavicaulis*	50 feet
Naked-stemmed evening-primrose	*Chylismia scapoidea ssp. scapoidea*	50 feet
Narrow-stem cryptantha	*Cryptantha gracilis*	50 feet
Nelson's checkermallow	*Sidalcea nelsoniana*	20 feet
Nuttall's quillwort	*Isoetes nuttallii*	100 feet if soil saturated, 20 feet if soil is dry
Nuttall's sandwort	*Minuartia nuttallii ssp. fragilis*	50 feet
Pauper milk-vetch	*Astragalus misellus var. pauper*	20 feet
Piper's daisy	*Erigeron piperianus*	20 feet
Piper's milkvetch	*Astragalus riparius*	20 feet
Rollins' lomatium	*Lomatium rollinsii*	20 feet
Sagebrush stickseed	*Hackelia hispida var disjuncta*	20 feet
Showy stickseed	*Hackelia venusta*	50 feet
Slender crazyweed	*Oxytropis monticola*	20 feet
Snake Canyon desert parsley	*Lomatium serpentinum*	20 feet
Snake River cryptantha	*Cryptantha spiculifera*	50 feet
Snowball cactus	*Pediocactus nigrispinus*	20 feet
Sticky phacelia	*Phacelia lenta*	20 feet
Strict blue-eyed grass	*Sisyrinchium montanum*	20 feet
Suksdorf's desert parsley	*Lomatium suksdorfii*	20 feet
Suksdorf's monkey-flower	*Erythranthe suksdorfii*	50 feet
Thompson's clover	*Trifolium thompsonii*	20 feet
Tiehm's rush	*Juncus tiehmii*	100 feet if soil saturated, 20 feet feet if soil is dry
Twelfth rush	*Juncus uncialis*	100 feet if soil saturated, 20 feet if soil is dry
Wanapum crazyweed	*Oxytropis campestris var. wanapum*	20 feet
Washington polemonium/Jacobs' ladder	*Polemonium pectinatum*	50 feet
Wax currant	*Ribes cereum var. colubrinum*	20 feet
White Bluffs bladderpod	*Physaria douglasii ssp.*	50 feet

Common Name	Scientific Name	Buffer size
	tuplashensis	
Whitebark pine	*Pinus albicaulis*	10 feet from base of tree
Whited's milkvetch	*Astragalus sinuatus*	20 feet
Whited's penstemon	*Penstemon eriantherus var. whitedii*	20 feet
Woven-spore lichens	*Texosporum santi-jacobi*	50 feet
Yellow lady's-slipper	*Cypripedium parviflorum*	50 feet

6.9 Appendix I- Wildlife Species Tables

Tables 6.9-1 through 6.9-3 summarize the special-status wildlife species that are known to occur, or have the potential to occur, within the project planning area. These tables compile federally listed threatened, endangered, and proposed species (Table 6.9-1); Washington State listed endangered, sensitive, and candidate wildlife species (Table 6.9-2); and Bureau of Land Management (BLM) and U.S. Forest Service (USFS) sensitive wildlife species (Table 6.9-3).

Table 6.9-1. Threatened, endangered, and proposed wildlife species that occur or with potential to occur in the project planning area and associated vegetation communities.

Status	Species	Scientific Name	Critical Habitat	Vegetation Community Association [1]
Endangered	Columbia Basin pygmy rabbit	*Brachylagus idahoensis*	N/A	SS
Endangered	Gray wolf	*Canis lupus*	None in Washington	F, SS
Threatened	Canada lynx	*Lynx canadensis*	Yes	F
Threatened	North American wolverine	*Gulo gulo luscus*	N/A	F, SS
Threatened	Northern spotted owl	*Strix occidentalis caurina*	None on or adjacent to Reclamation lands within project planning area. [3]	F
Threatened	Yellow-billed cuckoo	*Coccyzus americanus*	None in Washington	W
Threatened	Bull Trout	*Salvelinus confluentus*	Yes[2]	N/A
Threatened	Mt. Rainier White-tailed Ptarmigan	*Lagopus leucura rainierensis*	N/A	SS
Proposed Endangered	Suckley's Cuckoo Bumble Bee	*Bombus suckleyi*	N/A	SS
Proposed Threatened	Monarch Butterfly	*Danaus plexippus*	N/A	SS

[1]Vegetation community associations include shrub steppe and upland shrublands (SS), forest and woodlands (F), and Riparian and wetlands (W).

[2]Bull Trout critical habitat not included in PEA for analysis and separate consultations with USFWS will occur.

[3] Not carried forward in analysis since no land on or adjacent to Reclamation lands.

Table 6.9-2. Washington state listed wildlife species that occur or with potential to occur in the project planning area.

Status	**Species[1]**	**Scientific Name**	**Vegetation Community Association[2]**
Endangered	Ferruginous Hawk*	*Buteo regalis*	SS
Endangered	Greater Sage-grouse*	*Centrocercus urophasianus*	SS
Endangered	Sandhill Crane*	*Grus canadensis*	W
Endangered	Western Gray Squirrel*	*Sciurus griseus*	F
Endangered	Sharp-tailed Grouse*	*Tympanuchus phasianellus*	SS
Endangered	Cascade Red Fox*	*Vulpes vulpes cascadensis*	F
Endangered	Northern Leopard Frog	*Lithobates pipiens*	W
Sensitive	Common Loon*	*Gavia immer*	W
Sensitive	American White Pelican*	*Pelecanus erythrorhynchos*	W
Candidate	Burrowing Owl*	*Athene cunicularia*	SS
Candidate	Black-tailed Jackrabbit*	*Lepus californicus*	SS
Candidate	White-tailed Jackrabbit*	*Lepus townsendii*	SS
Candidate	Sage Thrasher*	*Oreoscoptes montanus*	SS
Candidate	White-headed Woodpecker*	*Picoides albolarvatus*	F
Candidate	Townsend's Ground Squirrel*	*Urocitellus townsendii*	SS

Status	Species[1]	Scientific Name	Vegetation Community Association[2]
Candidate	Washington Ground Squirrel*	*Urocitellus washingtoni*	SS
Candidate	Western Grebe	*Aechmophorus occidentalis*	W
Candidate	Golden Eagle	*Aquila chrysaetos*	SS
Candidate	Flammulated Owl	*Psiloscops flammeolus*	F
Candidate	Black-backed Woodpecker	*Picoides arcticus*	F
Candidate	Loggerhead Shrike	*Lanius ludovicianus*	SS
Candidate	Sagebrush Lizard	*Sceloporus graciosus*	SS
Candidate	Common Sharp-tailed Snake	*Contia tenuis*	W
Candidate	Striped Whipsnake*	*Masticophis taeniatus*	SS
Candidate	Western Toad	*Anaxyrus boreas*	W
Candidate	Columbia Spotted Frog	*Rana luteiventris*	W

[1] Species with an asterisk (*) are also BLM/USFS sensitive wildlife species.

[2] Vegetation community associations include shrub steppe and upland shrublands (SS), forest and woodlands (F), and Riparian and wetlands (W).

Table 6.9-3. BLM and USFS sensitive wildlife species that occur or with potential to occur in the project planning area.

Group	**Species**	**Scientific Name**	**Vegetation Community Association[1]**
Mammal	Big horn sheep	*Ovis canadensis*	SS (mountain grasslands, foothills, river canyons)
Mammal	Little brown myotis	*Myotis lucifugus*	F, W (wide range of habitats, human-made structures)
Mammal	Mountain goat	*Oreamnos americanus*	F (cliffs, talus, conifer forest, meadows
Mammal	Pygmy shrew	*Sorex hoyi*	F, W (mesic, grassy coniferous forest openings)
Mammal	Townsend's big-eared bat	*Corynorhinus townsendii*	SS, F (various forest types, shrub steppe, ridges, cliffs and rock outcrops)
Mammal	Washington ground squirrel	*S. washingtoni*	SS
Bird	Acorn woodpecker	*Melanerpes formicivorus*	F (oak woodlands)
Bird	American peregrine falcon	*Falco peregrinus anatum*	F, SS, W (ridges, cliffs, rock outcrops)
Bird	Ash-throated flycatcher	*Myiarchus cinerascens*	F, W (oak woodlands, riparian)
Bird	Bald eagle	*Haliaeetus leucocephalus*	F, W (riparian, open water)

Group	Species	Scientific Name	Vegetation Community Association[1]
Bird	Black-throated sparrow	*Amphispiza bilineata*	SS (grasslands, shrublands)
Bird	Bobolink	*Dolichonyx oryzivorus*	SS (grasslands)
Bird	Clark's grebe	*Aechmophorus clarkii*	W (shallow lakes)
Bird	Gray flycatcher	*Empidonax wrightii*	F (open pine forests)
Bird	Great gray owl	*Strix nebulosa*	F (aspen, coniferous forests)
Bird	Gyrfalcon	*Falco rusticolus*	SS, W (open lowland agricultural areas, river deltas)
Bird	Harlequin duck	*Histrionicus histrionicus*	F, W (forested riparian)
Bird	Lesser goldfinch	*Carduelis psaltria*	F (open habitats, Garry oak woodlands)
Bird	Lewis's woodpecker	*Melanerpes lewis*	F (Ponderosa pine, oak woodland)
Bird	Long-billed curlew	*Numenius americanus*	SS (grasslands)
Bird	Mountain quail	*Oreortyx pictus*	SS (dense brush)
Bird	Northern goshawk	*Accipiter gentilis*	F (coniferous, mixed, deciduous forests)
Bird	Short-eared owl	*Asio flammeus*	SS (open land with low vegetation)
Insect	Astarte fritillary	*Boloria astarte*	Rockslides, windswept ridges and scree slopes above timberline

Group	Species	Scientific Name	Vegetation Community Association[1]
Insect	Barry's hairstreak	*Callophrys gryneus barryi*	F (Rocky Mountain juniper)
Insect	Columbia clubtail	*Gomphus lynnae*	W (sandy to rocky, slow-flowing rivers)
Insect	Eastern tailed blue	*Cupido comyntas*	F (lightly wooded, dry habitats, weedy areas)
Insect	Great basin fritillary	*Speyeria egleis*	F (montane meadows, forest openings)
Insect	Mardon skipper	*Polites mardon*	SS, F (grasslands, savanna woodland)
Insect	Subarctic bluet	*Coenagrion interrogatum*	W (wetlands, sedge marshes)
Insect	Subarctic darner	*Aeshna subarctica*	W (fens, wet meadows, bogs)
Insect	Tawny-edged skipper	*Polites themistocles*	SS (grasslands, prairie, old fields)
Insect	Western bumblebee	*Bombus occidentalis*	SS, F, (generalist with nectar/pollen producing plants)
Insect	Whitehouse emerald	*Somatochlora whitehousei*	W (open ponds, bogs)
Mollusk	Salmon coil	*Helicodiscus salmonaceus*	SS (dry rocky habitats, sagebrush, grasses)
Mollusk	Thinlip tightcoil	*Pristiloma idahoense*	F (low elevation forests)

Group	Species	Scientific Name	Vegetation Community Association[1]
Mollusk	Western ridged mussel	*Gonidea angulata*	W (streams)
Worm	Giant palouse earthworm	*Driloleirus americanus*	SS (Palouse prairie grasslands)

[1] Vegetation community associations include shrub steppe and upland shrublands (SS), forest and woodlands (F), and Riparian and wetlands (W). Specific habitat associations are given in parentheses.

6.10 Appendix J – Draft Burned Area Emergency Stabilization and Rehabilitation Handbook

BUREAU OF RECLAMATION

Burned Area Emergency Stabilization and Rehabilitation Handbook

Columbia-Pacific Northwest Region

U.S. Department of the Interior

September 2025

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

Acronym or Abbreviation	Description
BAER	Burned Area Emergency Response
BAR	Burned Area Rehabilitation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COR	Contracting Officer's Representative
CPN	Columbia-Pacific Northwest
DM	Departmental Manual
DNA	Documentation of NEPA Adequacy
DOI	Department of the Interior
EA	Environmental Assessment
ECS	Enterprise Content System
EIS	Environmental Impact Statement
ES	Emergency Stabilization
ES&R	Emergency Stabilization and Rehabilitation
FAR	Federal Acquisition Regulations
FMP	Fire Management Plan
GIS	Geographic Information System
IBAER	Interior Burned Area Emergency Response Committee
IFPRS	Interior Fuels & Post-Fire Reporting System

Acronym or Abbreviation	Description
IT	Information Technology
LUP	Land Use Plan
NBAER	National Burned Area Emergency Response Committee
NFP	National Fire Plan (includes Ten-Year Comprehensive Strategy)
NEPA	National Environmental Policy Act
NFPORS	National Fire Plan Operations and Reporting System
NHPA	National Historic Preservation Act
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NPS	National Park Service
NRCS	National Resource Conservation Service
NWCG	National Wildfire Coordinating Group
PESRP	Programmatic Emergency Stabilization & Rehabilitation Plan
Reclamation	U.S. Bureau of Reclamation
RMP	Resource Management Plan
T&E	Threatened and Endangered
USDA	Department of Agriculture
USFWS	United States Fish and Wildlife Service
WFM	Wildland Fire Management

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1 Introduction

1.1 Purpose of this Handbook

This handbook provides detailed information specific to Bureau of Reclamation (Reclamation) Columbia-Pacific Northwest Region (CPN) policies, standards, and procedures used in the Burned Area Emergency Stabilization and Rehabilitation (ES&R) programs. This Handbook is intended to be the primary guidance for CPN's ES&R activities. It is tiered to the Department of the Interior (DOI) Departmental Manual 620 DM 7 Wildland Fire Management Burned Area Emergency Stabilization and Rehabilitation relative to planning and implementing ES&R projects and Reclamation Directive and Standard LND 14-01 for lands administered by Reclamation. This guidance aligns with all pertinent information from the Interagency Burned Area Emergency Response and the Interagency Burned Area Rehabilitation Guidebooks.

1.2 Program Objectives, Priorities, and Allowable Actions

The purpose of the Post-Wildfire Recovery program (Emergency Stabilization and Burned Area Rehabilitation; ES and BAR) is to reduce the risk of resource damage and restore landscapes impacted by wildfire and to promote long-term restoration and recovery objectives (Department of the Interior Manual 620 DM 7.1A).

The principal purpose of the ES program funding is to prevent further degradation of natural and cultural resources, and protect life, property, and other values (Department of the Interior Manual 620 DM 7.1B; Reclamation Directive and Standard LND 02-01, Cultural Resources).

The principal purpose of the BAR program funding is to protect resources by repairing or improving landscapes unlikely to recover naturally to management-approved conditions within an acceptable timeframe, and to repair or replace minor assets. The BAR program funding supports the initiation of longer-term actions to repair damages caused by wildfire in circumstances in which natural recovery is unlikely to occur within an acceptable timeframe, considering management objectives, and to encourage the protection, conservation, and restoration of fire-impacted lands and resources consistent with land and resource management plan objectives (Department of the Interior Manual 620 DM 7.1C).

Post-fire recovery has multiple phases, including short-term ES that occurs within 1 to 2 years post fire and longer-term recovery and BAR that last 3 to 5 years post fire. Associated activities are intended to protect and sustain ecosystems, public health and safety, community infrastructure, and operational and water storage/conveyance facilities or features. ES actions stabilize and prevent unacceptable degradation to natural and cultural resources, minimize threats to life and property resulting from effects of a fire, or repair/replace/construct physical improvements necessary to prevent degradation of lands or resources within 1 year after

containment of the wildland fire. BAR activities are non-emergency actions taken up to 5 years after containment of the wildland fire, such as seeding, treating noxious weeds, or replacing fences, to improve fire-damaged lands that are unlikely to recover naturally (Reclamation Directive and Standard LND 14-01).

1.2.1 Emergency Stabilization

ES is defined as planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. ES actions must be taken within 1 year following containment of a wildland fire.

The purpose of ES is to determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent unacceptable degradation to natural and cultural resources/historic properties resulting from the effects of a fire.

The protection priorities of ES for CPN are: 1) Human Life and Safety, 2) Infrastructure, and 3) Historic properties, traditional cultural places and Natural Resources.

Allowable emergency stabilization actions may include, but are not limited to, the following items, grouped by issue topic:

Human Life and Safety

- Replacing or repairing minor facilities essential to public health and safety when no other protection options are available.

Infrastructure

- Placing structures to slow sedimentation run-off into watersheds and reservoir systems.
- Stabilizing soils and debris to prevent impacts to water delivery and power generation systems.
- Hazard tree mitigation.

Soil/Water Stabilization

- Placing structures to slow soil and water movement.
- Stabilizing soil to prevent loss of degradation or productivity.
- Increasing road drainage frequency and/or capacity to handle additional post-fire runoff.
- Installing protective fences or barriers to protect infrastructure or recovering areas.

Cultural Resources

- Conducting inventories and assessments of historic properties in those areas affected by emergency stabilization treatments.
- Installing structures or taking actions to protect historic properties.
- Stabilizing historic properties.
- Patrolling, camouflaging, or burying significant historic properties to prevent looting.

Designated Critical Habitat for Federal/State Listed, Proposed, or Candidate Species

- Conducting assessments of critical habitat in those areas affected by emergency stabilization treatments.
- Seeding or planting to prevent permanent impairment of designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species.

Invasive Plants

- Seeding to prevent establishment of invasive plants, and direct treatment of invasive plants. Such actions will be specified in the emergency stabilization plan only when immediate action is required and standard treatments are used, or when there is documented research establishing the effectiveness of such actions.
- Using integrated pest management techniques to minimize the establishment of non-native invasive species within the burned area. When there is an existing approved management plan that addresses non-native invasive species, emergency stabilization treatments may be used to contain, control, or eradicate invasive species.

1.2.2 Burned Area Rehabilitation

BAR is defined as efforts undertaken years 2 through 5 after containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management-approved conditions, or to repair or replace minor facilities damaged by fire.

The objectives of BAR are:

1) To evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildland fire damage;
2) To develop and implement cost-effective plans to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is infeasible, then to restore or establish a healthy, stable ecosystem in which native species are well represented; and
3) To repair or replace minor facilities damaged by wildland fire.

The protection priorities of BAR are: 1) protect infrastructure and facilities, 2) repair or improve lands damaged directly by a wildland fire; and 3) rehabilitate or establish healthy, stable ecosystems in the burned area.

Allowable rehabilitation actions may include but are not limited to the following items, grouped by issue topic:

Infrastructure

- Taking steps to ensure water and power infrastructure is protected from ongoing environmental instability caused by the effects of wildland fire.

Lands Unlikely to Recover Naturally

- Repair or improve lands unlikely to recover naturally from wildland fire damage by emulating historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with existing land management plans.

Weed Treatments

- Chemical, manual, biological, and mechanical removal of invasive species, and planting of native and/or non-native species, restore or establish a healthy, stable ecosystem even if this ecosystem cannot fully emulate historical or pre-fire conditions.

Tree and Shrub Planting

- Tree and shrub planting to reestablish burned habitat, reestablish native trees or shrubs species lost in fire, prevent establishment of invasive plants.

Repair/Replace/Protect Fire Damage to Minor Facilities

- Repair, replace, or protect fire damage to minor Reclamation facilities (e.g., water and power infrastructure, fences, campgrounds, interpretive signs and exhibits, shade shelters, wildlife guzzlers, etc.). Rehabilitation may not include the planning or replacement of major infrastructure, such as visitor centers, residential structures, administration offices, work centers, and similar facilities. Rehabilitation does not include the construction of new facilities that did not exist before the fire, except for temporary and minor facilities necessary to implement burned area rehabilitation efforts.

Monitoring

- Monitoring of treatments and activities for up to 5 years from date of the initial ES treatments. Monitoring is further outlined in section 4.1 below.

1.3 Safety

Employee and public safety is the first priority in every fire management activity. All Emergency Stabilization and Rehabilitation (ES&R) activities must reflect this commitment. Employees involved in ES&R work are responsible for knowing, understanding, and practicing safe operations. Prior to control of the fire, ES&R assessment activities must be closely coordinated with fire management activities to avoid conflicts. During that time, all assessment efforts must conform to National Wildfire Coordinating Group (NWCG) safety, training, qualifications (NWCG 2023), Interagency Standards for Fire and Fire Aviation Operations, and incident business management standards (NWCG 2024). Burned area assessments can only be conducted in areas within the perimeter of an uncontrolled fire where suppression activities have been successfully completed and fireline hazards mitigated.

1.4 Overview of Planning and Funding Process

Department of Interior policy changes in 2017 (620 DM 7) separated ES&R into two programs with separate planning and funding processes. ES&R activities can be developed in separate

plans and may be funded through separate processes. ES Plans are prepared immediately following a wildfire when stabilization activities are determined to be needed. Efficiencies are gained by preparing the BAR Plans concurrently with the ES Plan. Funding of rehabilitation treatments usually occurs in the following fiscal year but may be authorized sooner if funding is available.

The five types of plans used in the ES&R program are shown in Table 1. These plans must be consistent with the Land Use Plans (LUPs), for example, Resource Management Plans (RMPs) and any applicable activity level plans (i.e., Fire Management Plans [FMPs]). Development of ES&R Plan objectives is guided by resource management objectives, general management practices, and constraints identified in the appropriate LUP. Land use plan objectives may not be immediately accomplished by implementing ES&R treatments after a wildfire; however, ES&R treatments should facilitate the process toward meeting LUP objectives.

Table 1. Types of ES&R Program Plans

Plan	Purpose
Initial ES Plan (Appendix 7.6)	To provide an initial overview of the fire and anticipated treatments.
Programmatic ES&R Plan (PESRP)	A programmatic plan with NEPA documentation, prepared in advance, clearly defining typical post wildfire ES&R treatments for a given planning area.
Emergency Stabilization Plan (ES Plan)	A site-specific plan that specifies treatments required to implement post-fire emergency stabilization activities within one year of containment of the wildfire.
Burned Area Rehabilitation Plan (BAR Plan)	A site-specific plan that specifies treatments required to implement post-fire rehabilitation activities within five years of containment of the wildfire.
Burned Area Emergency Response Plan (BAER Plan)	A plan that involves multiple agency ownership or on large complex wildfires where preparation of a plan is beyond the capability of the local staff and values-at-risk are extremely high, often prepared by an activated DOI BAER team.

Understanding the planning and budget processes is essential in managing an effective ES&R program. Conducting pre-planning to anticipate the upcoming fire season and resulting ES&R needs is critical for the timely receipt of funding and the prompt implementation of treatments. In an office where ES&R is a frequent activity, it may be advisable to hold a pre-season meeting to address issues and review the plan preparation process. The ES&R program must coordinate closely with the Reclamation Lands Resources staff to ensure that any potential plans or proposals do not conflict with other programs or plans. Appendix 1 shows a checklist of the principal steps of ES&R pre-planning, planning, implementation, and monitoring phases.

Reclamation and DOI policies outline specific timeframes for ES&R planning, funding, and implementation. ES&R treatments must be implemented, to the extent possible, before additional damage occurs to the burned area, immediately downslope of the burned area, or before undesirable vegetation becomes established. Treatments must be implemented at a time that will maximize the probability of success.

The goal of the Reclamation Wildland Fire Management (WFM) Program is to provide treatment of priority burned acres needing ES&R in the most time and cost-efficient method possible. Timing of treatments is of extreme importance to successful restoration efforts. Treatment actions often must occur in the first fall/early winter after a fire has burned to increase treatment effectiveness. Steps outlined in this plan will allow for tight timelines to be met.

Upon notification of a new wildland fire, the WFM Program will contact the respective field office and discuss the need for restoration efforts. If restoration actions are necessary, ES&R planning will be led by the WFM Program in conjunction with field office staff. An initial draft of the ES&R plan will be completed within 7 days of fire containment. This plan will follow the template provided in Appendix 7.6.

Initial ES&R plans will be submitted to respective field office staff for review. Plans then need approval by the field office natural resource manager or field office manager and the WFM Program Manager. ES&R Plans will be approved within 21 days of fire containment. The WFM Program will then search for appropriate funding sources to complete the work and enter the project into the Interior Fuels & Post-Fire Reporting System (IFPRS). Funding sources will be coordinated through the National Post-Fire Lead when funding is not available within Reclamation's Columbia-Pacific Northwest (CPN) Region.

National Environmental Policy Act (NEPA) and NHPA 106 compliance will be the responsibility of the field office unless they request assistance from the WFM Program. The WFM Program will manage acquisitions actions for any contracts, interagency agreements, or other actions needed to implement the ES&R plan. The field office will provide staff to monitor project implementation and results. As project progresses, the WFM Program is responsible to keep IFPRS updated at completion of actions and close-out of projects.

Table 2. ES&R Program Timeframes

Event	Timeframe	Task
Wildfire occurs	Immediately	Manager assigns a Resource Advisor from the local office to the fire. Notify the CPN Regional Office ES&R Program Lead of the scope of the fire and any known values at risk. Cultural Resource Staff contact THPO to request information about tribal concerns.
Initial ES Plan needed	Within 7 days of fire containment	Developed in conjunction by Field Office Natural Resource staff including cultural resource staff and ES&R Program staff. The ES&R Program Lead approves the plan.
Complete ES Plan needed. Prepare/submit complete ES Plan	Within 21 days of fire containment	Submit plan to the Field Office Management and WFM Program Manager.

Event	Timeframe	Task
Receive approval/disapproval of ES Plan	Within 7 days of receipt	Requesting Office receives need for revision on a plan-by-plan basis. The Field Office Management and WFM Program Manager approve the plan.
Receive notification of ES funding approval	Immediately	ES&R Program Lead will enter data into IFPRS and Reclamation Project Database. Order seed from BLM National Seed Warehouse if needed. Field Office initiates and completes required compliance needs.
BAR Plan needed. Prepare/Submit BAR Plan	Ideally in conjunction with the ES Plan but no later than the 5th year after the containment of the fire	ES&R Program Lead enters project data into IFPRS.
Receive approval/disapproval of BAR Plan funding	As funding is available	Funding for BAR Plans is approved based on funding availability and projected need.
Close-out Report	At the end of the FY following the 5th year of monitoring	Complete IFPRS entries and close out the project folder in ECS.

1.5 Relationship of the ES&R Program to Fire Management Plans

Each Field Office Fire Management Plan (FMP) identifies and integrates wildland fire management and related activities within the context of the approved LUPs and defines wildland fire management actions (wildfire, prescribed fire, and non-fire treatments). The overarching objective of the FMP is to develop an integrated program focusing on wildfire suppression to protect the public and government facilities, with consideration of prescribed fire to benefit the ecosystem and management of fuel loads while providing for firefighter/public safety, protecting public/private property and natural/cultural resource values.

The Rehabilitation and Restoration section of the FMP identifies efforts to be undertaken as needed to protect and sustain Reclamation lands and facilities, to provide for minimum public health and safety, and to protect endangered species. ES&R planning team activities are an

integral part of wildland fire incidents. They are governed and supported by the same wildland fire incident mobilization, resource availability, training, qualifications, and incident business management procedures as other aspects of the incident. The ES&R section includes a discussion on collaborative processes in planning, priority setting, and implementation.

The ES&R program must coordinate closely with the fire program and participate in the preparation and review of FMPs to ensure identification, documentation, and integration of common goals and objectives.

1.6 Types of Plans

1.6.1 Programmatic ES&R Plan

The PESRP is a programmatic ES&R plan, with an associated Environmental Assessment (EA) developed at the landscape level prior to wildfire occurrence. The PESRP contains a description of ES&R treatments that would be implemented under normal conditions in the event of a wildfire and documentation of the potential treatment impacts. A PESRP should be prepared on a landscape basis at the field office level by an interdisciplinary team with public input. This process of addressing techniques and species that may be used will ease the development of site-specific plans. Because the PESRP is analyzed through the NEPA process, procedures for public and tribal review and comment will also apply, thus ensuring ample opportunity has been given to those that are interested to be involved in the process of developing the plan. The decision to prepare a PESRP is based on the size and diversity of the ecosystems involved, fire history (wildfire occurrence and size), resource values, and values at risk. Regional Directors may require that PESRPs be prepared for all or part of the public lands within their jurisdiction and have approval authority for PESRPs that may not be redelegated lower than the Area or Power Office Manager.

The PESRP contains information about those areas where wildfires are most likely to occur, where and what type of ES&R treatments could be used, and a NEPA document disclosing the potential impacts of those proposed ES&R treatments. During PERSP development, staff review and incorporate previous ES&R Plans and monitoring data from previous efforts. The PESRP reduces the repetitive preparation of individual NEPA documents for ES&R treatments following wildfires, thereby reducing time and costs, especially where wildfire occurrence is typically high. A PESRP assists in the timely and cost-effective implementation of ES&R treatments. A PESRP anticipates typical post-fire conditions and is used to develop site-specific ES&R plans.

After a wildfire occurs, an ES Plan and/or a BAR Plan are prepared by an interdisciplinary team to mitigate the adverse effects of wildfire on public lands. The ES Plan and BAR Plan can be separate plans with distinct treatments and activities and describe the site-specific ES&R actions to be taken.

The ES Plans and BAR Plans, when based on information in the PESRP, may document NEPA compliance by completing a Documentation of National Environmental Policy Act Adequacy (DNA). Since site-specific ES&R treatments and areas have not been identified in the PESRP

NEPA document, there is a need to ensure consistency with the analysis at the site-specific project level. Site-specific ES&R treatments would be addressed using the DNA review process. This internal review process allows Reclamation to base site-specific proposed actions on previous NEPA documents. A decision record is written based on the existing PESRP NEPA document if the proposed action has been adequately covered, and there are no changed circumstances. If the site-specific proposed action meets these criteria, the DNA worksheet documents the NEPA adequacy of the PESRP. A discovery of a new circumstance may require the development of a new EA if the circumstances are outside the scope of the PESRP analysis.

Existing PESRPs should be periodically reviewed for consistency with the most recent guidance, policy, and regulations.

1.6.2 Emergency Stabilization Plans

Complete ES Plans are site-specific documents (using a current Reclamation template) that specify treatments required to implement post-fire emergency stabilization treatments. At a minimum, ES Plans must address:

a) A description of each treatment or activity.
b) A discussion demonstrating how the proposed treatments and activities are related to damage or changes caused by the wildfire (i.e., why it is being recommended), and the goals and objectives of the ES Plan.
c) An explanation of how a treatment or activity is reasonable to the severity of the burn and values at risk.
d) A monitoring plan that contains provisions for monitoring and evaluation of treatments and activities. The monitoring plan must have clearly stated and measurable goals and objectives.
e) Clear delineation of responsibilities for implementation, operation, maintenance, monitoring, and evaluation throughout the entire life of the project.

Emergency stabilization treatments must be designed to address the protection priorities of 1) Human Life and Safety, and 2) Infrastructure property and unique biological resources (designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species) and significant historic properties.

An ES Plan may be amended at any time as long as the treatment implementation can be accomplished within one year from the fire containment date.

1.6.3 Burned Area Rehabilitation Plans

Burned Area Rehabilitation Plans (using the current Reclamation template) are site-specific documents that identify non-emergency treatments and activities to be carried out no more than 5 years following 21 days after the ignition date of a wildfire (620 DM 7.E(2)). All BAR Plans must be approved by the Regional Office. At a minimum, BAR Plans must address:

a) A description of each treatment or activity

b) A discussion demonstrating how the proposed treatments and activities are related to damage or changes caused by the wildfire (i.e., why it is being recommended), and the goals and objectives of the BAR Plan.
c) A monitoring plan that contains provisions for monitoring and evaluation of treatments and activities. The monitoring plan must have clearly stated and measurable goals and objectives.
d) Clear delineation of responsibilities for implementation, operation, maintenance, monitoring, and evaluation throughout the entire life of the project.

Rehabilitation treatments must be designed to address the following priorities: 1) Protect infrastructure and facilities, 2) Repair or improve lands damaged directly by a wildland fire; and 3) Rehabilitate or establish healthy, stable ecosystems in the burned area.

A BAR Plan may be amended at any time as long as the treatment implementation can be accomplished within five years following 21 days from the fire ignition date.

1.6.4 Burned Area Emergency Response Plans

BAER Plans are generally developed by the DOI National Burned Area Emergency Response (BAER) Teams. BAER Teams, comprising personnel from the Bureau of Indian Affairs, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service, may be dispatched to any DOI wildfire incident or where other federal lands are involved. This approach is generally employed for a wildfire that involves multiple agency ownership or on large complex wildfires where preparation of ES&R planning is beyond the capability of the local staff and where the values at risk are extremely high. A team of interagency specialists (members may be from outside the local office area) is brought in to assess the impacts of the fire and prepare a BAER Plan for emergency stabilization treatments. A BAER team must be requested through the Incident Command System prior to wildfire control or later through the appropriate line management decision process (NICC 2024). Prior to requesting a DOI BAER Team, the National BAER Team Dispatch Prioritization Criteria must be reviewed and mutually agreed upon with the National and State ES&R Program Leads (see Appendix 3 National BAER Team Dispatch Prioritization Criteria). The BAER Plan developed is usually an ES Plan that may recommend rehabilitation treatments.

In activating the BAER Teams, all disciplines and programs at the requesting office need to be represented and participate in the plan development process; some members of the local staff may need to be present through the entire plan development process. A high-quality plan is only possible with the significant and timely input of the local staff. If they cannot be involved, the integrity, utility, and quality of the final product may be compromised. In the request for the BAER Team, it may also be advisable to call in personnel who are familiar with ES&R processes and needs to assist the BAER Team. They may also be able to assist in data entry and financial management of the ES project plan and implementation.

In planning for or requesting a BAER Team, it may be beneficial for the BAER Team leader to report to the host office a couple of days before the rest of the team. The time can be used to discuss the Delegation of Authority, details, or issues to be addressed in the proposed plan, and

the information needed to ensure the highest efficiency possible for the plan development. The Delegation of Authority is the authorizing document that details the issues to be addressed by the BAER Team. It is the contract that the team should be using in their analysis and plan development and should be understood, developed and agreed to before the Team arrives. Managers need to be aware that the more complex and defining that their Delegation of Authority is, likely the more costly and difficult the plan will be to implement. A General Delegation of Authority, while potentially less troublesome to accept, may leave the requesting office with a plan that does not meet its needs.

Prior to bringing in the BAER Team, the requesting office should have the following information available:

- GIS layer information, including soil and vegetation community types, allotment boundaries, rangeland improvement information, grazing permittee information, federally listed threatened and endangered species information, and land use plan or activity plan information in an electronic format. A Reclamation GIS specialist may also be needed to ensure that the data is compatible and useable to the BAER Team, and to address mapping needs if the fire crosses administrative or state boundaries.
- Contact information for interested parties that can assist in plan development or provide valuable information, including those with knowledge or expertise in subjects like federally listed species.

The ES Plan should address continued financial management of the plan through implementation, which may necessitate the hiring or detailing of an Implementation Team Lead, Program Analyst, or Budget Analyst.

2 Standards for Use of Emergency Stabilization and Rehabilitation Funds

ES&R funds will only be expended on lands administered by Reclamation and are not authorized for use on private, state, or other ownership lands, except when the Wyden Amendment may apply (see the Wyden Amendment section below for detailed guidance). Standards for the appropriate use of ES&R funding for administrative actions and treatment guidance are discussed below. Also, see Appendix 4 – Expenditure Guidance for ES&R Funds.

2.1 Administrative Actions

2.1.1 Acquisition of Services

Transportation charges for shipping or receiving equipment and materials are an appropriate use of ES&R funds. Government vehicles or equipment damaged during the course of completing an ES&R treatment may be repaired using ES&R funds.

2.1.2 Awards

Exceptional efforts by employees, realization of large cost savings, and improvement of methodologies or techniques may be justification to provide an award to an employee or group of employees. Performance awards may be monetary or time off. All awards must follow existing awards policy.

2.1.3 Contracting

Contracting for ES&R treatments, personnel, services, supplies, and materials shall follow all Reclamation contracting regulations. In some instances, contracting and purchasing procedures found in the Incident Business Management Handbook (NWCG 2024) may be used. Chapter 20 of the NWCG Handbook gives guidance for suppression-related acquisitions. Opportunities for stewardship contracting should also be considered.

2.1.4 Equipment/Facilities Rental

Rental of equipment needed to implement ES&R activities is an appropriate use of ES&R funds. The use of Emergency Equipment Rental Agreements, as outlined in the Interagency Incident Business Handbook (NWCG 2024) may be appropriate when there is a threat to life and/or property.

When there is ample time to compete for the contract, competitive sourcing is the best method to rent equipment. Emergency Equipment Rental Agreements are designed for quick hire for immediate emergency use and should not circumvent normal acquisition methods when time allows.

Short-term rental/leasing of space is an appropriate use of ES&R funds. Space rental may include, but is not limited, to a warehouse for storing seed, straw bales, or straw wattles, or a portable unit such as a refrigerated trailer. The item to be rented must be identified with supporting rationale in the ES&R Plans. All renting/leasing must follow agency policies.

2.1.5 Equipment Purchases

Equipment to accomplish ES&R treatments may be purchased using ES&R funds following the guidelines below. All purchases of equipment must follow agency procurement policies and be approved by the CPN Region Wildland Fire Program Manager (except for minor supplies such as flagging, offices materials, etc.). Equipment must be entered into the appropriate tracking and property management system.

Equipment purchases must be identified with supporting rationale in the ES&R Plans. The rationale for recommending the purchase must include why purchasing is more cost-effective than leasing and where the equipment will be stored after use on the project. The purchases shall remain the property of the ES&R program for the life of the equipment.

The purchase of computers, cell phones, and radios using ES&R funds is prohibited. Efforts should be made to use all equipment across multiple incidents (and future incidents) throughout the Region.

2.1.6 Fire Trespass

For all human-caused fires where the suspect is identified, trespass actions may be taken to recover costs of suppression and ES&R treatments (Reclamation Directive and Standard LND 14-01). For incidents where cost recovery of ES&R costs is proposed, extra care should be made to accurately document all ES&R expenditures.

2.1.7 Requesting Additional Funds or Turning Back Excess Funds

Under the ES&R Plans, funding is requested and approved on a project-by-project, treatment-by-treatment basis. Funding can only be spent as requested and approved in the ES Plan and/or BAR Plan.

Occasionally, a project will have excess funding due to reasons such as reduced seed costs, all or part of a planned treatment was determined unnecessary, or other similar savings. When approved funds are determined unnecessary for the project, the excess funding must be promptly identified and returned to the Regional or National ES&R Programs for redistribution.

2.1.8 Hiring ES&R Personnel

For current hiring guidance, consult the Interagency Incident Business Management Handbook (NWCG 2024) and local personnel specialists.

2.1.9 Maps and GIS

All ES&R treatments should be mapped using Geographic Information System (GIS) software and stored in an appropriate GIS database. Maps included in all ES&R plans must contain land status and treatment locations clearly identified (include existing fences that proposed protective fences will tie into) and must be geo-referenced. GIS software-generated colored maps are recommended.

2.1.10 Minimum Fire Size

All plans must be cost effective and document values at risk. There is no minimum size fire required in order to receive funding for ES&R treatments; however, smaller incidents must document values at risk to gain funding approval.

2.1.11 BLM National Seed Warehouse

The Bureau of Land Management (BLM) National Seed Warehouse is located at the Boise District Office in Boise, Idaho. A wide variety of native and introduced seed is purchased, tested, and stored at this facility. The use of the National Seed Warehouse is not mandatory. Seed may be purchased locally if it is more practical or desirable to do so. However, all seed testing and noxious weed restrictions still apply. All seed purchased by the National Seed Warehouse is tested for purity, germination, and applicable State-listed noxious and other weeds.

Also see the Seed Selection, Testing, Treatments, and Purchasing sections below.

2.1.12 Pre-existing Conditions

ES&R funds cannot be used to settle long-standing disputes or completely address pre-existing conditions. For example:

- A riparian area is dominated by salt cedar. A fire burns through the area and funds are requested to stabilize and rehabilitate the area. While it is appropriate to address the potential spread of salt cedar as a result of the fire and to replant herbaceous and woody vegetation to stabilize/rehabilitate the area with more desirable vegetation, it is not appropriate to use ES&R funds to remove all of the salt cedar that were there before the fire.
- The burned area was in a poor pre-fire condition, infested by 30 percent cheatgrass. It is appropriate to stabilize soils and inhibit increased expansion of invasive species (cheatgrass) by seeding with perennial species using ES&R funds, but it would not be appropriate to expend ES&R funds to reach a post-stabilization/rehabilitation objective of less than the 30 percent that existed before the fire.

2.1.13 Research

Formal research investigations of treatment effectiveness and fire ecology issues are defined as individual projects and cannot be funded by ES&R.

2.1.14 Timeliness

ES&R treatments must be implemented, to the extent possible, before additional damage occurs to the burned area, immediately downslope of the burned area, or before undesirable vegetation becomes established. Treatments must be implemented at a time that will ensure a high or maximum probability of success (see Table 2).

2.1.15 Travel and Training

Funding for travel and training must be tied to specific ES&R projects unless otherwise discussed with the CPN Region Wildland Fire Program Manager. Examples of appropriate uses of ES&R funds for travel and training include sending personnel to ES&R-related training

courses (i.e., Project Inspector, Contracting Officer's Representative (COR), Seed COR, Pesticide Use Applicators, and Burned Area Emergency Response (BAER) Training), or travel costs to attend seed purchases or lessons learned meetings.

2.1.16 Values at Risk (Values to be Protected)

While conducting the burned area assessment, values at risk must be documented and analyzed. High values at risk would include situations such as infrastructure at the bottom of a drainage, a community's only source of potable water, or a stream with federally listed threatened or endangered fish. The expenditure of ES&R funding must be commensurate with the values at risk. The primary questions to ask when determining values at risk are: Is the site at risk of further degradation? What can be done to prevent further degradation?

2.1.17 Work Schedule

Given the emergency or urgent nature of the ES&R program, it may be necessary to work long hours or weekends and holidays or travel to remote locations via helicopter. At all times, Reclamation policy on hours worked, travel requirements, and safety considerations shall be followed.

Overtime may be authorized when deemed necessary by a supervisor. True overtime (code 113) can only be earned by ES&R personnel working on an ES Plan (essentially doing assessments in the field on an active fire) for up to 10 days after control of the fire or until the initial ES Plan is submitted for approval, whichever is shorter. The Interagency Incident Business Management Handbook states:

- 12.11 (2) Those involved in the preparation and approval of a Burned Area Emergency Stabilization and Rehabilitation Plan (ESR) whose overtime hours worked are exempt from coverage under the FLSA. The new overtime provision will apply only until the initial ES Plan is submitted for approval.
- 12.11 (4) In order to qualify for the pay provision, an employee's overtime work must be charged to a wildland fire, ESR, severity, or wildland fire suppression funds tied to the support of suppression operations and the overtime must be recorded on a timesheet approved by the appropriate supervisor.

Guidelines for hazard/environmental pay differential is covered in the Interagency Incident Business Management Handbook:

- Section 12.9: GS employees and 12.10 for Prevailing Rate Employees.
- Section 12.9-3: Criteria for Entitlement to Hazardous Pay Differential for Irregular and Intermittent Hazardous Duties list 4 categories for hazard pay: 1) firefighting, 2) limited controlled flights, 3) groundwork beneath hovering helicopter, and 4) work in rough and remote terrain. Burned area rehabilitation [Burned Area Emergency Response] (BAER Team) or other rehabilitation work does not meet the definition of firefighting for hazard pay eligibility; however, hazard pay under 2, 3, or 4 from above may apply in very

limited circumstances. Line Officer determination and documentation is necessary to authorize hazard pay.

Work/rest guidelines outlined in the Interagency Business Management Handbook shall be followed. National Incident Operations Driving Standards shall also be followed.

2.2 Treatment Guidance

All ES&R treatments (fences, culverts, water bars, etc.) must comply with applicable Reclamation policy and should be designed to be cost-effective, commensurate with the values at risk, and to meet stabilization/rehabilitation objectives.

2.2.1 Cadastral Survey

Emergency stabilization or rehabilitation funds may be used to mark treatment area boundaries between agency and private lands, or agency/agency administered lands. These funds may also be used to locate and flag existing monuments such as section, quarter, and property corners for avoidance prior to any surface-disturbing activity that could result in damage to or destruction of the monuments. If an existing monument is removed or destroyed by a surface-disturbing activity associated with ES&R treatments, ES&R funds may be used to reestablish the marker. ES&R funds will not be used to resolve long-standing large-scale ownership issues or replace monuments removed or destroyed by the fire or by fire suppression activities.

2.2.2 Clean Water Act

Certain ES&R treatments are regulated under the Clean Water Act. Nationwide Permit 37 (U.S. Army Corps of Engineers 2017) describes actions that must be taken prior to implementing certain treatments. The placement of sediment control structures may have impacts to aquatic resources and thus require authorization under Sections 401 and 404 of the Clean Water Act. Activities such as the installation of straw check dams, rock dams, culverts, and other measures intended to stabilize ground cover and slow the rate of soil erosion in perennial and intermittent stream channels and other waters of the U.S., including wetlands, require written notification to the local U.S. Army Corps of Engineers (Corps) District Office.

Locations of these types of treatments will be coordinated with the local office Natural Resource Specialist to acquire the required permits. The Corps may require modifications to ES&R treatments to ensure that the environmental impacts to stream channels or wetlands are minimal. If adverse impacts of the proposed activities are more than minimal, the Corps should notify the applicant that an individual permit is required. Examples of certain ES&R activities that may require Section 404 authorization include placing rocks in an active stream channel to create a check dam.

2.2.3 Closures

Closures may be established under the authorities at 43 CFR 423.12 for public safety. In emergency situations where delay would result in significant and immediate risks to public safety, security, or other public concerns, an authorized official may close all or portions of Reclamation facilities, lands, or waterbodies without advance public notice.

2.2.4 Contour Log Felling

Contour log felling consists of falling burned trees or importing small diameter logs and anchoring them perpendicular to the slope to slow down erosion. A shallow trench (about 2 to 6 inches deep) is dug along the contour. The log is placed in the trench and seated with tamped backfill such that water flowing down the slope will not run under it. For specifications, see references from the following NRCS Colorado Fact Sheets:

Contour log felling is an acceptable ES&R practice and can be funded using ES&R funding. Also see the Log Erosion Barriers section below.

2.2.5 Historic Properties & Traditional Cultural Places

Emergency stabilization objectives related to historic properties and traditional cultural places are: 1) to stabilize and prevent post-fire related degradation to historic properties, including significant archaeological sites and districts, cultural landscapes, traditional cultural places, and historic structures, and 2) to ensure ES&R treatments comply with Section 106 of the National Historic Preservation Act (NHPA). In the first case, where fire-related damage may contribute to further degradation of historic properties, ES&R funds may be used as follows: a) to determine if known resources are at risk from such degradation (see “Identifying resources at risk” below), b) to determine if stabilization is possible and cost-effective for such resource, and c) to implement stabilization treatments.

ES&R funds are limited to stabilizing resources that have been placed at risk by wildfire; therefore, it is not appropriate to use ES&R funds to conduct NHPA Section 106 inventories or documentation that are not associated with ES&R undertakings. This includes inventories and documentation of damage caused by fire suppression activities which would be funded by the respective wildfire incident suppression accounts.

ES&R treatments are subject to the provisions of Section 106 of the National Historic Preservation Act. If the initial review by CRM professionals, as defined in Reclamation Manual D&S LND 02-01, indicates that ES&R activities have the potential to affect historic properties, then ES&R funds may be spent for Section 106 compliance.

Emergency Stabilization Treatments

The purpose of emergency site stabilization and protection actions is to ensure that critical historic properties will retain their integrity and associated values and will not be adversely affected by the consequences of wildfire. Emergency stabilization actions are directed at resources that are in danger of further degradation due to the effects of a wildfire. Successful

stabilization serves to protect historic properties and traditional cultural places and helps to preserve significant built environments. In relation to historic properties and traditional cultural places, emergency stabilization funds may be used to:

- Determine which properties are at risk from post-fire degradation due to erosion, looting, or other effects.
- Assess those resources to determine if stabilization is possible and cost-effective to prevent further degradation.
- Complete NHPA Section 106 compliance for ES&R activities where these are deemed appropriate.
- Implement stabilization actions to prevent further damage, once NHPA 106 compliance has been completed.
- Implement Section 106 compliance for other ES&R activities where appropriate.

Procedures

Identifying resources at risk:

It is appropriate to use ES&R funding for identifying historic properties potentially at risk within treatment areas. Review of historic properties and potential traditional cultural places is a standard approach to NHPA 106 compliance. This review includes, but is not limited to, inspection of the WA State known site location database (WISAARD), site location probability models, archival data, consultations with WA-DAHP/SHPO and THPOs, and pre-implementation inventories of the treatment areas.

Evaluating the risk: Emergency stabilization actions must be commensurate with the values at risk. A standard measure of such values includes those aspects of a site that make it eligible for listing in the National Register of Historic Places (NRHP). Pre-implementation historic properties inventories includes evaluating respective historic properties' NRHP eligibilities.

Stabilization: Stabilization actions are those which prevent or minimize further damage to historic properties and traditional cultural places due to the effects of a fire. Stabilization methods do not include data recovery except in extremely rare occasions where recovery of information is the only possible or least costly alternative to preventing further damage from fire effects. Such considerations may be the case for exfoliating rock image panels, for example, where there is no feasible way to stabilize the degradation. These instances need to be justified and approved by Reclamation managers and in consultations between Reclamation, WA-DAHP and affected Tribes' THPOs on a case-by-case basis.

Implementation: CRM professionals should work closely with other specialists to coordinate stabilization assessments and treatments. Treatments may include, for example, hazard tree removal; erosion prevention; patrolling, area closures (i.e. locked gates, temporary/permanent fencing, posted signage, etc.), and camouflaging where sites are at risk from looting. Where looting is a concern, there should also be a determination with regard to the cost-effectiveness of law enforcement patrols versus the other protection measures such as road closures, public awareness contacts, or use of site stewards. NHPA Section 106 compliance review may determine that implementation requires monitoring by CRM professionals to prevent adverse

impacts to significant historic properties; implementation monitoring would be an appropriate use of ES & R funding.

Burned Area Rehabilitation Treatments

The NHPA 106 compliance requirements for a rehabilitation treatment follow the same guidelines as for emergency stabilization but BAR treatments are funded for up to five years. Restoration of historic properties to pre-fire condition (such as rebuilding log cabins or other structures) is not appropriate for rehabilitation funding (620 DM 7). Funding is limited to preventing further post-fire degradation to historic properties, due to erosion, looting, other fire effects, or for NHPA Section 106 compliance for other proposed rehabilitation treatments. This could include protection or rehabilitation treatment of historic Reclamation infrastructure that is still in use.

National Historic Preservation Act Compliance

Emergency stabilization and rehabilitation actions are subject to the provisions of Section 106 of the NHPA and 36 CFR 800. Compliance with Section 106 is part of any treatment that has the potential to affect historic properties and traditional cultural places and is required for all ES & R undertakings prior to implementation. ES&R funding covers compliance with the NHPA for treatments; this compliance includes consultations with WA-DAHP/SHPO and affected Tribes on the proposed ES & R treatment plan; inspections and level of effort required to identify historic properties; site documentation and NRHP evaluations; determinations of effect to historic properties; and inventory documentation and reporting.

CRM professionals should be involved early in ES&R treatment planning to facilitate compliance with Section 106 and to minimize delays for anticipated ES&R projects. When necessary, CRM professionals also assist ES&R teams to comply with other historic preservation laws and regulations, such as the Archaeological Resources Protection Act and the Native American Graves Protection and Repatriation Act.

Fire Suppression Activities and Historic Properties

Fire suppression damage and repair actions will be included in suppression repair efforts and will be charged to the wildland fire suppression effort that resulted in the damage. Fire suppression damage repair will not be charged to Emergency Stabilization or Rehabilitation.

2.2.6 Culverts and Rolling Dips

Culverts may be installed or removed along roadways on public lands using ES&R funds if it is determined by an engineer or hydrologist that the existing culvert might not be large enough to handle the predicted amount of runoff from the burned area. In areas where culverts are not needed or may not sustain peak flows, rolling dips may be installed/constructed in roadways following Reclamation specifications. All culverts in areas possessing native fish species must facilitate fish passage and meet appropriate criteria.

2.2.7 Facilities Repair and Replacement

The repair or replacement of minor improvements and facilities (e.g., kiosks, fences, enclosures, small water pipelines, interpretive or boundary signs, recreation facilities (tables, outhouses, etc.), water control structures, corrals, guzzlers, trails, etc.) burned or damaged by fire to pre-fire specifications is authorized with the use of ES&R funds only if these improvements or facilities are addressed in an appropriate planning document. Facility repair or replacement associated with public health, safety, or resource protection is addressed in the ES Plan and minor facility repair or reconstruction is addressed in the BAR Plan.

ES&R funds may not be used to upgrade facilities to higher standards than existed before the fire (e.g., increasing a wildlife water guzzler from 20,000-gallon capacity to a 40,000-gallon capacity or a restroom from a one-hole fiberglass facility to a two-hole concrete facility) or to construct new facilities that did not exist before the fire. However, the difference in the cost of an upgrade (above the cost of replacing the original facility) may be paid for with another funding source. In areas of moderate or high fire frequency, metal posts/pipe posts or metal panels/gates may be substituted for older wooden fences during post-fire repair. Maintenance of repaired or reconstructed improvements beyond 5 years from containment of the fire is funded by other sources, not ES&R funds.

Replacement or repair of major facilities (e.g., visitor centers, residential structures, administration offices, work centers, vehicle bridges, or similar facilities and their contents) is not an appropriate use of ES&R funds.

2.2.8 Facility Inspection/Structural Stabilization and Clean-up

A visual inspection for hazardous conditions/materials and structural integrity of government-owned structures affected by fire is required prior to the structure being reopened or made accessible to the public. Inspections are conducted for structural integrity by a qualified engineer assigned to the interdisciplinary ES&R team or project. A written condition assessment (including hazardous materials; hazmat) of each affected structure is submitted as part of the approved ES&R Plan. Should this assessment occur following demobilization and the closure of the fire suppression accounts, it may be funded through the ES&R account. ES&R funds are not to be used to develop reconstruction or repair plans or to initiate or complete any of the work outlined in these documents (including hazmat mitigation). For safety purposes, security measures requiring prohibiting public access to damaged structures or hazmat sites may be paid for using ES&R funds. Facilities used by suppression forces should be cleaned/repaired using the fire suppression account and may include such activities as carpet cleaning, painting, etc. Facilities utilized by ES&R personnel should be cleaned/repaired using the ES&R account. Also see the Hazardous Materials section below.

2.2.9 Fences, Cattleguards, and Gates

Protective fences may be constructed using emergency stabilization funds to protect burned areas from impacts by wildlife, domestic livestock, wild horses/burros, or humans and for the health and safety of agency personnel and the public during the recovery period for burned vegetation or the establishment period for new seedings. Fencing may serve as either temporary protection only or as a permanent management fence if a seeding or recovered area requires separate management to maintain the investment. Fences should be placed around the perimeter of the burn to the minimum degree required, considering topography, rock outcrops, soils, existing fences, etc. When not needed for long-term management, protection fences should be reused on new ES&R projects after the protection period is over, if feasible. Prior to proposing any new fences, an analysis of the existing fences must be completed to see if they can meet the identified need.

Fences are generally installed:

- To protect a new ES&R seeding from grazing during the establishment period and to manage the seeded area after it is established to maintain the seeded species.
- Where it is determined that the native vegetation will adequately recover if protected from grazing, and the area does not require further treatments to reestablish plant species, composition, or cover.

New fencing that exceeds the amount required to protect new seedings or the burned area will be funded by another benefiting subactivity. Constructing new fences on private/public land boundaries to keep privately owned livestock off adjacent burned or rehabilitated public lands is the responsibility of the private landowner(s). Therefore, ES&R funds are not to be used to construct new fences on the private/public land boundary unless state laws (e.g., herd districts) require a different approach, or under the conditions described in the following paragraphs.

Appropriate administrative and/or legal action should be taken when livestock trespass on public lands closed for stabilization or rehabilitation purposes occurs and the private landowner is responsible for fence construction or maintenance.

Construction of fences on the boundary of or across private or state lands may be considered if 1) the fence was originally constructed by Reclamation, 2) the fence meets the criteria found in the Wyden Amendment (see the Wyden Amendment section below), or 3) if it can be clearly shown that construction of this fence results in a cost savings to the government compared to fencing only on public lands. Situations in which this exception might apply includes where a shorter fence can be constructed by crossing private or state lands compared to building the fence on the private/state and public land boundary, or where the topography is such that it costs less to construct the fence on the private land (e.g., steeper or rockier on the public than the private). Reclamation must acquire an easement from the landowner prior to fence construction (including cattleguard installation if required). The easement should be for 4 to 5 years in case additional livestock exclusion is required beyond the second growing season. Also see the Livestock Management Post-Fire section below.

Cattleguards may be installed on maintained county, agency, or state roads, and areas of high use where a gate would present a safety hazard to the public or would be impossible to keep closed. Cattleguards are not to be installed with ES&R funds on lightly traveled roads and two-track trails where a gate would suffice. A state or county permit must be obtained if required prior to installation. Warning signs concerning gates and cattleguards may also be installed with ES&R funds to reduce public safety concerns. A cattleguard installed in conjunction with a temporary protection fence must be removed and used on future ES&R projects.

Emergency stabilization funds can be used to maintain ES installed/funded fences, cattleguards, or gates for a period of up to 3 years.

Removal of protective fences and cattleguards can be funded with emergency stabilization funds within the 3-year period following a wildfire. After 3 years, funding other than from ES&R will be required. If a temporary fence is to be reused on a new ES&R project, removal of the old fence and installation on the new ES&R project can be funded through the new ES&R project.

Existing Reclamation-approved fences that are documented with a project number in the Rangeland Improvement Project System that are burned within the perimeter of the fire may be repaired or reconstructed using rehabilitation funding (considered as minor facilities). However, if the existing interior fence is to be used as the seeding protection fence instead of constructing a new fence, then it can be repaired using emergency stabilization funds. In cases of threats to human safety, such as a highway protection fence having been burned, coordinate with the owner of the fence as quickly as possible. If action cannot be taken in a timely manner, then emergency stabilization funds may be used to repair the fence for human safety purposes until it can be rebuilt.

ES&R funding may be used to remove old, burned fencing that must be eliminated prior to drill seeding, fence replacement, or other mechanical treatment(s).

If it is more practical and economical to maintain or bring up to current standards (i.e., wildlife-friendly wire spacing) an existing Reclamation-approved fence a short distance from a proposed ES&R treatment, rather than build a new temporary fence, then ES&R funds may be used to maintain the existing fence.

On a case-by-case basis, an ES&R protection fence that is at the end of the project life may be bartered as excess property to offset the cost of removing the fence.

Non-standardized fence types paid for by ES&R funds include:

- EZ Panel – Temporary panels attached together with pipe clamps; used for short stretches.
- Electric Fence

2.2.10 Forest Treatments

Seeding or planting of trees for emergency stabilization (i.e., willows or cottonwood poles along a creek) is only appropriate if such actions have been demonstrated to be cost-effective in meeting project objectives of stabilizing watersheds to prevent downstream damage.

Tree planting using rehabilitation funding is consistent with Reclamation guidance:

- Reestablish burned habitat.
- Reestablish native tree species lost in a fire.
- Prevent establishment of invasive plants.

Although the initial burned area assessment of forest resource loss may be funded by emergency stabilization funds, a detailed timber salvage assessment and the costs associated with a salvage sale (i.e., timber inventory, contract preparation, etc.) or the sale itself cannot be charged to the ES&R accounts.

2.2.11 Fuels Management/Greenstrips

Post-fire fuels management activities designed to address a fuels issue, not for site stabilization or to protect ES&R treatments, are not an appropriate use of ES&R funds.

2.2.12 Hazardous Materials

A visual inspection for hazardous conditions/materials and structural integrity of facilities affected by wildfire is required prior to their being reopened or made accessible to the public. Appropriate inspections are conducted by a qualified technical specialist. A written condition assessment (including hazardous materials, hazmat) of each affected structure is submitted as part of the approved ES&R Plan. ES&R funds may only be used to identify the location of hazardous materials and to prevent them from leaving the site through aerial seeding, hydro mulching, or trenches downslope, or for safety measures required to keep the public from entering the site (signs, barriers, and road closures). ES&R funds are not to be used to develop reconstruction or repair plans, or to initiate or complete any of the work outlined in the hazmat assessment document. ES&R funds may not be used for hazardous material removal or mitigation. Hazardous materials discovered during field assessments may be secured with emergency stabilization funds. Also see the Pre-existing Conditions Section under the Administrative Actions section above.

2.2.13 Hazard Tree Removal

The cost of cutting trees destroyed by fire (hazard trees) where they are a danger to the public (i.e., along roads, trails, campgrounds, and high use areas) is an appropriate use of ES&R funds. Also see the Contour Log Felling section above.

2.2.14 Insect and Rodent Control

Outbreaks of rodents or insects may threaten seedings or returning native vegetation. ES&R funds may be used to protect seedings/returning vegetation from damage on a limited basis. After consultation with the U.S. Department of Agriculture's Animal and Plant Health Inspection Service and state wildlife agencies, ES&R funds may be requested for rodent or insect control.

Additionally, the time and costs of necessary NEPA compliance, pesticide use proposals, etc., will need to be considered in overall plan development.

2.2.15 Invasive Plant Control

ES&R funds can be used to control non-native invasive plants within burned areas when it can be documented that those plants may quickly invade or hamper reestablishment of native vegetation or adversely affect the establishment or maintenance of a seeding. Invasive plant control treatments must comply with Reclamation guidance. An integrated pest management approach should include using a combination of chemical, biological, mechanical, and/or hand control methods, as well as post-fire weed assessment and monitoring. The cost to assess and control invasive species is an appropriate use of ES&R funds. Other funding for weed control must be acquired if treatments are needed after the 5-year time limit for rehabilitation funding. All invasive species control methods must conform to specific Reclamation policy (Reclamation 2020). Herbicide use within each state must be approved by the U.S. Environmental Protection Agency and labeled for use within that state.

Chemical, biological, and mechanical treatments necessary to minimize invasive species in conjunction with site preparation for ES&R seedings is an appropriate use of ES&R funds. The use of herbicides to control post-fire invasive species is appropriate if:

- The herbicides proposed are approved for the intended use in the appropriate state. All other applicable label and environmental restrictions must be followed.
- The application of herbicides is necessary to keep non-native invasive plants from invading and dominating the post-fire environment.
- The application of herbicides is necessary for site preparation before seeding or planting. (Do not include forb, shrub, or grass species in the seed mixture that are susceptible to harm by herbicides if it is likely that weed control may be needed after the burned area seeding has germinated or is established.)
- The revegetation of grasses, forbs, and shrubs to prevent the establishment or reestablishment of non-native invasive species is recommended after herbicide treatment.

A signed Pesticide Use Proposal must be in place with the correct approval signature from the Regional Office before any herbicides may be applied. Appropriate NEPA compliance documentation must be completed prior to the use of any herbicides. All instruction labels must be followed, and pesticides must be applied by an applicator who has an applicable state applicator license.

Washing vehicles and equipment to prevent the spread of invasive species or pathogens is an appropriate use of ES&R funds.

Tribal notification of herbicide uses in known gathering areas will be done prior to application and durable signs will be posted on-site. Herbicide-use signs are an appropriate use of ES&R funds.

2.2.16 Law Enforcement

Typically, costs to enforce public restrictions or closures are accomplished within existing program funding. However, there may be extraordinary circumstances that require ES&R funding for law enforcement efforts. Based on values at risk, law enforcement personnel may be needed in unique situations, such as to protect significant historic properties from looting or vandalism, to protect the public from safety hazards, and to enforce closures necessary for the recovery of burned or seeded areas. Use of ES&R funds for law enforcement efforts must be adequately described in the ES&R Plan with justification as to why the unique situation may warrant enforcement action. It may be appropriate and feasible to enlist the assistance of local law enforcement authorities, BLM law enforcement (43 CFR 422.4 (a); Public Law 107-69), or state wildlife agency personnel, etc., in addressing law enforcement needs; for example, the use of additional patrols or extension of existing patrols in the burned area during hunting season.

Also see the Closures and Recreation sections.

2.2.17 Livestock Management Post-Fire

It is critical to provide appropriate levels of rest or deferment from grazing after a wildfire to meet emergency stabilization and burned area rehabilitation goals and objectives, and to allow resprouting vegetation to recover and newly seeded species to become firmly established. Levels and duration of rest or deferment must be consistent with short-term emergency stabilization and rehabilitation objectives (such as stabilizing soils after wildfire to prevent erosion) as well as long-term land use plan objectives.

It often takes 2 years or longer to successfully establish a new seeding, especially when establishing native plants. During years of below-normal precipitation or drought, longer rest periods from livestock grazing may be needed to meet ES&R goals and objectives.

Alternatively, some ecosystems may need less rest from grazing while they recover from a fire. For example, a high-elevation area that receives more than 16 inches of precipitation annually and was in good or excellent ecological condition before an early June fire may need less rest. Closures remaining in effect for longer than 3 years from fire containment fall outside of ES&R policy. After 3 years from the fire containment date, continued management of the burned areas falls under the local office's land use plan goals and objectives.

Before determining what actions to take, and pursuant to 43 CFR 429.3(d), Reclamation has the authority to extract or remove grazing use authorizations due to the removal of natural resources (i.e., burned vegetation).

Temporary fencing to exclude livestock grazing from seedings and resprouting vegetation may be necessary and should be evaluated to determine if fencing is necessary and the most cost-effective alternative. A more cost-effective method of vegetation protection to consider might be closing entire pastures or allotments in order to meet ES&R objectives. For example, if 75 percent or more of an allotment or pasture is burned, it may be more cost-effective to close the area rather than expend funds to install, maintain, and remove fences. ES&R funding can be used

to repair existing fences to protect recovering vegetation and seedings and is preferred to construction of new fences.

The use of ES&R funds to pay livestock herders or to offset loss of forage to livestock permittees/lessees is prohibited. ES&R funds can be used for inspecting burned areas within grazing allotments for compliance and should be identified in the ES&R plan. If livestock are found within closed areas, a Notice of Unauthorized Use and subsequent paperwork/actions should be issued.

2.2.18 Log Erosion Barriers

Log erosion barriers may be used to reduce soil erosion. These structures can be effective if properly installed (Robichaud et al. 2000). Also see the Contour Log Felling section above.

2.2.19 Mulching

Mulch material may be spread across areas to reduce soil erosion. Any material used as mulch must be certified as weed and insect free in accordance with individual state's Department of Agriculture laws and requirements. Consideration should be given to using biomass or wood chips from Reclamation lands first before proposing to use other types of mulch. See Colorado NRCS Fact Sheets at https://www.larimer.gov/sites/default/files/uploads/2017/2012_hydromulching_fact_sheet.pdf

2.2.20 National Landscape Conservation System

When an ES&R effort is initiated on Reclamation's National Scenic and Historic Trails, the ES&R assessment team should coordinate their efforts with local partners. If seeding or planting is necessary to prevent soil loss, control noxious weeds, or to restore habitat, etc., the use of native seed/plant species is strongly encouraged and may be required in some areas.

2.2.21 Prescribed Fire

Emergency stabilization or rehabilitation funding is not appropriate following prescribed fire projects in which fire behavior was within prescription. Emergency stabilization or rehabilitation funding may only be used on that portion of a fire that has been declared a wildfire.

Minor facilities and structures such as fences or kiosks on Reclamation lands that are burned during the escape of the prescribed fire may be repaired using ES&R funds. The use of ES&R funds for the repair/replacement of major facilities and structures such as telephone poles, buildings, or homes burned on Reclamation, other agency, or private lands as a result of prescribed fire is prohibited.

2.2.22 Recreation

Burned or seeded areas may be temporarily closed to the public (43 CFR 429.3(b)(f)) by excluding vehicle, bicycle, horse, and foot use if unacceptable resource damage would occur, or

if danger to the public is present due to fire damage or ES&R activities. Costs to enforce public restrictions or closures should be accomplished within existing program funding, except in extraordinary situations that require justification within the ES&R Plans and appropriate approvals. Also see the Closures and Law Enforcement sections.

2.2.23 Revegetation

Natural recovery by native plant species is preferable to planting or seeding. The potential for recovery of existing vegetation and the potential establishment of invasive species should be evaluated prior to deciding whether to seed a burned area.

Species seeded or planted on burned areas must provide the protection required by ES&R Plan objectives, be consistent with the appropriate approved LUP and be in compliance with Executive Order 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, December 5, 2016. The use of non-native seeds as part of a seeding mixture is appropriate only if 1) Suitable native species are not available, 2) the natural biological diversity of the proposed management area will not be diminished, 3) exotic and naturalized species can be confined within the proposed management area, 4) analysis of ecological site inventory information indicates that a site will not support reestablishment of a species that historically was part of the natural environment, and 5) resource management objectives cannot be met with native species.

The use of local seed sources for native plants is recommended, especially the proper subspecies of plants like big sagebrush as long as the seed can be secured, purchased at a reasonable price, and planted in a reasonable amount of time. Important elements to consider in selecting a seed mixture that includes native plants include the following:

- Suitability of the area to be seeded (avoid use of one-size-fits-all seed mixtures on landscapes with different site potentials). The use of local native genotypes is encouraged if seed can be applied at the proper time at a reasonable cost compared to a commonly available cultivar.
- Impacts of competition (weeds, other plants in the seed mixture, land uses) on native plant establishment and persistence.
- Approved Reclamation policy at the Regional level.

Planting techniques should be based on the seedbed requirements of different plants in the seed mixture. Seedbed preparation techniques including disking, harrowing, mastication, and chaining would directly disturb the soil surface and up to the upper 8 inches of soil horizons, exposing the soil surface to erosion. For example, some species may need to be planted in separate rows or different depths than other plant species. For example, Indian rice grass germinates best when seeded at 2 to 4 inches deep; however, Wyoming big sagebrush seed should be spread directly on a bare surface and very lightly covered with soil. Seed should be drilled or covered by dragging a chain, harrow, or other implement. Use aerial broadcast seeding only where it has shown to be successful over a period of years, based on experience or studies. Drilling and covering the seed usually results in the best success, while aerial/broadcast seeding without covering has some of the lowest success. Scientific studies and technical specialists with experience should be

consulted since success or failure of this type of project is contingent on proper seed selection and application, coverage, and climatic events.

Seedings should occur during the appropriate season to ensure seed stratification, germination, and establishment. Fall seedings are recommended for sites requiring cool-season species revegetation. Early-spring transplanting of seedlings is recommended to better use available moisture, thereby improving the success of seedling establishment. Consider postponing seeding if the site is in a prolonged drought or if a seeding cannot be accomplished during the proper time period.

The use of certified seed (i.e., blue tag) for plant cultivars is recommended if available and cost-effective to ensure that desired genetic traits are present. The use of source-identified seed (i.e., yellow tag) is recommended when native seed is collected from wildland sites to ensure that a local or otherwise adapted seed source is used to revegetate the burned area. Also see the Seed Selection, Testing, Treatments, and Purchasing section below.

Straw and other vegetative mulch materials like channel rice hulls must be purchased as certified weed- free and should be sampled and tested for noxious weeds prior to use.

Seeding using different plant species on different portions of the burned area is acceptable; refer to the relevant Ecological Site descriptions. Within a burned area, the use of more fire-resistant plant species along roadways in high fire frequency areas to protect new stabilization or rehabilitation seedings is acceptable if the cost does not exceed the average cost for the rest of the seeding effort.

Also see the Fuels Management/Green strips and Seed Selection, Testing, Treatments, and Purchasing sections.

2.2.24 Road Stabilization

Road maintenance using ES&R funds is limited to the following items:

- Repair of ES&R activity damage.
- Pulling ditches as part of culvert/rolling dip activities designed to increase water/material flow capacities and prevent a road from blowing out.
- Water bars or other structures to prevent road materials from eroding.

The following road maintenance related items are prohibited using ES&R funding:

- Normal road maintenance.
- Road reconstruction.
- Improving the road to better than pre-fire conditions.
- Maintenance, construction, or reconstruction of vehicle bridges – bridges are considered a major facility.

2.2.25 Rock Check Dams

Rock check dams are used where runoff is concentrated in a drainage way, swale, or road ditch that has lost all its natural protection due to the fire or will receive increased flow rates as a result of fire in the contributing drainage area. The rock dams will reduce erosion and trap sediment generated from adjacent areas or the ditch. Rock check dams should be limited to use in open channels that drain 50 acres or less. The construction of rock check dams is an appropriate use of ES&R funds. See Colorado NRCS Fact Sheets at https://co-co.org/wp-content/uploads/2018/07/2012-Rock-Check-Fact-Sheet.pdf

2.2.26 Safety and Public Health

Public use facilities such as campgrounds and restrooms that pose a health or safety risk after a wildfire can be stabilized or closed to public use using ES&R funds to protect human health and public safety. Law enforcement necessary for protection of public health and safety or for protection of natural resources and historic properties is an appropriate use of ES&R funding. Also see the Law Enforcement and Recreation sections above.

A risk assessment must be prepared for pertinent ES&R activities. On an active fire, the same safety rules that apply to suppression also apply to ES&R activities.

2.2.27 Seed Selection, Testing, Treatments, and Purchasing

The use of native is preferred to non-natives for ES&R projects. However, a mixture of native, native-like and/or non-native species is preferable to using only non-natives if the desired species are not available. Competitive non-native seed or plants should not be used in a seed mixture to facilitate the establishment and persistence of the native species.

Noxious weed seed is not allowed in certified seed according to individual state's Department of Agriculture seed law and the Federal Seed Act (7 USC Sections 1551-1610) and specifications JJJ-S-181. The Federal Seed Act can be found at https://www.loc.gov/item/uscode1940-001007037/.

It has been acceptable for the seed lot (excluding species on the state and Federal noxious weed seed list) to contain 0.5 percent by weight of other weed seeds; the seed lot shall contain no noxious, prohibited, or restricted weed seeds according to state seed laws in the respective state(s). "Other weed seed" is defined as any non-noxious weed seed, such as cheatgrass (downy brome) or Russian thistle in the state(s) of concern. Seed may contain up to 2.0 percent of other crop seed by weight, which includes the seed of other agronomic crops and native plants; however, a lower percent of other crop seed is recommended. If seed is not purchased through the BLM National Seed Wearhouse, copies of the seed lab test results, including purity and germination (viability) rate, must be forwarded to the Regional Office prior to seed application. If the seed does not meet state/Federal standards for noxious weed seed content or other crop seed allowances, it shall not be applied to public land. All seed test results must be retained in the seeding project file.

Seed can be purchased that has been processed to enhance seed germination and survival. Some seed processing includes adding rhizobia inoculants for nitrogen fixation on legumes (including alfalfa), fungicide added to the seed, mycorrhizae inoculants of various beneficial fungi, and soil nutrients. Legume seed can be purchased with or without rhizobium inoculant. Each legume species or genus usually has a specific rhizobium bacterium that grows in association with it.

Rhizobia and mycorrhize are short-lived unless maintained in cold storage. The shelf-life is typically 6 months to 1 year. Re-inoculate legume seed with fresh rhizobium if the treated seed has been stored more than 1 year.

Seed can be procured with a coating (also known as pilling) that often consists of inert clay with inoculants and/or fertilizer. One purpose of seed coating is to add weight, with the soil-like material surrounding the seed to facilitate sowing by seed drills and aerial application. Coating seed is expensive and seeding rates must be adjusted to allow for the increased individual coated seed size and weight.

In the case of mycorrhizal inoculated seed, there may also be limitations with the soil pH on the site or the specific mycorrhizae for arid land plants are not available. It is often not necessary to include nutrients or fertilizer, especially nitrogen, with seed. Increased available nitrogen may be a factor on burned sites. Free nitrogen after a fire is usually not a limiting factor for plant growth. An increase in nitrogen after fires often promotes weed growth, including cheatgrass, as well as pioneer (early seral) plant species. Before purchasing seed enhanced with inoculants, mycorrhizae, or nutrients, analyze the cost and benefit to meeting seeding expectations. Check with knowledgeable seed specialists, agency and university researchers, and seed research literature for additional information.

Seedlings (Containerized or Bare-root Transplants) and Slips

Containerized or bare-root seedling planting is an acceptable treatment. Limited transplanting or nursery stock may be necessary to reintroduce a species into the disturbed area as a future seed source. Transplants require protection from herbivores and may require limited watering during the establishment period. Funding for watering is approved on a case-by-case basis.

Seeding Methods

Drill Seeding

Drill seeding is the preferred method for planting most types of seed and can achieve better plant establishment. Some monitoring studies indicate a success rate as high as 70 percent. It provides better seed contact with the soil and seed can be applied at a calculated rate.

Limitations include slope and seed types such as smaller seed or heavy seed, which may vibrate to the bottom of the drill and result in poor seed distribution. Most drills cannot effectively handle fluffy seed such as winterfat or small seed such as big sagebrush, and they cannot maneuver well around unburned vegetation such as pinyon or juniper trees or large rock surfaces.

Drill seeding can result in some ground compaction and slight soil disturbance, depending upon weather conditions. In areas with high resource values that are not compatible with disturbance

associated with drilling, such as historic properties, survey markers, special status species it may be necessary to mark areas to avoid prior to seeding.

Aerial Seeding

Aerial seeding without covering the seed is much less reliable than drill seeding. Monitoring studies have shown low success rates, particularly for shrubs such as big sagebrush. However, aerial seeding has no terrain limitations and can be effective on rocky slopes. This application method has no impact to the soil, likely has little to no impact to historic properties, or to special status species.

To ensure good information on acreage covered in the aerial seeding, a GIS shapefile should be required in the aerial contract and in the monitoring plan.

Broadcast Seeding

The use of ATV-mounted seeders, seeding machines called organ grinders, truck-mounted seeders, or tractor dribblers can be used on smaller tracts of land. This is often the preferred method for small quantities of specialized seed or in specific areas in which little or no ground disturbance is desired. On these small acreages, the seed should be covered by towing a harrow, sheep's foot, or chains behind the ATV or truck for best results.

Chaining After Aerial or Broadcast Seeding

Chaining, masticating, harrowing, or some method to cover the seed or incorporate the seed into the soil is recommended after broadcast or aerial seeding, but not required. Chaining/masticating can be accomplished over terrain where it is impossible or impractical to pull drills. Burned trees and shrubs may be knocked down or masticated to contact the soil surface and aid in erosion control, as well as providing protection and favorable microsite conditions for seeds. A seed dribbler can be attached to a tractor to dispense larger seed species[1].

Seeding Rates

Determining and applying appropriate seed rates is an essential aspect of developing cost-effective plans and for treatment success. ES&R plan preparers may consult the BLM National Seed Coordinator and other local plant material specialists when developing seeding treatments to determine the most appropriate species, seeding method, and seeding rate.

The USDA recommendation for drill seeding rate for large-seeded species is 20 seeds (PLS) per square foot. The recommended drill seeding rate for small-seeded species (most BLM seed mixes) is 30 to 40 seeds per square foot.

Broadcast or aerial seedings are recommended at the rate of 60 to 80 seeds per square foot, which is approximately double the rate for drill seeding.

Aerial or broadcast seeding rates should not be higher than has proven to be successful and cost-effective. As an example, 0.2 lbs. PLS of Wyoming big sagebrush seed (approximately 1.25 lbs.

[1] For further discussion of seeding methods, see Monsen et al., 2004.

bulk) per acre equals 11.5 sagebrush seeds per sq. ft. should not be exceeded, even in an aerial seeding.

In the same project area, considerations must be made for treatments planned in both the ES Plan and BAR Plan for all seeding treatments, including aerial, broadcast, and drilling. If multiple seed applications are planned, the rate per treatment should be lowered so that the total seed rate, combining all application methods, does not exceed 20 lbs. per acre. All ES Plans and BAR Plans must calculate and display proposed seeding rates.

2.2.28 Severity Data Collection

Remotely sensed information may be used in project planning, layout, and monitoring. The U.S. Geological Survey can provide burn severity mapping support.

2.2.29 Silt Fences

Silt fences can be effective in reducing soil erosion and may be purchased using ES&R funds. See the referenced Colorado NRCS Fact Sheet Silt Fence pdf.

2.2.30 Soil Stabilization

See the Log Erosion Barriers, Seeding, Mulching, Straw Bales/Wattles, Contour Log Felling, Silt Fences, Revegetation, and Rock Check Dams sections.

2.2.31 Straw Bales/Wattles

Straw bales or wattles, when installed properly, can be effective in reducing sediment delivery by trapping soil and are an appropriate use of ES&R funds. Straw bales or wattles must be certified weed-free. See Colorado NRCS Fact Sheets for specifications, available at https://www.larimer.org/sites/default/files/uploads/2017/2012_contour_wattles_fact_sheet.pdf

2.2.32 Suppression Activity Damage

Funding the repair of fire suppression activity damage is not an appropriate use of ES&R funds. . Repair of fire suppression activity damage is to be planned and performed primarily by the suppression incident organization as soon as possible and prior to demobilization.

Repairing damage to improvements and/or to resources caused by fire suppression activities should be accomplished by the fire suppression incident management team. This work should be completed prior to final demobilization of the suppression forces whenever practical. For example: Where heavy equipment and/or hand crews were used to construct fire lines, it may be more economical to use the same heavy equipment and/or crews to stabilize/rehabilitate those fire lines before being released from the incident. The suppression account remains open for several months after an incident to complete these activities. The following repair activities, necessitated by fire suppression activities, are examples of repairs that will be completed with wildfire suppression funds, not ES&R funds:

- Replacement of displaced soil and/or seeding vegetation on fire control lines; seeding may be delayed until the appropriate time (fall) to enhance success.
- Construction of water bars on primary and secondary fire control lines.
- Repair of structural improvements or facilities (e.g., fences) damaged by suppression activity.
- Repair of damage caused by operating the incident command base (i.e., spike camps and roads).
- Repair of roads used to access fire lines.
- Replacement of survey/cadastral markers damaged due to fire suppression tactics.
- Stabilization of historic properties disturbed by suppression activities.

During periods of high fire activity, fire suppression personnel may be unable to complete these tasks before being redirected to another incident. In these cases, the ES&R team may assess the suppression damage in the ES&R plan, implement appropriate treatments, and, in rare occurrences, charge the work to the fire suppression account for the incident.

2.2.33 Threatened and Endangered Species

Reclamation is required under 16 U.S.C. Sections 1531-1544 to conserve threatened and endangered (T&E) plant and animal species through conservation of the habitats upon which they depend and work closely with the U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries), as appropriate, on all emergency stabilization actions that may affect a threatened and endangered listed species or its habitat to ensure compliance with Section 7 of the Endangered Species Act. Timeframes for review and consultation may last several months and require initiation early in the emergency stabilization planning process, including during the development of the PESRP and in pre-season meetings. A burned area assessment should identify post-fire threats to Federal, Tribal, and State listed or proposed threatened and endangered species and what, if any, cost-effective stabilization and rehabilitation measures can be implemented to prevent further post-fire degradation to their habitat.

Although the ES&R goals and objectives are to prevent further degradation to T&E species habitat, biophysical or budgetary constraints may not allow the flexibility to do everything possible to mitigate the loss of T&E species habitat. For example, the desired site-specific native seed may not be available in quantities needed or it may not be feasible to reseed because of the lack of precipitation. Reclamation consults with the U.S. Fish and Wildlife Service or NOAA Fisheries, as appropriate, on all actions that may affect a listed species or its habitat to ensure compliance with Section 7 of the Endangered Species Act. A similar process is required for state agencies when state-listed species are involved.

2.2.34 Trails

To protect public safety, trails should be closed after fire until an assessment can be completed certifying the trail is safe. When closure is not possible, the trail and burned slopes in the

immediate proximity above and below the trail can be stabilized. Rehabilitation funding may be used to repair trails. Particular attention should be given to repair trails for public access to essential services. The emergency stabilization of any trail to a standard above its pre-fire condition is also prohibited. Appropriate trail stabilization/rehabilitation measures funded with ES&R funds include:

- Hazard tree removal – see the Hazard Tree Removal section above
- Stabilization of burned slopes in the immediate proximity above and below the trail to prevent further trail degradation.
- Water bars (breaks) – The absence of or insufficient water bars may create erosion-induced safety hazards. Construction of the soil, rock or log water bars is appropriate, but water bars damaged or destroyed by suppression efforts are repaired and/or replaced with wildfire suppression funding.
- Replacement of trail markers or signs burned by the wildfire is appropriate.

Using ES&R funds for the repair or replacement of major trail facilities is prohibited.

2.2.35 Treatment Failures

ES&R treatments may fail for a variety of reasons. Emergency stabilization funding may be used for up to 3 years to repair or replace emergency stabilization structures or treatments where failure to do so would imperil watershed functionality or result in serious loss of downstream values.

2.2.36 Wildlife

ES&R treatments must be consistent with wildlife habitat management objectives. Seeding criteria must include an analysis of cost, species, adaptability, probability of success, and weed competition, as well as other criteria in important wildlife habitats. The reconstruction of wildlife improvements may also need to be addressed in the ES&R plans and should be in accordance with policy and in coordination with the appropriate agencies and non-governmental organizations.

ES&R funds may not be used to study, monitor, or research the effects of a wildfire on wildlife species. Appropriate actions to mitigate impacts to wildlife habitat may be proposed in ES&R Plans such as seeding/planting vegetation needed by a wildlife species or to reduce sediment and ash from entering a stream.

Treatments to mitigate the loss of fish and wildlife habitat are not appropriate for emergency stabilization funding except to prevent permanent impairment of designated critical habitat for federal, state listed, proposed or candidate threatened and endangered species.

Reclamation does not have the authority to relocate any wildlife species. Also see the Threatened and Endangered Species section above.

2.2.37 Wyden Amendment

The Wyden Amendment (16 U.S.C. 1011(a) as amended) provides the authority by which some Federal agencies may consider funding work on non-agency administered land that will have a benefit to the public. The Wyden Amendment is one of several laws providing Federal agencies the authority to enter into watershed restoration and enhancement agreements (i.e., cooperative agreements) with non-Federal landowners such as other Federal agencies, Tribal, State, and local governments and private or nonprofit entities for the protection, restoration, and enhancement of fish and wildlife habitat and other resources on public or private land and the reduction of risk from natural disaster where public safety is threatened that benefit these resources on public lands within the watershed.

Reclamation may receive funding from an approved agency for projects on Reclamation lands. As of September 2025, it is still being decided if Reclamation may provide funding for projects on non-Reclamation lands.

Wyden policy/guidance may change annually. Please check the latest information before entering into any Wyden Amendment agreements.

2.2.37.1 Terms and Conditions for Using the Wyden Amendment

A cooperative agreement must be prepared and mutually agreed to by the Authorized Officer, the Financial Assistance Officer, and the landowner. The agreement shall be signed prior to project implementation and shall address the following terms and conditions:

- The project should reduce the risk from natural disasters where public safety is threatened or protect, restore, or enhance fish and wildlife habitat and other resources on public land in the watershed/landscape context.
- Provide for technical advice and assistance by Reclamation in the planning of management activities that will further the purpose of the agreement. Examples include NHPA Section 106 compliance and consultation, ESA Section 7 T&E compliance and consultation, NEPA documentation, Section 404 permits, etc.
- Partners to the cooperative agreement shall share in the cost as appropriate. Such costs may be in the form of contributed funds, in-kind services (such as providing equipment, monitoring, or maintenance activities), donated easements, rights-of-ways, or other real, personal, or property interest, or include other funding sources (described below).
- The project must show benefit to resources on public land within the watershed and be in the public interest.

Non-federal landowners may seek out other sources of funding to be used in conjunction with the Wyden Amendment including, but not limited to, other government programs such as the Natural Resource Conservation Service’s Environmental Quality Incentive Program, the Emergency Watershed Protection Program, and the Environmental Protection Agency’s Total Maximum Daily Load Program, as well as other non-profit, non-governmental organizations. However, other federal dollars cannot be used as the recipients matching funds.

Projects using Wyden Amendment authority, even when they are on non-Federal lands, must comply with all applicable Federal, state, and local laws, regulations, policies, and permit requirements (e.g., the Federal Land Policy and Management Act, the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, the National Historic Preservation Act, etc.).

All expenditures using the Wyden Amendment shall be with the concurrence of the National Post-Fire Program Lead.

3 Environmental Compliance

3.1 Overview of NEPA Options

The purpose of this section is to briefly describe the available methods to efficiently accomplish National Environmental Policy Act (NEPA) compliance for ES&R projects. Current NEPA implementing regulations are found in 43 Code of Federal Regulations, Part 46. Guidance for implementing NEPA is documented in the *U.S. Department of the Interior Handbook of National Environmental Policy Act Implementing Procedure*s and associated appendices (DOI 2025). The interdisciplinary assessment and planning team should incorporate guidance from NEPA specialists prior to implementing ES&R projects.

Prompt action following a wildfire is necessary to stabilize and prevent unacceptable degradation to natural resources and historic properties, minimize threats to life and property, repair or improve lands unlikely to recover to a management-approved condition, and repair or replace minor facilities damaged by fire. Following a wildfire, site-specific ES Plans and BAR Plans are prepared to describe the treatments necessary to address the fire-damaged lands. Compliance with NEPA is required for these planning efforts.

Figure 1 below illustrates the NEPA options for ES&R projects that have no significant impacts. Projects anticipated to have significant impacts are extremely rare in the ES&R program and require preparation of an environmental impact statement (EIS). Consult a Regional or Field Office NEPA specialist for additional guidance on NEPA requirements for specific ES&R projects.

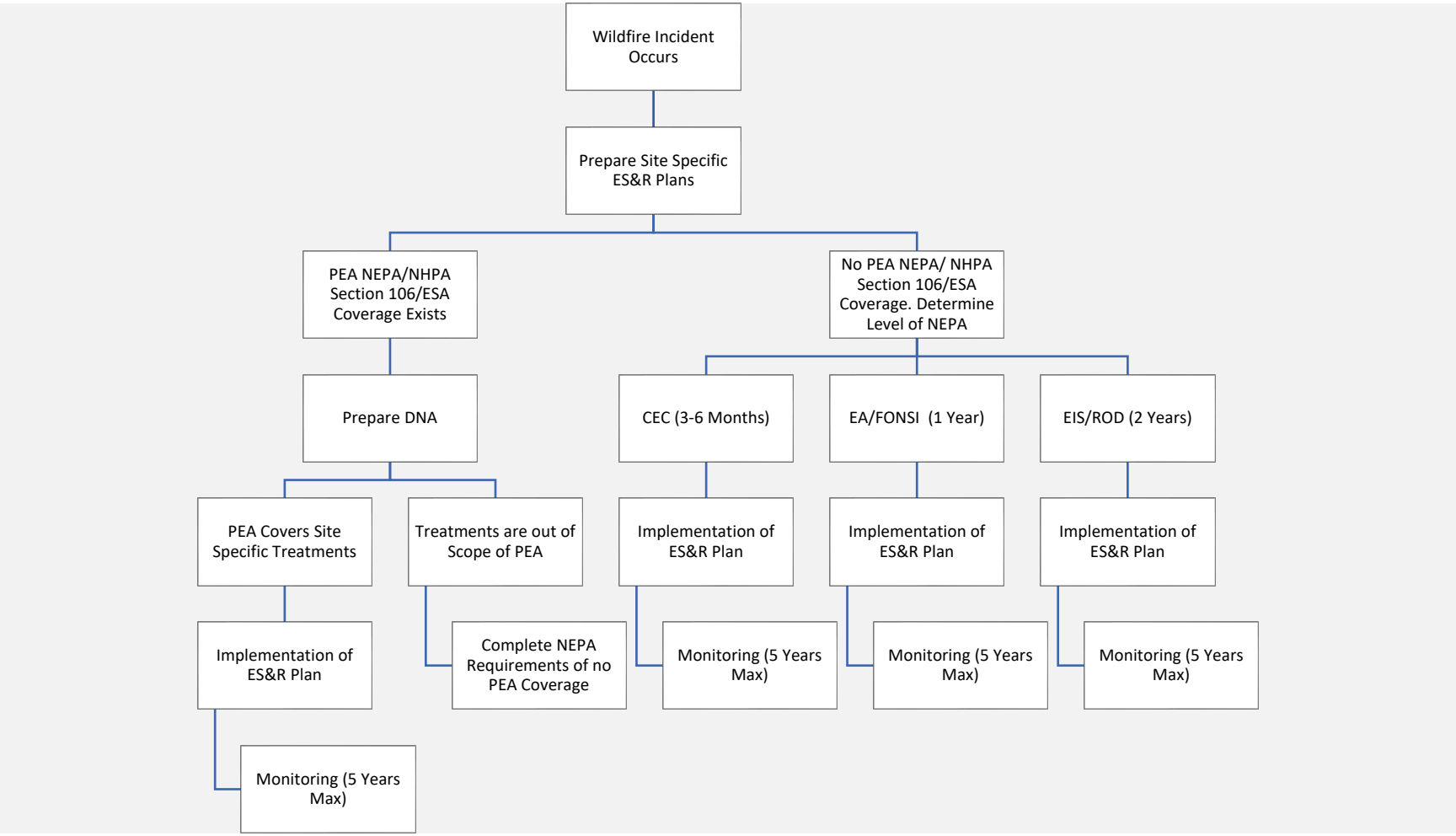

Figure 1. NEPA compliance options for Emergency Stabilization and Rehabilitation Plans (ES&R actions with no significant impacts)

3.1.1 Environmental Assessments

Reclamation must prepare an EA for all actions for which there is no appropriate categorical exclusion (CE), or for actions that may fall under an exclusion category but do not qualify under the CE checklist criteria (*U.S. Department of the Interior Handbook of National Environmental Policy Act Implementing Procedure*s Appendix 3; DOI 2025). A programmatic EA may be developed to evaluate the environmental effects of policies, programs, plans, or groups of related activities. Where an existing programmatic EA is relevant to a proposed action, Reclamation can use the tiering process to determine whether the effects of the proposed action are analyzed in the programmatic EA, document the review through a Determination of NEPA Adequacy (DNA), and implement the project without further NEPA analysis if all effects of the proposed action are discussed in the programmatic EA.

It is important to keep in mind that a Programmatic EA for ES&R does not address the historic preservation compliance requirements of NHPA Section 106, nor does it cover endangered species compliance requirements under the Endangered Species Act. Without a Section 106 programmatic agreement for ES&R activities and without separate ESA compliance, each ES&R undertaking will require its own NHPA Section 106 review and ESA review prior to implementation.

A Programmatic Environmental Assessment (PEA) can streamline NEPA compliance by providing a complete analysis of the typical ES&R treatments most commonly used within Reclamation lands. Prior to initiating ES&R activities following an individual wildfire, Reclamation can conduct a DNA review to ensure the NEPA compliance for the proposed activities is covered in the programmatic EA. Field Offices that experience frequent fires should consider preparing a PESRP with associated NEPA documentation to gain efficiency in NEPA compliance and to meet the short timeframe required for wildfire ES&R actions. Offices without a PESRP should consider whether a CE applies or if an EA or EIS is needed.

A DNA is a tool to determine whether a previously completed NEPA analysis can satisfy NEPA's requirements for a subsequent, new proposed action. Following completion of the ES&R programmatic EA, Reclamation would review each subsequent ES&R plan through a DNA to confirm that the plan falls within the scope and impacts analyzed in the programmatic EA. In making this determination, the responsible official shall evaluate:

- Is the proposed ES&R action essentially the same as that previously analyzed in detail in the programmatic NEPA analysis?
- Is the range of alternatives previously analyzed adequate under present circumstances?
- Are there any significant new information or circumstances relevant to environmental concerns that would substantially change the analysis in the existing NEPA document(s)?
- Are the effects that would result from implementation of the new proposed action similar to those analyzed in the existing NEPA document(s)?

New project and activity decisions made based on a DNA shall be subject to all applicable notice, comment, and administrative review processes. The DNA increases efficiency by reducing redundant analyses of substantially similar proposed actions with substantially similar impacts. The DNA is used by other agencies like Reclamation and is an extension of established NEPA concepts to avoid redundancy such as incorporation-by-reference, tiering, and adoption

3.1.2 Categorical Exclusions

A categorical exclusion (CE) is a category of actions that a federal agency has determined normally does not significantly affect the quality of the human environment. The Department of the Interior has numerous CEs available for use by Reclamation (see *DOI Handbook of NEPA Procedures Appendix 2* [DOI 2025]), including a few that may be applicable to ES&R activities. A Categorical Exclusion Checklist (CEC) can be used to document NEPA coverage for ES&R activities, where applicable. If a programmatic EA for ES&R is available and includes activities contemplated for a CEC, then use of a DNA is more appropriate. Discuss applicability and documentation of DOI CEs for ES&R activities with Regional or Field Office NEPA staff. Reclamation currently utilizes a few commonly applied categorical exclusions for post-fire activities; however, additional categorical exclusions are available and may be considered depending on the specific scope and nature of the proposed actions: The main CECs currently used by Reclamation for post-fire activities are below:

- 46.210(k): Hazardous fuels reduction activities using prescribed fire not to exceed 4,500 acres, and mechanical methods for crushing, piling, thinning, pruning, cutting, chipping, mulching, and mowing, not to exceed 1,000 acres.
- 46.210(l): Post-fire rehabilitation activities not to exceed 4,200 acres (such as tree planting, fence replacement, habitat restoration, historic property and traditional cultural places restoration, repair of roads and trails, and repair of damage to minor facilities such as campgrounds) to repair or improve lands unlikely to recover to a management approved condition from wildland fire damage, or to repair or replace minor facilities damaged by fire.
- 12.5.E(6): Restoration of noncontroversial native species into suitable habitats within their historic range and elimination of exotic species

4 Monitoring, Evaluating, and Reporting

Monitoring is required on all ES&R plans. The level of monitoring required for ES&R projects will be commensurate with the complexity of the project, level of concern, and the objectives in the plan.

Monitoring using ES&R funding can only be used to assess treatment implementation and effectiveness and cannot be used to study the effects of fire on soils, vegetation, water, or wildlife. As examples:

- Log erosion barriers are used to reduce erosion. A study site may be placed in a stream using ES&R funds to measure the amount of materials entering the stream.
- A fire burned through spotted owl habitat. ES&R funds may not be used to see what impacts the fire has had on spotted owls.

4.1 Monitoring and Evaluation

All ES&R plans should include objectives that are specific enough that appropriate monitoring studies can be used to determine if the objectives are met.

ES&R monitoring funds are limited to determining if the treatment is needed, was implemented as specified in the ES or BAR plan, and was effective (i.e., did the treatment meet the goals and objectives of the ES or BAR Plan?).

ES&R funding is not appropriate to monitor for:

- The impacts or effects of the fire (e.g., water quality monitoring to evaluate the impacts of the burn on post-fire recovery of an endangered aquatic species; post-fire monitoring of threatened and endangered species presence, reproductive status, or reproductive success, etc.).
- Long-term monitoring (more than 3 years following containment of the fire) related to treatment longevity and effectiveness and the plant community dynamics of the project. This type of monitoring is appropriate for the Joint Fire Science Program, National Fire Plan, or base funding.

Monitoring and evaluation to determine the effectiveness of treatments is funded for up to 3 years following containment of the fire. Monitoring priority should be given to those areas where unique treatments were implemented or where resource values or public concerns are high. Reference areas or control plots may be needed to support validity of treatment objectives and to detect changes between untreated (natural revegetation, untreated watersheds, etc.) and treated (planting and seeding, treated watersheds, etc.) areas. Use existing monitoring sites if possible.

Effective monitoring methods should be used. Take photographs at all monitoring sites. Cooperative efforts in monitoring ES&R projects are encouraged; these efforts could be combined with other Reclamation programs, research organizations, neighboring offices, agencies, or universities. Standardized protocols in monitoring should be used to ensure data comparability, consistency, and shareability.

4.2 Reporting

4.2.1 Data Tracking

All ES&R projects must be entered into the Interior Fuels & Post Fire Reporting System (IFPRS). Financial information and units of accomplishment must be entered into the MIS/FBMS tracking systems.

Other tracking systems may be developed for use in the ES&R program or the Region as needed.

4.2.2 Closeout Report

At the end of the 5-year lifecycle of an ES&R project, a Closeout Report listing all funds expended, success or failure of treatments, and lessons learned will be documented by the WFM Program. These reports will be available in Reclamation's Enterprise Content System (ECS).

5 Glossary of Terms

Following are the acronyms and definitions for terms used in this Handbook or useful in understanding closely associated programs.

-A-

Activities – Activities are tasks such as monitoring, plan writing, or administrative functions.

Agency Administrator – The line manager having direct organizational responsibility for management of an administrative unit. May include Director, State Director, District Manager or Field Office Manager.

Assessment (Burned Area Assessment) – Burned area assessments are conducted to validate anticipated emergency stabilization or rehabilitation needs either defined in fire and resource management plans or identified in initial fact-finding activities and determine what realistic and cost-effective emergency stabilization and rehabilitation treatments are needed. Assessments are not to be used to document the effects of the fire or to validate whether an appropriate management response (e.g., limited or modified suppression) was appropriate.

-B-

Burned Area Emergency Response Plan (BAER Plan) – An emergency stabilization plan that involves multiple agency ownership or on large complex wildfires where preparation of a plan is beyond the capability of the local staff and values-at-risk are extremely high.

Burned Area Emergency Response Team (BAER Team) – A standing or ad hoc group of technical specialists (hydrologists, rangeland management specialists, biologists, soil scientists, etc.) that is assigned to prepare a BAER Plan. A BAER Team may be requested through the Incident Command System prior to wildfire control or later through the appropriate line management decision process.

Burned Area Rehabilitation (BAR) – Efforts undertaken within 5 years of containment of a wildfire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire.

Burned Area Rehabilitation Plan – A site-specific document that identifies non-emergency treatments and activities to be carried out within 5 years following containment of a wildfire needed to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by the fire.

Burn Severity – Refers to the change in watershed relating to the severity of effects on soil hydrologic function, mapped as high, moderate, low, and unburned. Also, reflects on a broader sense the effects of a fire on the environment, with an emphasis on what is left with regards to environmental characteristics after the fire.

-C-

Cultivar – A seed-producing plant type that may or may not be improved by selection and propagation of individuals for certain traits, or desired, superior characteristics such as early flowering or taller flower stalks. A cultivar may have been altered by focused plant breeding. A cultivar may be either particularly desirable selections from populations of a single species, or hybrids between species. For the purpose of seed certification, a cultivar is synonymous with a variety.

-D-

Departmental Manual – The Department of the Interior Manual for the ES&R Programs is found in Series: Public Lands, Part 620: Wildland Fire Management, Chapter 7: Burned Area Emergency Stabilization and Rehabilitation (620 DM 7).

-E-

Ecosystem Management – The careful, skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity and desired conditions, while providing products and services over the long term.

Emergency Stabilization (ES) – Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within 1 year following containment of a wildfire.

Emergency Stabilization Plan – A site-specific document that specifies treatments required to implement post-fire emergency stabilization policies.

Emergency Stabilization and Rehabilitation Team (ES&R Team) – A group of technical specialists (hydrologists, rangeland management specialists, biologists, soil scientists, etc.) assigned to prepare an ES Plan and/or BAR Plan. An ES&R Team is usually made up of local specialists but may also include ES&R specialists from other offices when assistance is needed.

Exotic Species – Plants or animals not naturally occurring, either presently or historically, in an ecosystem. Sometimes referred to as non-native species.

-F-

Fire Containment – Established once a fuel break around a fire has been completed. This break may include natural barriers or manually/mechanically constructed line.

Fire Control – The complete extinguishment of a fire, including spot fires. Fireline has been strengthened so that flare-ups from within the perimeter of the fire will not break through the line.

Fire Intensity – Describes the fire characteristics, referring to the effects of temperature, flame length, rate of spread, heat of combustion, size of the fuels consumed, and the energy produced. A general term relating to the heat energy released by a fire.

Fire Management Plan (FMP) – A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The

plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans, prevention plans, and BAR Plans.

Fire Regime Current Condition Class – A qualitative measure classified into three classes describing the relative degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings.

Fire Regime Groups – A classification of fire regimes into a discrete number of categories based on frequency and severity. The national, coarse-scale classification of fire regime groups commonly used includes five groups: I - frequent (0-35 years), low severity; II - frequent (0-35 years), stand replacement severity; III - 35-100+ years, mixed severity; IV - 35-100+ years, stand replacement severity; and V - 200+ years, stand replacement severity.

Fire Severity – Refers to the effects of temperature, moisture content of the litter and fuels on the ground, heat of combustion of conductive/radiant heat affecting the soil and plants. It is dependent upon the intensity and residence of the burn. An intense fire may not necessarily be severe. For trees, severity is often measured as a percentage of basal area removed.

Fire Suppression Activity Damage – Damage to resources, lands, and facilities resulting from wildfire suppression actions, in contrast to damages resulting from a wildfire.

Fire Use – The combination of wildland use and prescribed fire applications to meet resource objectives.

Fuel – Combustible material, including vegetation, such as grass, leaves, ground litter, plants, shrubs, and trees that feed a fire.

Fuel Loading – The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Moisture – The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

Fuel Reduction – Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to wildfire control.

Fuel Type – An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

-H-

Hybrids – Occur when two species from the same genus cross. They may be created artificially or naturally in the wild where the ranges of two closely related species overlap.

-I-

Incident – A human-caused or natural occurrence, such as a wildfire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

Incident Command System – The combination of facilities, equipment, personnel, procedure and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Interior Burned Area Emergency Response Group (IBAER) – The IBAER is a subcommittee of the NBAER (see below) consisting of the National ES&R/BAER Coordinators for the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and a representative of the Department of the Interior (DOI).

Introduced Species – A species that is established in a natural ecosystem in which it was not historically present.

Invasive Species – Species which become established and reproduce rapidly, often displacing native species. Can be aggressive native species but are usually non-native species. However, not all non-native species are invasive. Such species become invasive when they cause problems with their new environment, drastically changing the ecology and landscape. When native plants are displaced, animals that depend on them suffer.

-J-

Joint Fire Science Program – A partnership of six federal wildland and fire and research organization established in 1998 to provide scientific information and support for fuel and fire management programs. The emphasis is on a scientist-manager partnership with transferring research findings to the field. In 2001, post-fire rehabilitation and stabilization research efforts were added. Focus is on short-term applied research that provides information to managers.

-M-

Monitoring – Sets goals for comparisons to be made, thresholds for changes to be detected, and proposed actions that would be undertaken in the event thresholds are met for any item of interest being monitored. Monitoring is not an inventory which is repeated over time. A monitoring measure is established to answer questions. Standardized protocols are the preferred method to be used in collecting monitoring data. Specific monitoring questions are developed to ensure that monitoring and evaluation address the needs essential to measuring plan accomplishments and effectiveness. Such questions help identify issues of concern and reveal how they are changing. The evaluation process determines whether the observed changes are consistent with the plan's desired conditions, goals, or objectives, and what adjustments may be needed.

Management Approved Conditions - In post-fire contexts, areas may be treated if they are **unlikely to naturally return to the management-approved condition**, meaning they would not meet the standards or objectives identified in land-use or resource plans without intervention (e.g., replanting, erosion control, repairing infrastructure).

-N-

National Burned Area Emergency Response Coordinators Group (NBAER) – The NBAER is a Chartered organization consisting of the Department of the Interior (DOI) National BAER Coordinators (BLM, BIA, NPS, USFWS) and the USDA Forest Service National BAER Coordinator.

National Environmental Policy Act (NEPA) – The basic national charter for protection of the environment, enacted in 1969. It sets policy and procedures for environmental protection and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions.

Native plant species – A plant native to a specific region, where it grows naturally and where it evolved. Native plants are often noted as those which were present prior to the time of European settlement.

Naturalized – When a species that is not native to a certain area grows, reproduces, and maintains itself without any assistance from human activities.

National Wildfire Coordinating Group (NWCG) – A group formed under the Secretaries of Agriculture and Interior and comprised of representatives of the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, and Association of State Foresters. The group's purpose is to facilitate coordination and effectiveness of the wildland fire activities and provide a forum to discuss, recommend action, and resolve issues and problems of substantive nature. NWCG is the certifying body for all courses in the National Fire Curriculum.

Non-native plant – A plant that is accidentally or intentionally distributed outside of its historic range. A non-native plant is sometimes termed an exotic or introduced species.

Non-native, invasive plant species – Plants that live outside of their historic range, usually originating from human settings and activities (gardens, agricultural lands, roadways, etc.), and that continue to reproduce and displace native species, reducing biodiversity in natural areas. Invasive plants, being free from herbivores and parasites that keep them in check in their native range, reproduce rapidly.

-O-

Original Source (Provenance) – The location of the native plant from which seed was collected.

-P-

Prescribed Fire – Any fire ignited by management actions under certain pre-determined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescribed Fire Plan (Burn Plan) – This document provides the prescribed fire Burn Boss information needed to implement an individual prescribed fire project.

Programmatic Emergency Stabilization & Rehabilitation Plan (PESRP) – A programmatic plan prepared in advance and applicable to clearly defined types of incidents and situations generally

written by a field office unit at the landscape level, documented and analyzed through the appropriate NEPA process. These programmatic plans contain information about those areas where wildfires are most likely to occur, and where and what type of ES&R treatments are typically needed.

-R-

Rehabilitation – See Burned Area Rehabilitation.

Rehabilitation Plan – See Burned Area Rehabilitation Plan.

Remote Automated Weather Station – An apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which the data is re-transmitted to an earth-receiving station for use in the National Fire Danger Rating System.

Resources – 1) Personnel, equipment, services and supplies available, or potentially available, for assignment to incidents, 2) The natural resources of an area, such as timber, grass, watershed values, recreation values and wildlife habitat.

Resource Advisor – A technical specialist appointed by the Agency Administrator who provides advice to the Incident Management Team on natural and cultural resource protection from wildfire and suppression operations. This position is also the liaison between the Incident Commander and the Agency Administrator and provides input required for the development of ES&R Plans. See NFES 1831/PMS 313 “Resource Advisor’s Guide for Wildland Fire” for additional duties of this position.

Restoration – The continuation of rehabilitation beyond the initial 5 years or the repair or replacement of major facilities damaged by the fire (620 DM 3.3.N). Restoration activities must be funded through sources other than the ES&R subactivities.

-S-

SHPO – State Historic Preservation Officer (also known as WA-DAHP, in Washington State).

Source Identified Seed – A seed that has been verified through Seed Certification as to the species, origin and seed collection location of a plant ecotype or accession.

Suppression – A management action intended to protect identified values from a fire, extinguish a fire, or alter a fire’s direction of spread.

Sustainability – The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

-T-

THPO – Tribal Historic Preservation Officer.

Treatments – Efforts which result in on-the-ground projects such as aerial seeding, drill seeding, culvert installation, weed spraying, etc.

-V-

Values at risk (Values to be protected) – Includes property, structures, physical improvements, natural and cultural resources, community infrastructure, and economic, environmental, and social values.

-W-

Watershed Response – A measure of how a watershed will respond to precipitation, based on soils moisture, cover, impermeable surface (rocks), hydrophobic soils, amount/ duration of precipitation, lag time from the start of the storm to peak discharge, etc.

Water Repellency – The resistance to soil wettability, which can be increased by intense fires.

Weed – Any plant that interferes with human activities and is not valued where it is growing. Where they displace native plants and animals, in effect decreasing biodiversity, a weed can be considered an invasive plant species.

Wildland Fire – Any non-structure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire.

- Wildfire – An unplanned and unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out. If fire suppression action is needed beyond initial attack, a Wildland Fire Situation Analysis is prepared to guide suppression efforts.
- Wildland Fire Use – The application of the Appropriate Management Response to naturally ignited wildland fires to accomplish specific resource management objectives in predefined designated areas outlined in Fire Management Plans. A Wildland Fire Implementation Plan is prepared to guide operational management.
- Prescribed Fire – Any fire ignited by management actions to meet specific objectives.

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7 Appendices

7.1 Appendix 1 – Checklist of Principal Steps

Pre-Planning Phase

Step 1 – Prepare/review Programmatic ES&R Plan (PESRP) for the planning unit, with associated NEPA analysis documentation. Complete any needed consultations under the Endangered Species Act and the National Historic Preservation Act.

Step 2 – Insure PESRP is incorporated appropriately into unit's Fire Management Plan (FMP).

** It may also be helpful to have a pre-season meeting to anticipate needs for the upcoming fire season, identify potential ES&R personnel, and review current ES&R policy.

Planning Phase

Step 1 - While fire is still burning, assign a Resource Advisor to work with Suppression personnel.

Step 2 - Begin gathering pertinent information available from the Suppression Team (values at risk, GIS files, maps, burn severity, etc.).

Step 3 - ESR Program Specialist will work with the Resource Advisor and Resource/ Field Office Manager to determine if ES or BAR Treatments are required.

Step 4 - Assemble and review existing planning information (RMP, LUP, FMP, PESRP, and Biological Opinions, etc.).

Step 5 - Conduct a field assessment of the burn area to analyze ES or BAR Treatment needs.

Step 6 - Prepare and submit an Initial ES and/or BAR Plan

Step 7 - Develop Objectives for the burned area based upon RMP/LUP guidance if available.

Step 8 - Write up treatment specifications with estimated costs.

Step 9 - Prepare a Complete ES (and/or BAR) Plan and submit for approval.

Step 10 - Enter the data into NFPORS/IFPRS.

Step 11 - Assign Field Office Implementation Point of Contact to work with ESR Program Specialist.

Implementation Phase

Step 1 - Prepare or assemble any necessary contracts and arrange for certified Contracting Officer's Representatives (CORs) to administer the contracts.

Step 2 - Order any necessary materials (seed, seeding equipment, fence materials, etc.) and arrange for specific delivery dates and locations to meet implementation needs.

Step 3 - Secure commitments for any necessary in-house labor and equipment needs with time frames specified.

Step 4 - Put treatments on the ground or assure they are completed by contractors.

Step 5 - Pay all bills or assure they are paid by the Contracting Officer.

Step 6 - Enter all projects and accomplishments into NFPORS/IFPRS. Prepare the first year Monitoring and Completion report and request funding for the next fiscal year.

Step 7 - Prepare an Administrative File, housed in ECS, with all pertinent Plan information and documentation included. If contracts, etc. are housed within other files, make copies for the Administrative File and include them or at least reference where they are housed for future reference.

Step 8 - Ensure Monitoring is scheduled with a responsible party.

Monitoring/Reporting Phase

Step 1 – Project Lead assures adequate monitoring is completed, analyzed and included in the Administrative File.

Step 2 - ID Team Field Office staff determines future ES or BAR needs, requests appropriate funding and assigns responsibility for these actions to a responsible person/group for completion.

Step 3 - Complete a Monitoring and Completion report for years 2 and 3, with year 3 being the closeout report for the project.

Step 4 – Update IFPRS data entry.

7.2 Appendix 2 – Sample PERSP/EA Outline

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7.3 Appendix 3 – National BAER Team Dispatch Prioritization Criteria

The use of a National Burned Area Emergency Response (BAER) Team is generally employed for a wildfire that involves multiple agency ownership or on large complex wildfires. A team of interagency specialists is brought in to assess the impacts of the fire and prepare a BAER Plan for emergency stabilization treatments. Prior to requesting a BAER Team, the National BAER Team Dispatch Prioritization Criteria, shown in the table below, must be reviewed and mutually agreed upon with the National ES&R Program Lead. A BAER team must be requested through the Incident Command System prior to wildfire control or later through the appropriate line management decision process. See National Interagency Mobilization Guide Chapter 60, Section 69.4 (NICC 2024).

Question	Criteria	Points
1	Does ordering land unit have the ability (lacking needed resources) to produce their own BAER Plan with local or regional assistance? If yes, instruct the unit to undertake plan development. Stop here; there is no need to complete this table. If no, complete the table below.	Yes/No
2	Post-fire impacts pose immediate and significant threats to human life and property.	10
	Post-fire impacts pose moderate threats to human life and property.	5
	Post-fire impacts pose minor threats to human life and property.	1
3	There are numerous emergency stabilization issues, fire damage assessments are difficult and require special skills not available at the local unit.	3
	There are several emergency stabilization issues, fire damage assessments are difficult and require special skill not available at the local unit.	2
	There are few emergency stabilization issues, fire damage assessments are routine and require some simple skills not available at the local unit	1
4	BAER planning will involve multiple Federal/Tribal/State jurisdictions.	3
	BAER planning will involve two Federal/Tribal/State jurisdictions.	2
	BAER planning will involve one DOI bureau.	1
	Total Points	

Point Score	Recommended Action
3-7	National Interagency BAER Team dispatch is not appropriate at this level.
8-11	Consider using other local or regional resources.
12-16	Priority dispatch of National Interagency BAER Team.

7.4 Appendix 4 – Expenditure Guidance for ES&R Funds

The following lists provide a quick reference to some of the allowable or prohibited uses of ES&R funds. Actual policies are described in further detail in the main text of the CPN Region ES&R Handbook.

Allowable Emergency Stabilization Treatments and Activities

- Installing, replacing or repairing minor facilities essential to public health and safety when no other protection options are available.
- Placing structures to slow soil and water movement.
- Seeding to prevent unacceptable erosion of soils.
- Planting/seeding of shrubs, grasses, and forbs for the purpose of preventing permanent impairment of designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species.
- Road or trail work to increase drainage structure frequency and/or capacity to handle additional post-fire runoff.
- Installing protective fences or barriers to protect treated or recovering burned areas.
- Conducting assessments of critical habitat (Endangered Species Act Section 7) and National Historic Preservation Act Section 106 compliance reviews in those areas that may be affected by emergency stabilization treatments.
- Stabilizing significant historic properties to prevent further post-fire damage, and monitoring of these properties for up to 3 years from fire containment.
- Patrolling, camouflaging, blocking public access to significant historic properties to prevent looting.
- Seeding to prevent establishment of invasive plants.
- Using Integrated Pest Management techniques to minimize the establishment of non-native invasive species within the burned area, when there is an existing approved management plan that addresses non-native invasive species.
- Direct treatment of invasive species for up to 1 year from fire containment.
- Monitoring of treatments and activities for up to 3 years from fire containment.
- Base eight and overtime funds for Reclamation employees when working on emergency stabilization projects.

Allowable Burned Area Rehabilitation Treatments and Activities

- Chemical, manual, biological, and mechanical removal of invasive species for up to 3 years from fire containment.
- Planting/seeding of shrubs for the purpose of reestablishing diversity in vegetative structure, vegetation recovery to pre-fire shrub condition, and wildlife habitat recovery.
- Tree planting to reestablish burned habitat, reestablish native tree species lost in fire, prevent establishment of invasive plants.
- Repair or replace minor operating facilities (e.g., fences, campgrounds, interpretive signs and exhibits, shade shelters, wildlife guzzlers, etc.).

- Awards for exceptional performance in the ES&R Program.
- Base eight and overtime funds for Reclamation employees when working on rehabilitation projects.

Prohibited Uses of ES&R Funds

- Emergency stabilization or rehabilitation treatments not in an approved ES&R Plan or Plan Amendment.
- Use of emergency stabilization funding for planting/seeding of shrubs, grasses, and forbs for the purpose of providing diversity in vegetative structure or wildlife habitat recovery.
- Expenditure of ES&R funding on non-federal lands (except where the Wyden Amendment applies; see the Wyden Amendment section in the CPN Region ES&R Handbook).
- Monitoring to determine the short- or long-term response of a resource to the fire (i.e., fire effects monitoring).
- The expenditure of any ES&R funds beyond 5 years of the date of fire containment.
- Monitoring for the sole purpose of examining the effects of wildfires on historic properties is not an allowable use of ES & R funds
- Monitoring the post-fire recovery of vegetation and wildlife, absent any treatments.
- Seeding at rates and methods that have not been proven to be effective in documented research and monitoring.
- The planning or replacement of major infrastructure, such as visitor centers, residential structures, administration offices, work centers, vehicle bridges, and similar facilities.
- The construction of new facilities that did not exist before the fire (except for temporary and minor facilities necessary for public safety or to implement ES&R treatments).
- Treatments to address effects to resources caused by prescribed fires or wildland fire use fires (unless the wildland fire use or prescribed fire is declared a wildfire).
- Extensive cultural resource field surveys of burned areas or documentation of cultural resource inventories not associated with NHPA Section 106 compliance for each proposed ES&R treatment plan.
- Historic property restoration to its original condition.
- Treating fuels within the burned area to accomplish fuel management objectives.
- Treatments to address or resolve a pre-fire existing problem (see Preexisting Condition section in ES&R Handbook).
- Conducting cadastral survey work to resolve pre-fire ownership issues.
- Restoration, the funding of activities beyond the initial three years or the repair or replacement of major facilities (e.g., visitor, centers, residential structures, administration offices, work centers or similar facilities and their contents) damaged by the fire.
- Purchase of accountable/capitalized equipment (i.e., laptop computers, cameras, drills, snowmobiles, Global Positioning System (GPS) units, off-highway vehicles, etc.) without National ES&R Program Lead approval and documentation that purchasing the equipment is more cost effective than leasing/renting equipment and is in the best interest of the government.

- Awards using emergency stabilization funding.
- Research.
- Normally scheduled road maintenance or improving a road to better than pre-fire conditions.
- Repair of wildfire suppression activity damage.

7.5 Appendix 5 – Flow Chart for NHPA Section 106 & 36 CFR 800.3-800.6 and 800.12 Compliance

Emergency Declaration Post-Wildfire Stabilization—Expedited Compliance

National Historic Preservation Act, Section 106 Review & Compliance Under 36 CFR 800.12

When there has been an official declaration of emergency following a catastrophic event that results in imminent threats to human life or property, federal agencies can meet their regulatory obligations for NHPA Section 106 by following procedures outlined in 36 CFR 800.12. **Immediate rescue and salvage operations are exempt from NHPA Section 106 and 36 CFR 800.12.**

*When there has not been an official declaration of emergency, NHPA 106 obligations must follow the regulatory process outlined in 36 CFR 800.3 through 800.6.

Catastrophic Event (e.g.):

- Avalanche
- Dam failure/breach—or credible risk
- Earthquake
- Flood—or credible risk
- Landslide/Significant erosion—or credible risk
- Storm (snow, rain, hurricane, tornado, etc.)
- Terrorist incident
- Wildfire

**Examples of what is not considered an emergency:*

- *Funding deadline approaching;*
- *Partnership Agreement(s) ending in foreseeable future;*
- *Weather-dependent actions/change of seasons;*
- *Personnel &/or equipment availability;*
- *Materials &/or supplies availability;*
- *Access to an area is limited to a given timeframe*

Emergency Declaration by any of the following:

- US President
- Federal agency leadership
- State Governor
- Tribal government (federally recognized)

Federal Agency (e.g., Reclamation) Leadership:

Is able to authorize action(s) in response to the emergency declaration.

36 CFR 800.12 stipulates that implementation is expected to be necessary within 30 days of the declaration.

An action(s) is considered an "undertaking" pursuant to NHPA-Section 106 regulations if:

- The action would occur on federal lands;
- If it is federally funded in whole or in part;
- If it requires a federal permit or authorization

Compliance procedures in 36 CFR 800.3 through 800.6, **OR** in 36 CFR 800.12, are required.

Emergency NHPA 106 compliance under 36 CFR 800.12:

Given that an immediate response is necessary, federal agencies are able to proceed with actions that may affect Historic Properties without following the standard NHPA Section 106 compliance review process; **however, consultation is still required and allows consulting parties to provide input prior to implementation of emergency response actions.**

Required Consulting Parties:

- State Historic Preservation Officer(s)
  - (SHPO/WA-DAHP in WA State)
- Advisory Council on Historic Preservation (ACHP)
- Tribal Historic Preservation Officers (THPOs)
- Tribes with interests in action area

Consultations:

Consultations: Federal agency requests a **response within 7 days;** if the situation requires a more immediate response, the agency official will request comments within the available emergency timeframe (36 CFR 800.12(b).2).

Agency cultural staff would provide relevant information about Historic Properties potentially at risk.

Formal documentation of responses and concerns expressed, and, as applicable, resolutions adopted by consulting parties to avoid or minimize adverse effects prior to the implementation of emergency response actions. Records of consultations to be kept by agency cultural staff, at minimum.

If needed, an extension to the 30 days may be formally requested from the ACHP prior to the end of the original 30-day period (36 CFR 800.12(d)).

Post-implementation inspection of action-area by agency cultural staff (or contractors) is a recommended procedure, but not required under 36 CFR 800.12.

***When there is no official emergency declaration, and a proposed undertaking has been identified, NHPA Section 106 compliance follows 36 CFR 800.3 through 800.6:**

Step 1 What is (are) the proposed action(s)?

Where would it (they) be implemented?

This is the area of potential effect (APE), but it can be modified if consultations indicate that the effects may extend beyond the actual project footprint.

Does it have potential to affect Historic Properties?

No: Cultural staff may opt to consult Tribes & SHPO, or OK implementation.

Yes: Go to Step 2.

Step 2: Consultation 36 CFR 800.3(a-g) *Consultation is typically a two-part process that first begins with introducing the undertaking.*

Begin the 106-compliance process by initiating consultations with **SHPO(s)/ THPOs, and potentially the public** on the definition of the APE and request APE concurrence from consulting parties.

30 days is the standard review period; however, agency consultation **may accelerate the process** outlined in 800.3 through 800.6 **if SHPO/THPO agree to do so and the consulting parties have an adequate opportunity to express their views** as provided in § 800.2(d).

Consultations will also address information specified in Step 3.

Step 3: Identify Historic Properties/cultural resources 36 CFR 800.4

- Review archival data for known cultural resources in APE.
- Seek information from consulting parties (part of Step 2).
- Determine the scope of effort required to identify as yet undocumented cultural resources.
- Evaluate all properties in the APE for NRHP eligibility.
- Make determinations of project effects to Historic Properties.

Step 4: Consult on the identification findings and the determinations of effect 36 CFR 800.4 (d)

Provide SHPO(s) & THPO(s) with documentation of findings and determinations of effect.

Request concurrences response within 30 days.

If no effect, and consulting parties concur with no effect, proceed to implementation.

If SHPO objects, agency may request ACHP review.

If potential exists for effects, go to Step 5.

Step 5: Assessment of adverse effects 36 CFR 800.5

Apply the criteria for adverse effects, if none apply or if undertaking is modified so that a determination of no adverse effects is made,

Provide consulting parties with documentation of findings in Step 3.

Request concurrences with determination of no adverse effect & responses within 30 days.

If consulting parties concur with no adverse effects, proceed to implementation.

If consulting party(ies) object, attempt to resolve the issues together; ACHP 30-day review may be requested if consulting parties cannot agree.

If a determination of adverse effects is made:

- Provide consulting parties with documentation of findings in Step 3.
- **Request consulting parties' comments within 30 days.**
- Notify ACHP of the determination.

Go to Step 6.

Step 6: Resolution of adverse effects 36 CFR 800.6

Consultation is on-going;

Consulting parties come to an agreement on how to mitigate adverse effects & develop a legally binding MOA.

When MOA is signed, proceed to implementation.

If parties cannot agree on resolution of adverse effects 36 CFR 800.7(a-c):

ACHP review and comments sent to head of federal agency who makes final determinations.

7.6 Appendix 6- Initial ES Plan Example

Initial CPN ES&R Plan Template

Fire Name:

Field Office:

Geographic Location:

Lat/Long:

Budget Estimate:

Proposed Emergency Stabilization Actions:

Proposed Burned Area Restoration Actions:

Justification of Actions:

NEPA Action Required:

Preparer:

Approver:

*Attach project map if available.