Upper Grande Ronde Mine Tailings Restoration Project

Environmental Assessment

La Grande Ranger District
Wallowa-Whitman National Forest
January 2009

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Chapter I: Purpose of and Need for Action

A. Introduction

The purpose of this Environmental Assessment (EA) is to evaluate the environmental impacts of proposed activities designed to restore and enhance the Upper Grande Ronde River.

B. Background

The Upper Grande Ronde River is spawning and rearing habitat for Snake River Basin summer steelhead, Snake River Basin spring chinook salmon, bull trout and redband trout. East Fork Grande Ronde River provides habitat for rearing spring/summer chinook, spawning and rearing steelhead, and redband trout. The summer steelhead, spring/summer chinook and bull trout are federally listed under ESA as threatened species. Redband trout are on the Regional Forester's Sensitive Species List.

The valley bottom of the Upper Grande Ronde River is forested, and riparian vegetation consists of shrub species, primarily alder, with grasses and scattered sedges. Conifers consist of lodgepole pine, Douglas-fir, western larch, and some ponderosa pine. Historic timber harvest and dredge mining has removed larger conifers from the valley bottom, reducing the future recruitment of large wood debris to the stream. Gold mining, utilizing a dredge, was conducted in 1940 and 1941. The dredge turned the riparian area and floodplain over and created tailing piles that in many cases cross the valley floor and extend toe slope to toe slope. Some riparian vegetation, primarily lodgepole pine, has reestablished, but the tailing piles have constricted the river channel, pushed it to one side of the valley floor and simplified the channel disconnecting the river from its floodplain.

In the late 1980's and early 1990's the Wallowa Whitman cooperated with Bonneville Power Administration to add structural complexity to the Upper Grande Ronde from the Woodley Campground area to the E.F. Grande Ronde River. Large wood structural elements were added to the river channel creating large, deep pools. Very little alteration of the tailing piles was conducted leaving the river and floodplain connection in its altered condition.

C. Purpose and Need

Mine Tailings

As mentioned above, the Upper Grande Ronde River was mined with a dredge in 1940 and 1941. This caused damage to floodplain function, habitat complexity, pool quality and quantity, riparian

vegetation, stream shading, and instream channel function. Since the 1940s, there has been some natural recovery to the stream channel and floodplain. In addition, restoration activities occurred in the late 1980's and early 1990's to add large wood structural elements to the channel and close Woodley Campground. However, the restoration activities completed did not address floodplain function, riparian vegetation, and stream shading. Many of the structures placed in the channel have caused juvenile passage problems and in some cases, changes to the stream channel dimension, pattern and profiles. A majority of the large woody material is rotting away with little recruitment available in the near future. Dispersed campgrounds are causing some effects to the riparian vegetation and channel function. The roads within the floodplain are potential erosion concerns and cause effects to floodplain function and riparian vegetation. As a result of the existing condition, the purpose of this project is to address ecological needs to:

- Improve floodplain connectivity.
- Improve water capture, storage and safe release within the floodplain.
- Increase quality and quantity of pools within Upper Grande Ronde River.
- Increase fish cover.
- Increase habitat complexity.
- Increase forage availability.
- Increase residual pool depth.
- Lower or partially remove log weirs that prevent juvenile fish passage at low flows.
- Restore stream channel dimension, pattern and profile.
- Increase number of large and medium pieces of large woody material (LWM) in the stream.
- Increase spawning gravel recruitment.
- Increase stream shading.
- Improve riparian/wetland communities.
- Decrease potential recreation impacts.

D. Proposed Action

The Upper Grande Ronde Mine Tailings Restoration Project would remove and/or redistribute mine tailings as far away from the wetted edge of the upper Grande Ronde River (within the project area boundaries). Wood would be placed within the entire 4.7 miles of the upper Grande Ronde River. Two roads and two dispersed sites would be obliterated and restored. Six other dispersed sites would continue to provide recreation, but would have defined access points through strategic boulder placement. Seeding and planting would occur through out the entire project area.

E. Decisions to be Made

The District Ranger of the Wallowa-Whitman National Forest, LaGrande Ranger District is the official responsible for deciding whether the proposed action would occur. The responsible official can decide on several courses of action ranging from no action, to one of many possible

combinations for treating the area, while deferring treatment of others. Changes to the proposed action cannot result in greater impacts to resources potentially affected by this project.

F. Desired Condition

Floodplain Connectivity: The desired future condition is a floodplain that is functional and connected with the main channel of the Upper Grande Ronde River. A functional floodplain should improve the capture, storage and safe release of water, which could increase flows during the low flow period and decrease stream temperatures. In addition, a restored floodplain should contribute to increased fish habitat complexity; riparian vegetation recruitment, growth and vigor; increased forage availability; improved channel dimension, pattern and profile; and future recruitment of LWM and spawning gravel.

Habitat Complexity: The desired future condition is a stream channel with an array of complex habitat features, resulting in fish habitat that is optimum for threatened, sensitive and native aquatic species.

Riparian Vegetation: The desired future condition is a diverse riparian plant community that would provide optimum floodplain function, stream shade and LWM recruitment.

Threatened, sensitive and native aquatic species populations: The desired future condition is to have optimum habitat with limited anthropogenic effects to contribute to healthy populations of threatened, sensitive and native aquatic species populations.

G. Project Area Description

The Upper Grande Ronde Mine Tailings Restoration Project is located in and adjacent to the Grande Ronde River, a tributary to the Snake River. The project is located on the Grande Ronde River from the Forest boundary to approximately the mouth of Tanner Gulch (4.7 stream miles (T 6S, R 36E, S 4, 5, 9, 10, 15) (Refer to Figure 1 and Figure 2 (attached)). The project would also occur at the mouth of East Fork Grande Ronde River.

I. Summary of Scoping Process

The Upper Grande Ronde Mine Tailings Restoration Project was published in the Wallowa-Whitman Schedule of Proposed Actions (SOPA), a quarterly publication, in October 2008 and has appeared in each quarterly SOPA since then. The SOPA is available on the forest website at www.fs.fed.us/r6/w-w/projects/. It is also mailed to approximately 100 government offices, elected officials, and individuals.

A detailed description of the proposed action was mailed on October 24, 2008 to seven mine claimants. Three phone calls were received which consisted of the following comments:

(1) Mining claimants wanted to ensure that access to mining claims is not compromised. (2) Claimants wanted to ensure that recreation in the area was not compromised. (3) Claimants were interested in drilling and testing for minerals. (4) Claimants expressed interest in the historical aspect of the minerals.

Scoping, consultation, a field site visit, and coordination for the project was initiated and is ongoing with the Confederated Tribes of the Umatilla Indian Reservation, US Fish and Wildlife Service, National Marine Fisheries Service, Grande Ronde Model Watershed and Bonneville Power Administration.

The Confederated Tribes of the Umatilla Indian Reservation is partnering with the LaGrande Ranger District for cultural resource inventory, project design, and project implementation.

This project has been submitted to The State Historical Preservation Officer (SHPO) for review.

An analysis file for this project is available for public review at the La Grande Ranger District. The analysis file includes specialist's reports, data specific to the project, public notifications and their responses, meeting notes, and miscellaneous documentation.

Resource specialists from the Wallowa-Whitman Forest Headquarters reviewed the project at several checkpoints along the way to provide feedback on the project design, analysis, and documentation.

Consultation with National Marine Fisheries Service and US Fish and Wildlife Service for threatened and endangered species has been initiated and would be completed prior to signature of the decision document for this project.

Chapter II: Alternatives, Including the Proposed Action

A. Introduction

This section describes both alternatives as they address the purpose and need for action and as they respond to the issues.

B. Alternative Development Process

The National Environmental Policy Act (NEPA) directs the Forest Service to use an interdisciplinary approach which would ensure the integrated use of natural and social sciences and the environmental design arts [NEPA, section 102(2)(A)].

An ID team developed alternatives based on the purpose and need of the project. Forest Service management objectives are incorporated into alternatives by following standards and guidelines of the Wallowa-Whitman National Forest Plan as amended.

C. Alternatives Considered, but Eliminated from Detailed Study

The following alternative options were considered during the development of this analysis but were eliminated from detailed study as described below.

Haul tailings to be used for commercial use outside of the USFS boundaries. This was cost prohibitive due to the haul distance. No commercial companies have expressed interest to haul the material the distance required to use it for commercial purposes. The USFS would have to pay for the haul, which would be cost prohibitive. Therefore, it was considered but eliminated from detailed study.

Crush tailings for use on USFS system roads. This alternative was not viable because of the lack of fines in tailing material. Fines would have to be mixed with the crushed rock to ensure adequate bonding to the road surface. This would increase cost and cause increased environmental disturbance. Therefore, it was considered but eliminated from detailed study.

D. Alternatives Considered in Detail

Alternative Descriptions

A) Alternative 1 - No Action

This alternative constitutes the "No Action" required by NEPA. Mine tailing removal and other management activities identified in the Upper Grande Ronde Mine Tailings Restoration Project analysis would be deferred. This alternative forms the baseline for comparison of the action alternative.

B) Alternative 2 – Proposed Action [Refer to Figures 1-2 and Appendix A and C]

The Upper Grande Ronde Mine Tailings Restoration Project would remove and/or redistribute mine tailings as far away from the wetted edge of the upper Grande Ronde River as possible. Wood would be placed within the entire 4.7 miles of the upper Grande Ronde River. Two roads and two dispersed sites would be obliterated. Six other dispersed sites would continue to provide recreation, but would have defined access points through strategic boulder placement. Seeding and planting would occur through out the entire project area.

Mine Tailings

A total of 18 sites would have mine tailings removed or redistributed for an approximate total of 46,964 yards. All of these sites are located within the floodplain of the upper Grande Ronde River (approx. 2.5 stream miles) and East Fork Grande Ronde River (approx. 25 mile). The mine tailings would be hauled for placement on the native surface section of Road 5138, designated stock pile sites (12 sites: refer to attached Appendix A and Figure 1), redistributed as far away from the wetted edge as possible, or redistributed and recontoured within the floodplain to provide for tree growth and wetland development. When tailings are placed on the native surface section of the 5138 road, the material would be compacted with a dozer to make a drivable road surface. All mine tailings located within existing claims would not be moved outside of the claim boundary.

A total of 7 stream crossings have been identified to access the Southwest side of the stream. Three of these crossings would be fords, which would not involve hauling material back across the stream. These crossings would be for one pass across and one pass back for approximately ½ of the equipment mentioned below. These crossing sites are located in areas that have low stream banks to minimize ground disturbance. An additional four crossings have been identified for temporary bridge placement. These sites would require some instream channel work to place the bridge on appropriate sills. Minimal construction work would be required to place and remove the bridge. All equipment would use the bridge to cross and haul the tailings to designated spoil sites. All of the crossing sites would be checked for redds prior to construction operations. If a redd is identified in or directly adjacent to the crossing, the crossing would be moved to the nearest site that would cause minimal ground disturbance and no redd disturbance. Refer to Figure 1 for crossing locations.

Side channel development would occur at one of the sites, where the stream is directly adjacent to the road. This portion of stream is lacking its natural meander path, has little pool development, and could cause future road failure. The construction of these side channels would involve developing 1-3 meander bends into the floodplain opposite of the road prism. These side channels would be designed to eventually become the main channel, assuming high flows activate the channel. Debris jams in combination with rock structures would be used to encourage the channel to move into the side channels during high flows. These side channels would not be activated during project implementation. Activation of these channels would occur naturally during peak runoff. There would be no need for fish salvage. Redds would be avoided, if present. Refer to Figure 1 for side channel(s) location.

Tailing removal and redistribution would take into the need to protect the 5125 and 5138 road prisms. Construction activities would be accomplished using up to 4-6: 200-300 series track-mounted excavators, D4 and D6-8 dozers, 1-2 loaders and up to 4 - 8 dump trucks. Wetlands would

be avoided and historic channel scrolls/side channels would be protected which would require careful construction administration. Cultural sites would be avoided by design. Existing over-burden tailings consisting of sand/soil would be utilized, where feasible, to cover graded tailings site to facilitate vegetation establishment. Estimated construction period would be Mid-June 2009 through early August 2009. The 5125 road would be closed from the 5125/5135 junction to the 5125/5138 junction during project operations. A small portion of the 5125 road downstream of Clear Creek would need to be closed for one week during operations. The 5138 road would be closed completely during project operations. All instream work would be completed from July 1 through July 31, 2009. Instream work is defined as all work that is completed within the bankfull channel.

Structure Construction

A total of 69 structure sites would have wood input within the project (Refer to Figure 2). Each structure site would average 4 pieces of large woody debris. Logs that cross each other would be drilled and joined with rebar. Most of the structures are a combination of cut logs, root wads and boulders. All boulders would be taken from on site. An excavator would be used for structure construction. The above woody debris would be taken offsite, hauled by truck or flown in via helicopter.

Forty-four (44) of the above 69 structures are old sill log structures that would be restructured through deepening/widening the notch or removing the notch completely. This would involve using a chainsaw (with vegetable oil in exchange for bar oil) and pulaski. These 44 structures would also have cut logs and root wads placed within, to decrease width to depth ratios, maintain pool depth, and add fish cover.

Four of the above 69 structures would involve the placement of 14 root wad stumps in cut banks that are actively eroding into the stream and threaten road failure. These sites would also have log/boulder placement. This is the only soil excavation associated with structure construction.

Cut Logs: A total of 203 cut logs are needed for the project (as many limbs would be left on the logs as possible). Of these 203 logs, 72 (50' long) logs would need to be hauled to the site or flown in via helicopter. A total of 131 cut logs would be taken from within or adjacent to the upper Grande Ronde River. Of these 131 logs, there would be 11 snags used, 1 down log, and 119 green trees over a 4.7 stream mile area. On the average, this equates to approximately one tree per 209 feet of stream. None of the snags are ponderosa pine or over 21 inches dbh. No green trees are over 21 inches dbh. All green trees would be thinned out of dense stands within the riparian area. All of the logs taken within or adjacent to the upper Grande Ronde River would be imported into the creek with the use of an excavator and chokers, where needed.

Root wads: A total of 45 (with 50' log attached) root wads are needed for the project. All of these root wads would need to be hauled to the site or flown in via helicopter.

An additional 14 root wad stumps (5' long stump) would be used for bank stabilization to prevent road failure within the Grande Ronde River. All of these root wad stumps would need to be hauled to the site or flown in via helicopter.

Access and Timing: Access for the excavator would occur via the 5125 and 5138 roads. All of the structure construction would occur during the instream work window (July 1 through July 31) of 2010. The wood would be hauled or flown into the structure sites prior to the structure construction and would be placed adjacent to the road(s) or on the streambank.

Road Obliteration

Two road obliterations would occur within the project area and are located beyond the weir site for the chinook acclimation site (.3 mile) and at the very end of the 5138 road (.1 mile) (Refer to Figure 2). Obliteration of both sites would require subsoiling, seeding, planting, wood placement across the road, and rock placement to deter travel. A total of 20 boulders would be needed for road obliteration.

Dispersed Recreation Sites

There are a total of 8 dispersed sites that would be worked on within the project area (refer to Figure 2). Two of the sites are those mentioned in the road obliteration. The other six sites would require boulder placement to keep recreation use further from the streambank. A total of 79 boulders would be needed to achieve objectives. Subsequent seeding and planting would occur, where applicable.

Seeding and mulching

All areas disturbed by equipment would be seeded with a native grass/forb seed mix after project completion. Mulching would occur within those areas that are disturbed by project activities. Certified weed free mulch would be used.

Planting

A total of 1000 deciduous seedlings, 2000 conifer seedlings, and 1500 cuttings would be planted in the project area. Native species would be used. Cuttings would be obtained from dense stands adjacent to the Grande Ronde River (within the project area), East Fork Grande Ronde River and Clear Creek. Stands would not prune more than 25% of the existing vegetation. All of the planting would be completed by hand. The conifer seedlings and deciduous cuttings would not be fenced. Most of the deciduous seedlings would be fenced with small exclosures. In addition, existing shrubs that have a high evidence of browse would be protected by small exclosure fences, primarily, within the meadow associated with the old Woodley Campground.

Work Schedule

Mine Tailings: Estimated construction period would occur from Mid-June 2009 through early August 2009. All instream work would be completed from July 1 through July 31, 2009. Instream work is defined as all work that is completed within the bankfull channel.

Structure Construction: Estimated construction period would occur from July 1 through July 31, 2010. The wood would be hauled or flown in June of 2010 and would be placed adjacent to the road(s) or on the streambank.

Road Obliteration: Estimated obliteration period would occur from July 1 through August 15, 2010.

Dispersed Recreation Sites: Boulder placement would occur during the mine tailings project or the road obliteration time frames.

Seeding and mulching: Seeding and mulching would occur after project completion of each of the above items.

Planting:

a. Approximately 1000-1500 conifers would be planted in the project area in the spring of 2010. The planting would occur in areas that can be avoided by the construction work that would occur in the summer of 2010.
b. The rest of the planting would occur in the spring of 2011.

Management Requirements, Constraints and Mitigation Measures

The following items are included in the action alternative and provide the measures necessary to keep project impacts at acceptable levels. These items would be applied to the proposal as it is implemented on the ground. Unless specifically identified as a mitigation measure, the following are considered either management requirements or constraints.

Mining Claims

All mine tailings located within existing claims would not be moved outside of the claim boundary.

Roads

When tailings are placed on the native surface section of the 5138 road, the material would be compacted with a dozer to make a drivable road surface.

Tailing removal and redistribution would take into the need to protect the 5125 and 5138 road prisms.

Weeds

Prior to project implementation, known weed sites listed above and any additional weed sites discovered at that time would be flagged and pulled by knowledgeable personnel approved by the District's Noxious Weed program. Equipment would be power washed prior to operating on this project. The project lead may choose to have equipment operators avoid the flagged noxious weed

areas, or to bury the noxious weed areas with excess mine tailings, thus preventing seeds from germinating.

Fisheries

A total of 7 stream crossings have been identified to access the Southwest side of the stream. Three of these crossings would be fords, which would not involve hauling material back across the stream. These crossings would be for one pass across and one pass back across for ½ of the equipment mentioned above. These crossing sites are located in areas that have low stream banks to minimize ground disturbance. An additional four crossings have been identified for temporary bridge placement. These sites would require some instream channel work to place the bridge on appropriate sills. Minimal construction work would be required to place and remove the bridge. All equipment would use the bridge to cross and haul the tailings to designated spoil sites. All of the crossing sites would be checked for redds prior to construction operations. If a redd is identified in or directly adjacent to the crossing, the crossing would be moved to the nearest site that would cause minimal ground disturbance and no redd disturbance. Refer to the attached map for crossing locations.

Redds would be avoided, if present, during all instream work activities. Redds would be surveyed prior to equipment entering the bankfull channel.

All instream work would be completed from July 1 through July 31, 2009 or 2010, which is the instream work window. Instream work is defined as all work that is completed within the bankfull channel.

A Spill Prevention Control and Containment Plan (SPCCP). The contractor would be required to have a written SPCCP, which describes measures to prevent or reduce impacts from potential spills (fuel, hydraulic fluid, etc.) The SPCCP should contain a description of the hazardous materials that would be used, including inventory, storage, handling procedures; a description of quick response containment supplies that would be available on the site (e.g. a silt fence, straw bales, and an oil-absorbing, floating boom whenever surface water is present).

Staging areas would be designated at least 300 feet slope distance from the stream, which should be outside of the 100 year floodplain. These staging areas would be used for fueling, equipment storage, and maintenance.

All equipment used for instream work shall be cleaned and leaks repaired prior to entering the project area. External oil and grease, along with dirt and mud would be removed prior to construction operations. Thereafter, equipment would be inspected daily for leaks or accumulation of grease, and fix any identified problems before entering streams or areas that drain directly into streams or wetlands.

The time that heavy equipment is in stream channels would be minimized as much as possible.

Wildlife

Wetlands would be avoided and historic channel schrolls/side channels would be protected which would require careful construction administration.

Trees needed for instream structure construction would not involve removal of snags/green trees that are over 21 inches dbh. No ponderosa pine snags would be used for project activities.

Safety

The 5125 road would be closed from the 5125/5135 junction to the 5125/5138 junction during project operations involving mine tailing reclamation. Other activities (structure construction, road obliteration, dispersed recreation restoration, planting, seeding and mulching) would not involve the above road closure.

A small portion of the 5125 road downstream of Clear Creek would need to be closed for 1 week during operations involving mine tailing reclamation. Other activities (structure construction, road obliteration, dispersed recreation restoration, planting, seeding and mulching) would not involve the above road closure.

The 5138 road would be closed completely during project operations involving mine tailing restoration. Other activities (structure construction, road obliteration, dispersed recreation restoration, planting, seeding and mulching) would not involve the above road closure, except for the last .1 mile of the 5138 road. This portion of the road (refer to Figure 2) will be obliterated.

Rehabilitation

Existing over-burden tailings consisting of sand/soil would be utilized, where feasible, to cover graded tailings site to facilitate vegetation establishment.

At the designated stock pile sites, top soil would be removed, stored and used to redistribute over the tailings to facilitate vegetation establishment.

All areas disturbed by equipment would be seeded with a native grass/forb seed mix after project completion.

Certified weed free mulch would be placed in conjunction with the above seeding.

A total of 1000 deciduous seedlings, 2000 conifer seedlings, and 1500 cuttings would be planted in the project area. Native species would be used.

Cultural Resource Protection

All identified sites within the Upper Grande Ronde Mine Tailings Restoration Project would be flagged and avoided during the implementation of accepted work. All historic sites would be carefully managed to avoid any ground disturbing effects during the staging and implementation of this project.

This undertaking is considered to be a "Stipulation III(B)2: Undertaking meets the criteria in the PA for a Historic Properties Avoided determination."

It is recognized that even the most intensive field surveys may not locate all heritage sites therefore:

> "If cultural resources are located/relocated during implementation of any of the action, work would be halted and the Wallowa Whitman Archaeologist would be notified. The cultural resource would be evaluated and a mitigation plan developed in consultation with the Oregon SHPO if necessary."

Monitoring Plan

Monitoring specific to project activities, and not in conjunction would be accomplished to assure that activities conform to objectives of the Forest Plan. Project level monitoring is a component of Forest Plan monitoring. The following types of monitoring would be accomplished:

Implementation Monitoring - Are the project design and mitigation measures being implemented as planned?

A fisheries biologist/hydrologist would be on site during project operations to ensure that the project design and mitigation measures would be implemented as planned.

Effectiveness Monitoring - Did mitigation and protection measures result in desired effects?

- Photo points: Monitoring would involve photo points of before and after operations occur. Follow up photo points would occur at year 1 and year 5 after project completion**.**
- Crossections: Crossections would be installed within the mine tailings removal area. These crossections would be established prior to project completion and resurveyed at year 1 and year 5 after project completion.
- Stream Survey: Region 6 Level II Stream Habitat Inventory would be conducted prior to and @ year 1 and year 5 after completion.
- Plant/seed survival: Native plantings and seeded areas would be evaluated for survival on a yearly basis for three years after project completion. If plant/seed survival is poor, then subsequent planting and/or seeding would occur.
- Longitudinal profile: A longitudinal profile within the bankfull channel would be established before, 1 year after, and 5 years after operations occur.
- Noxious weeds: Noxious weeds would be monitored, yearly, for five years after project operations.

Other

- Reports: A preliminary final report that describes the actual implementation of the mine tailing removal and associated monitoring would be completed in the winter of 2010. A second preliminary final report that describes the actual implementation of wood placement, road obliteration, and dispersed campground rehabilitation would be completed in the winter of 2011. A final report would be completed in the winter of 2011. After final report completion, monitoring reports would be completed the following winter after monitoring is completed.

Chapter III. Environmental Consequences

Introduction

To facilitate the reader's understanding of the effects analysis, this chapter describes the present resource situation using the purpose and need accomplishments, as needed. The No Action Alternative (Alternative 1) and Action Alternative (Alternative 2) are described in detail in Chapter 2. This chapter also discloses the anticipated environmental consequences of the No Action and the Action Alternatives on various resources for which there are potential direct, indirect and cumulative impacts. The effects analysis forms the basis of comparison of the alternatives.

For the purposes of this EA, the cumulative impacts are the sum of all past and present actions, and reasonably foreseeable future actions. The purpose of the cumulative effects analysis in the EA is to evaluate the significance of the No Action's and Action Alternatives' contributions to cumulative impacts. A cumulative impact is defined under federal regulations as follows:

> "...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

As required under the NEPA and the Council on Environmental Quality (CEQ) regulations for implementing NEPA, this section addresses those cumulative effects on the environmental resources in the Cumulative Effects Analysis Areas (CEAAs). Cumulative effects could result from the implementation of the No Action or Action Alternatives added to past, present, or reasonably foreseeable future actions. The extent of any given CEAA may vary by resource, based on the geographic or biologic limits of that resource. As mentioned above, subwatershed level (including all the subwatersheds) is the CEAA unless otherwise noted. As a result, the list of projects considered under the cumulative analysis may vary according to the resource being considered. In addition, the length of time for cumulative effects analysis would vary according to the duration of impacts from the Action on the particular resource.

The best available science is considered in preparation of this EA; however, what constitutes best available science might vary over time and across scientific disciplines. As a general matter, we show consideration of the best available science when we insure the scientific integrity of the discussions and analyses in the project NEPA document. Specifically, this EA and the accompanying Project Record identifies methods used, references reliable scientific sources, discusses responsible opposing views, and discloses incomplete or unavailable information, scientific uncertainty, and risk (See 40 CFR, 1502.9 (b), 1502.22, 1502.24).

The Project Record references all scientific information considered: papers, reports, literature reviews, review citations, academic peer reviews, science consistency reviews, and results of ground-based observations to validate best available science. This EA incorporates by reference

(as per 40 CFR 1502.21) the Project Record, including specialist reports and other technical documentation. Analysis was completed for Proposed, Endangered, Threatened, and Sensitive (PETS) Species, Botanical Resources (includes PETS species and Noxious Weeds), Wildlife (includes PETS species), Watershed and Fisheries (includes PETS species), Cultural/Heritage, Mineral Resources and Recreation. Information from these reports has been summarized below in this Chapter. The Project Record is located at the La Grande District Office.

Alternative Evaluation

Botanical Resources

Threatened, Endangered, Proposed and Sensitive Plant Species

There are no currently listed threatened, endangered (T&E), proposed or candidate plant species within the project area. There is no known potential habitat within the project area for the following federally listed threatened, endangered or proposed plant species: *Mirabilis macfarlanei* or *Silene spaldingii*.

The Forest is now using the newly updated Region-6 Forester's Sensitive Plant List of 2008 (Appendix B). No sensitive species are known to occur within the project area. However, many new riparian species were added to the R6 Sensitive list and were therefore not targeted in the past surveys. Past surveys in nearby areas (within 2 km) with similar habitat have yielded sites for two sensitive species, *Botrychium montanum* and *B. minganense.*

Table 1: Sensitive plant species

Distance from project area	Species Scientific name	Species Common name	TEPO #	# of plants
1.3 km	*Botrychium montanum* *Botrychium minganense*	mountain moonwort Mingan's moonwort	06160622 25 06160622 24	2 in 2002 1 in 2002
1.7 km	*Botrychium minganense*	Mingan's moonwort	06160600 83 06160600 84	Unknown Unknown

A site visit by Botanist Susan Geer on October 15, 2008 revealed habitat for sensitive riparian species within the project area. Existing survey information, site reports and supporting documents are on file at the La Grande Ranger District.

Noxious Weeds

There are three documented locations for two noxious weed species on National Forest System lands within the Upper Grande Ronde Mine Tailings Restoration project area, and one nearby as indicated Table 2.

Table 2: Noxious weeds

Distance from project area	Species (Scientific name)	Species (Common name)	Weed ID#	Acres
Included	*Senecio jacobeae (SEJA)*	Tansy ragwort	0616060029	< 1
Included	*Centaurea biebersteinii* (CEBI2) = (CEMA4)	Spotted knapweed	0616060385 0616060651	< 1 < 1
1.1 km	*Cirsium arvense* (CIAR4)	Canada thistle	0616060250	< 1

Direct, Indirect and Cumulative Effects

There would be no effect to any threatened, endangered, candidate or proposed plant species from project activities. The project may impact undiscovered Region 6 sensitive plant species or habitat. The project would not contribute to a loss of viability of, or move a species toward federal listing (FSM 2672.43). No impacts would occur to any documented sites.

Soil displacement and disturbance in the habitat with potential for sensitive plant species could destroy individual plants on the sensitive list, if they are present. However, the disturbances created would be offset by the long term protection provided by the in stream structure placement, the wetland habitat creation and improvements, and potential restriction of recreational vehicles via boulder placement provided by the project. If sensitive plants are present and are destroyed, the project may impact individuals or habitat, but the action would not likely contribute to a trend towards federal listing or cause loss of viability to the population or species.

Noxious Weeds

The following measures would be implemented to stop the spread of noxious weeds in the project area:

Prior to project implementation, known weed sites listed above and any additional weed sites discovered at that time would be flagged and pulled by knowledgeable personnel approved by the District's Noxious Weed program. Equipment would be power washed prior to operating on this project. The project lead may choose to have equipment operators avoid the flagged noxious weed areas, or to bury the noxious weed areas with excess mine tailings, thus preventing seeds from germinating.

Wildlife

Introduction

This analysis focuses on wildlife species, habitats or groups of species that are identified as particularly important in the Wallowa-Whitman Land and Resource Management Plan (LRMP). Management Indicator Species (MIS) (36 CFR 219.19), snag habitat, old growth habitat, and Region-6 sensitive species are the focus of this analysis. The potential effects to Proposed, Threatened, Endangered, and R-6 Sensitive wildlife species (PETS) are also discussed.

The management indicator species (MIS) of the Wallowa-Whitman National Forest and the habitat or habitat component that they represent are shown in Table 3. All the species in Table 3 are known or suspected to inhabit the analysis area.

Table 3: Management Indicator Species.

SPECIES	HABITAT
Pileated woodpecker (*Dryocopus pileatus*)	Old growth and mature forests
Primary cavity excavators *	Snag and log habitat
Northern goshawk (*Accipiter gentiles*)	Old growth and mature forest
Rocky Mountain elk (*Cervus elaphus*)	Arrangement of cover and forage
American marten (*Martes americana*)	Old growth and mature forest

* northern flicker (*Colaptes auratus*), Lewis' woodpecker (*Melanerpes lewis*), yellow-bellied sapsucker (*Sphyrapicus varius*), Williamson's sapsucker (*Sphyrapicus thyroideus*), red-naped sapsucker (*Sphyrapicus nuchalis*), hairy woodpecker (*Picoides villosus*), downy woodpecker (*Picoides pubescens*), white-headed woodpecker (*Picoides albolarvatus*), Northern three-toed woodpecker (*Picoides tridactylus*), black-backed woodpecker (*Picoides arcticus*), mountain chickadee (*Parus gambeli*), black-capped chickadee (*Parus atricapillus*), white-breasted nuthatch (*Sitta carolinensis*), red-breasted nuthatch (*Sitta Canadensis*), and pygmy nuthatch (*Sitta pygmaea*).

Management indicator species are addressed in separate sections of this analysis that relate to the habitat they are associated with. For example, pileated woodpecker is covered in the old growth habitat section, and the primary cavity excavators are covered in the snag section.

Affected Environment and Analysis of Effects

Key Issues

There are no key issues related to wildlife that would alter the proposed action or necessitate formulation of a different alternative. Columbia spotted frogs inhabit the project area, but design features avoid alteration of this species' habitat.

Rocky Mountain Elk

Rocky Mountain elk is the most popular big game species in northeastern Oregon and is likely responsible for more recreation visitor days than any other single species or activity on the Forest. Elk are popular among wildlife watchers, outdoor photographers, and hunters. Elk are also a management indicator species on the Wallowa-Whitman National Forest. As a management indicator elk serve to indicate the condition and function of the habitat that they share with numerous other wildlife species. Elk are an indicator of forage and cover abundance and quality, and the patch dynamics that comprise quality elk habitat. Additionally elk serve as a meaningful indicator for those species that are sensitive to human activities since they exhibit greater individual and herd fitness when adequate security habitat is available to them.

The Upper Grande Ronde River supports a sizable portion of the elk herd within the Starkey Wildlife Management Unit. Elk likely do not spend much time in the project area except at night or when crossing between adjacent security habitat areas.

Elk habitat is typically analyzed by assessing several habitat variables including forage quality/quantity, size and spacing of forage and cover patches, level of motorized access, and cover quality. These variables are combined to generate a numerical value referred to as a habitat effectiveness index (HEI). Since none of these variables would be altered by this project, an HEI analysis would be of no value.

Direct and Indirect Effects to Elk

Alternative 1 – Retaining the mine tailings, log weir structures, and dispersed recreation sites in their current condition would have no measurable effects to elk or elk habitat. The lasting effects of the roads, tailings, and dispersed sites would persist into the long-term, but a "no action" decision would not worsen or change the existing condition. These effects have reduced the habitat suitability for elk.

Alternative 2 – There would be little change in how elk use this area. The nature of the proposed work would not change the amount or arrangement of cover, road densities, or how cover and forage are arranged. Minor improvements to forage may result from Alternative 2 from the seeding and shrub planting. This forage would likely be utilized during the night and when human activity is low.

Disturbance from construction work would be short in duration and limited to a relatively small portion of the landscape used by elk. The disturbance is focused immediately adjacent to a well traveled road, which is an existing corridor of disturbance.

Cumulative Effects to Elk

Alternative 1 – This alternative would not contribute to cumulative effects from past activities that have altered this site.

Alternative 2 – This alternative would result in minor positive effects to elk once the seeding and deciduous plantings are established. There may be long-term positive recovery of riparian vegetation as the streams begin to develop more meanders, deeper pools, and reconnect with their floodplain. These positive effects would slightly offset the lasting effects of the road, tailings, and dispersed sites. However, elk use levels in the project area are not likely to change substantially due to the presence of the road and associated human activity.

Snags and Down Wood

The effect to primary cavity excavators from the loss (or reduction) of snags is a long –term absence of some woodpeckers from portions of their geographic range, and their ecological relationships with forest pests and secondary cavity users. Larger diameter snags can require 100 to 250 years to be replaced, and the species that require large snags generally do not have alternatives for nesting substrate. Woodpeckers are also known to contribute to maintaining forest pests (insects) at endemic levels. This function is lost when nesting and roosting habitat is lost or severely reduced over large portions of forested habitat. The primary cavity excavators (including pileated woodpecker) are management indicators on the Wallowa-Whitman National Forest.

Direct and Indirect Effect to Snags and Logs

Alternative 1 – No snags, logs or green trees would be cut or disturbed. No current or future loss of snag or log habitat would occur. There would be no direct or indirect effects to primary cavity excavators.

Alternative 2 – None of the action alternatives would have a measurable effect to snag or log habitat or to the species that use these habitat features at the landscape scale. There would be small scale reductions in snag numbers since some snags would be used for instream structures. Areas where snags would be removed would meet at least minimum Forest Plan standards for snags. No Ponderosa pine snags or any species of snags over 21" d.b.h. would be used. This design criteria ensures that the highest quality snags would be retained standing.

The number of logs, snags, and green trees that would be removed by this alternative is miniscule relative to what would remain in the surrounding landscape. The small scale of these effects would not reduce the ability of any primary cavity excavator species from using this area. There would be no measurable direct or indirect effects from any of this alternative.

Cumulative Effects to Snags and Logs

Neither of the alternatives would contribute to cumulative effects to snag and log habitat or to the species that use these features. Snag and log numbers would be retained at least to minimum Forest Plan standards, and snags and logs would exist undisturbed on surrounding areas. The small scale, short duration, and nature of the work would not affect snag and log dependent wildlife species.

Northern Goshawk

Northern goshawks are the largest accipiter in North America and are generally considered a forest habitat generalists that persists and reproduces where at least a portion of their home range is in an old growth condition. The goshawk is a management indicator species on the Wallowa-Whitman NF, and is specifically addressed in the Regional Forester's Eastside Forest Plan Amendment #2 (1993). No goshawk nests are known to exist near this project area. If a nest is located prior to or during project implementation district wildlife personnel would work with project proponents to mitigate effects to goshawks during the nesting season.

Alternatives 1 and 2 – Neither of the alternatives would alter habitat so that it would be unsuitable for nesting or foraging by goshawks. The nature of the work and the small scale of the project pose no risk to goshawks or their habitat. There is a slight chance that if goshawks begin nesting near the project site that construction work could disturb and displace them. A seasonal restriction on the use of helicopters or other equipment may be needed in the immediate vicinity of the nest. The likelihood of this occurring is exceedingly low. Neither of the alternatives pose a measurable effect to goshawks.

Cumulative Effects

Alternatives 1 and 2 - Neither of the alternatives would contribute to cumulative effects to northern goshawks or their habitat. Potential nesting, foraging, and dispersal habitat is relatively abundant and widespread in the surrounding landscape. The small scale, short duration, and nature of the work would not affect goshawks.

Mature and Old Growth Forest Habitat

Management Area 15 is designated in the Wallowa-Whitman NF LRMP to "maintain habitat diversity, preserve aesthetic values, and to provide old-growth habitat for wildlife." There are at least twenty wildlife species on the Wallowa-Whitman NF that show a preference for mature or old-growth forest habitat. The management indicators for this habitat in the Mine Tailings Restoration area include pileated woodpecker, northern goshawk, northern three-toed woodpecker, and black-backed woodpecker.

No MA 15 areas are designated within the project area.

Direct and Indirect Effects to Mature and Old Growth Forest Habitat

Alternatives 1 and 2 – There would be no effects to designated old growth areas (MA 15) or the species that depend on this kind of habitat.

Mature and old forest structure would only experience minor effects in terms of a nominal number of trees, logs, and snags removed for use in stream structures under Alternative 2. Due

to the small scale and short duration of the project, effects would be negligible to old growth associated wildlife species.

Cumulative Effects to Mature and Old Growth Forest Habitat
Alternatives 1 and 2 – Neither of the alternatives would contribute to cumulative effects to mature and old growth forest habitat for the species that utilize this habitat. This type of habitat is relatively abundant and widespread in the surrounding landscape. The small scale, short duration, and nature of the work would not affect mature and old growth forest habitat or the species that utilize this habitat.

Proposed, Endangered, Threatened, and R-6 Sensitive Wildlife Species

The Oregon Natural Heritage Data Base prepared an updated list of "Rare, Threatened, or Endangered Plants and/or Animals of Oregon on Your Ranger District" in 2000. This list was reviewed.

The Regional Forester's Sensitive species list for Region 6 (FSM 2670.43) was reviewed, as well as La Grande Ranger District information regarding the project area. Table 4 contains the PETS species known or suspected to occur within the Wallowa-Whitman NF.

An "X" between the common and scientific name indicates those species or their habitats that are known or suspected to occur in or immediately adjacent to the project area. Federally threatened or endangered species are also addressed even if habitat does not exist in the project area in order to document a "no effect" determination. These indicated species comprise the list of PETS species to be addressed by this analysis.

Table 4: Proposed Endangered, Threatened or Sensitive terrestrial vertebrate species known or suspected to occur on the Wallowa-Whitman NF.

STATUS[1]	COMMON NAME	Addressed in this BE	SCIENTIFIC NAME
	AMPHIBIANS		
S	Northern leopard frog		**Rana pipiens**
S	Columbia spotted frog	**X**	*Rana luteiventris*
	Birds		
S	Northern bald eagle	**X**	*Haliaeetus leucocephalus*
S	Greater sagegrouse		*Centrocercus urophasianus*
S	Bufflehead		*Bucephala albeola*
S	American peregrine falcon		*Falco peregrinus anatum*
S	Columbian sharp-tailed grouse		*Tympanuchus phasianellus columbianus*
S	Upland sandpiper		*Bartramia longicauda*
S	Lewis' woodpecker		*Melanerpes lewis*
S	White-headed woodpecker		*Picoides albolarvatus*
	Mammals		

T	Canada lynx	**X**	*Felix lynx canadensis*
S	California wolverine		*Gulo gulo luteus*
S	Pacific fisher	**X**	*Martes pennanti pacifica*
S	Spotted bat		**Euderma maculatum**
T	Grey wolf	**X**	**Canis lupus**
	Invertebrates		
S	Hell's Canyon land snail		
S	Shortface lanz		
S	Columbia pebblesnail		
S	Fir pinwheel		
S	Meadow fritillary		
S	Silver-boardered fritillary		
S	Johnshon's hairstreak		

[1] - T = Threatened; E = Endangered; S = Region 6 Sensitive.

Sensitive Invertebrates
(Refer Table 4)

Determination of Effect
Habitat preferences for the invertebrates listed in Table 4 were reviewed and determined to either not exist in the project area, or that the nature of the proposed work would not alter habitat for these species. No further analysis is required since no impact to these species is anticipated from the Mine Tailings Restoration project.

Northern Bald Eagle (*Haliaeetus leucocephalus*)
Status: Sensitive

Species and Habitat Description: Bald eagles inhabit forested areas primarily near larger bodies of water including lakes and rivers (Peterson 1986). Eagles are protected by the 1940 Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the Endangered Species Act of 1973 as amended.

Bald eagles prefer to nest in large dominant trees where they build their nests on large branches or forks of trees (Peterson 1986). Most nest trees are located close to water. Eagles prefer to nest in mature or old growth trees with an average height of about 100 feet. Many times these birds would also have one or more alternate nests (Bent 1937). Perch trees and sites adjacent to the nest tree are also important since the adult male may spend much of his daytime hours perched.

The bald eagle uses a wide range of food items ranging from carrion, fish, small mammals and waterfowl. Several studies have indicated the staple of their diet is fish (Peterson 1986, Rees 1990, Bent 1937) and can comprise as much as 70 to 90 percent of their diet.

Determination of Effect: No known bald eagle nests or winter roosts are located within the

vicinity of this project. Eagles are known to use this reach of the Grande Ronde River on occasion.

Alternatives 1 and 2 - Potential habitat for bald eagles exists within this project area. However, there is no evidence of focused use of the area by eagles. Also, the nature of this project would not affect the large tree component of the area which is the most important structure for bald eagle roosting and nesting. Therefore, this project would have "no effect" on bald eagles or their habitat. Since this project does not represent an incremental effect, it would not contribute to cumulative effects of past, present and foreseeable future activities.

Canada Lynx (Felix lynx Canadensis)
Status: Threatened

Species and Habitat Description: Lynx are typically associated with large contiguous tracts of boreal or coniferous forest in Alaska and Canada. They are also found in isolated higher elevation spruce, subalpine fir, and lodgepole pine forests in the western United States (Koehler and Brittel 1990). Habitat selection is associated with the habitat requirements of its primary prey, the snowshoe hare (Quinn and Parker 1987). In general, mixed conifer stands are often preferred by hares for cover and forage. Lodgepole pine is often a major component of this habitat; especially within it's early to mid-succession stages. Historic fire patterns played an important role in maintaining the habitat components for snowshoe hare and lynx (McCord and Cordoza 1982).

Deep snow and extreme cold are often associated with lynx habitat. Lynx and hares thrive under these conditions due to their physical adaptations to low temperatures and deep snow. Other important habitat needs for lynx include mature forest for denning and resting, and thickets for hunting (Koehler 1990). Primary denning areas are often in large hollow logs, beneath windfall or upturned roots, or in brush piles in dense thickets.

Inventories and Surveys: There are a several historical records of lynx sightings and trapped/shot specimens from NE Oregon, indicating their former existence in Oregon. The most compelling evidence that lynx formerly existed in northeast Oregon is the County Bounty Records. There is some disagreement among biologists as to the validity of these bounty records and whether they represent actual lynx or a grade of bobcat that was commonly referred to as "lynx" during that time period. It is conceivable that the lynx population in the Blue Mountains was hunted and trapped to near extinction, and compounded by habitat changes, has been unable to recover in this portion of its range. Another possibility is that NE Oregon is on the extreme periphery of this species' geographic range, and dispersing individuals occasionally travel through Oregon.

Winter track survey routes were conducted on the Wallowa-Whitman National Forest from 1991 through 1994, and no lynx were detected. It is unknown if lynx currently exist on the Forest. Hair snares were used to survey for lynx on the Wallowa-Whitman National Forest during the summers of 1999 - 2001 according to two protocols one developed by the U.S. Fish and

Wildlife Service and another by the U.S. Forest Service. No lynx were detected by these surveys.

Habitat: A lynx habitat model was developed for the Wallowa-Whitman National Forest that classified lynx habitat at the Forest scale. This project is within an Lynx Analysis Unit (LAU) and lynx habitat.

Determination of Effect: **All Alternatives** - This project would have "no effect" on lynx or lynx habitat. The nature, scale, and duration of this project pose no risk to lynx or their habitat. No denning or foraging habitat would be made less suitable. Habitat for some prey species for lynx may be enhanced in the long-term, but at a miniscule scale. Since this project would not have an effect on lynx habitat, it would also not contribute to cumulative effects to lynx or their habitat.

Gray Wolf *(Canis lupus)*
Status: Threatened

The gray wolf is listed as endangered under the Endangered Species Act. Gray wolves are not known to exist in Oregon with the exception of an occasional stray from the experimental population in Idaho. No populations currently occupy habitat within the Oregon portion of the Forest; no denning or redezvous sites have been identified or are known to exist within the Oregon portion of the Wallowa-Whitman National Forest (USFWS Reference # 1-7-04-SP-0098).

Habitat: Wolves are habitat generalists that would thrive where they have a reliable source of big game prey and where they are tolerated by humans. The Mine Tailings Restoration project area provides habitat capable of supporting wolves.

Determination of Effect: Neither of the alternatives would have a direct effect on wolves or their habitat since the species is thought to be absent from this area. Within the past year a reproductive pair of wolves with at least two pups has been documented nearly 40 miles to the northeast of the Mine Tailings Restoration project area (Morgan, pers com 2008). Considering the wide ranging nature of wolves it is conceivable that wolves may at least pass through the project area.

Implementation of **Alternative 2** would have "no effect" on wolves or wolf habitat, and would not preclude wolves from colonizing this area in the future. The nature, scale, and duration of the work do no pose a threat to wolves, their habitat or their prey. There would be no cumulative effects from any of the alternatives.

Pacific Fisher (Martes pennanti pacifica)
Status: Sensitive Region-6

Based on limited studies in Idaho, fishers seem to use predominantly old growth forests of grand and subalpine fir forest types. Large amounts of down logs in moist forest habitats with high canopy closure, greater than 50 percent, provides high quality foraging habitat (USDA 1994). According to Jones (1991) stands should be a minimum of 127 acres in size with no more than 50 percent of the perimeter adjacent to large openings to be used by fisher for denning. Average home ranges of fisher in Idaho were documented at 16 square miles for females and 32 square miles for males (Jones 1991). Fishers are easily displaced by human-related disturbances. Fisher's primary prey is porcupines, but birds, small mammals, insects, and some vegetative material also occur in their diet.

Determination of Effect

Fishers may occur in the vicinity of the Upper Grande Ronde River, but are thought to be extirpated from this area. No evidence of their existence has been found in several decades in northeast Oregon. Suitable habitat exists in the project area.

The size of the project area is miniscule relative to a fisher's home range. The nature, small scale, and short duration of this project would have no impact on fishers or their habitat. There would be no cumulative effects to this species from any of the alternatives.

Columbia Spotted Frog *(Rana luteiventris)*
Status: Sensitive Region-6 (Oregon)

In 1997 surveys on La Grande RD were conducted to assess spotted frog distributions (Bull 2001). Spotted frogs are associated with permanent water and have been located in the back waters of the Grande Ronde River, Catherine Creek (Hall Ranch area), and Goose Creek. Balm Creek Rainbow pond also supports a high population. Many high lakes support spotted frogs. If a breeding site is destroyed an alternate site must be within ½ mi. Grazing by cattle does not appear to affect spotted frogs.

The ponds created between tailings piles are known breeding and year round habitat for spotted frogs. Some of the deeper ponds serve as over-wintering habitat for spotted frogs. Bull's monitoring has documented in spotted frog population decline of over 50% in this area.

Distribution

The range of the Columbia Spotted Frog extends from the extreme southwestern Yukon, through the Alaska panhandle and most of British Columbia. It extends southeast, through eastern Washington, Idaho, western Montana, eastern Oregon, and northwestern Wyoming (Corkran and Thoms 1996).

In Oregon, the Columbia Spotted Frog is found in parts of the Cascade mountains, and throughout areas of eastern Oregon (Nussbaum et al. 1983, Leonard et al. 1993).

Habitat

Columbia Spotted Frogs are highly aquatic, inhabiting marshes and marshy edges of ponds, streams, and lakes (Munger 1997). In dry habitats, these frogs also use deep pools within the main portions of watercourses. They usually occur in slow moving waters with abundant emergent vegetation and a thick layer of dead and decaying vegetation on the bottom. Thick algal growth in overflow pools and backwaters of eastern Oregon creeks are used in the same way (Nussbaum et al. 1983).

Columbia Spotted Frogs are active in lowland habitats from February through October and hibernate in muddy bottoms near their breeding sites in winter. They are known to use cut banks, beaver dams, and pond bottoms as hibernacula (Munger 1997). Courtship and breeding takes place in warm, shallow margins of ponds or rivers or in temporary pools. Breeding occurs between February and March at lower elevations, but may occur as late as May or June at higher elevations (Leonard et al. 1993). The spotted frogs in this project area morph into adults after August 1.

Female Columbia Spotted Frogs deposit their eggs on or immediately next to other egg masses (McAllister et al. 1993). The rounded masses are not attached to vegetation, but rest on the bottom in shallow water (Nussbaum et al. 1983). Eggs are laid in water that is usually less than 12 in deep and are usually half-exposed to direct air. Columbia Spotted Frogs use the same locations for egg-laying in successive years (Nussbaum 1983, Leonard et al. 1993).

Adult Columbia Spotted Frogs are opportunistic feeders and feed primarily on invertebrates (Nussbaum et al. 1983). Larval frogs feed on aquatic algae and vascular plants, and scavenged plant and animal materials (Morris and Tanner 1969).

Limiting Factors

Mortality of frog populations is associated with natural factors such as predation, winterkill, and disease. Human impacts include altering habitat, introducing non-native fishes and other aquatic vertebrates, and introducing toxic chemicals into aquatic systems (Nussbaum et al. 1983, Leonard et al. 1993, Corkran and Thoms 1996). Some management practices, such as fire suppression and fish stocking, may have negative impacts on amphibians (Fellers and Drost 1992). Activities that increase water level fluctuations are detrimental, since egg masses of the Columbia Spotted Frog are usually laid in the shallow margins of water bodies, where they are susceptible to freezing or desiccation (McAllister and Leonard 1997).

Determination of Effect

The project area supports a known population of spotted frogs. The area appears to be a locally important breeding, summering and wintering area for this species. Ponds formed from the mining have developed into breeding, over-wintering and year round habitat for spotted frogs. Each pond was visited with Dr. Evelyn Bull to discuss their relative importance and possible mitigation measures that would reduce damaging effects to spotted frogs and their habitat. This field trip was followed up with a repeat visit with the project proponents and the interdisciplinary

team for the project. Project design criteria and mitigations were agreed to that avoid alteration of spotted frog habitat.

The majority of work with heavy equipment would occur between Mid June and mid August. These dates create some risks to spotted frogs of all stages of development. However, these risks are minimized by the following design elements:

- Ponds would not be damaged, and equipment would not enter ponds;
- Number of stream crossings is minimized; and
- Stream crossings would be located in sites that minimize bank damage.

This project may impact individuals through direct mortality from crushing with equipment, but this effect is expected to be small since adult frogs are mobile and juveniles are confined to water where equipment would not be working.

There may be long-term positive effects that result from deeper and more frequent pools, improved connectivity between the stream and its floodplain, and restored riparian vegetation.

Although individuals may be impacted, this project is not expected to lead to a trend toward federal listing or accelerate the decreasing population trend that is already apparent for this population.

Aquatic and Water Resources

Affected Environment

The Upper Grande Ronde Mine Tailings Restoration Project is located in and adjacent to the Grande Ronde River, a tributary to the Snake River. The project is located on the Grande Ronde River from the Forest boundary to approximately the mouth of Tanner Gulch (4.7 stream miles). The project would also occur at the mouth of East Fork Grande Ronde River (0.25 mile).

The Upper Grande Ronde River is spawning and rearing habitat for Snake River Basin summer steelhead, Snake River Basin spring chinook salmon, bull trout and redband trout. East Fork Grande Ronde River provides habitat for rearing spring/summer chinook, spawning and rearing steelhead, and redband trout. The summer steelhead, spring/summer chinook and bull trout are federally listed under ESA as threatened species. Redband trout are on the Regional Forester's Sensitive Species List.

The Upper Grande Ronde River Project is broken into 2 reaches. The reach break is located at the mouth of the Clear Creek tributary. The valley bottom is forested, and riparian vegetation consists of shrub species, primarily alder, with grasses and scattered sedges. Conifers consist of lodgepole pine, Douglas-fir, western larch, and some ponderosa pine. Historic timber harvest and dredge mining has removed larger conifers from the valley bottom, reducing the future recruitment of large wood debris to the stream. Gold mining, utilizing a dredge, was conducted in 1940 and 1941. The dredge turned the riparian area and floodplain over and created tailing

piles that in many cases cross the valley floor and extend toe slope to toe slope. Some riparian vegetation, primarily lodgepole pine, has reestablished, but the tailing piles have constricted the river channel, pushed it to one side of the valley floor and simplified the channel disconnecting the river from its floodplain.

In the late 1980's and early 1990's the Wallowa Whitman cooperated with Bonneville Power Administration to add structural complexity to the Upper Grande Ronde from from the Woodley Campground area to the E.F. Grande Ronde River . Large wood structural elements were added to the river channel creating large, deep pools. Very little alteration of the tailing piles was conducted leaving the river and floodplain connection in its altered condition.

A stream survey of the Upper Grande Ronde was conducted in 2001. Stream survey results indicate good numbers of pools per mile and large wood within the medium size class (see Table 5 below for stream survey results). However in 2008, the entire stretch of stream was surveyed for mine tailings removal, channel structure, fish cover, and effectiveness of the old structures that were constructed in the 1990s. The survey indicated that many of the pieces are rotting away, many of the old structures are failing and lack fish cover, jump heights for juveniles are compromised, and the stream channel has been widened in places, due to the presence of old structures.

Table 5. Results of stream habitat survey for Upper Grande Ronde River.

Stream/Year Surveyed	Pools Per Mile	W/D Ratio	% Stable Banks	%Pool Habitat	%Riffle Habitat	*LWD Large (pieces/ mile)	**LWD Medium (pieces/ mile)	Stream Gradient	Rosgen Class
Upper Grande Ronde River/ 2001 Reach 1	24	19	99	21	78	14	38	2.2%	B
Upper Grande Ronde River/ 2001 Reach 2	25	12	98	21	75	11	78	1.7%	C

*****Large LWD: Pieces >20 inches dbh and >35 feet in length.
******Medium LWD: Pieces >12 inches dbh and >35 feet in length.

Two sites within the project area have been monitored for water temperature from 2002 – 2008. The first site, located near the Clear Creek Confluence with the Grande Ronde River, had the following maximum 7 day means in degrees Fahrenheit: 68 F, 69 F, 69F, 69F, and 64 F. The second site, located in Woodley Campground (downstream of the above site), had the following maximum 7 day means: 65 F, 61 F, 67 F, 74 F, 79 F, and 69 F. Streamflows have also been monitored at the Woodley Campground site.

There are no grazing allotments in this reach of the Upper Grande Ronde River. FS Road 5125 and 5138 parallel the Upper Grande Ronde River. FS Road 5125 constricts the channel only in limited areas. FS Road 5138 is within the floodplain for most of its length. There are four mining claims in this reach of the Upper Grande Ronde.

Fisheries and Watershed Analysis of Effects

Introduction

This report analyzes the effects on fisheries and watershed resources for the proposed Upper Grande Ronde Mine Tailings Restoration Project.

The description of watershed/fisheries resources, along with the analysis of the expected and potential effects for each alternative were assessed using field surveys, water quality databases, supporting literature, and professional judgment.

Several management directives/recommendations apply to this project. The Management directives from the Wallowa-Whitman Land and Resource Management Plan (LRMP) 1990, the Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH 1995); the LRMP Biological Opinions (1998); and the Biological Opinion for Endangered Species Act Section 7 Formal Programmatic Consultation for fish Habitat Restoration Activities in Oregon and Washington (2007) would be followed. In addition, the PACFISH amendments add further interim management direction in the form of Riparian Management Objectives (RMOs), Riparian Habitat Conservation Areas (RHCAs) and standards and guidelines.

Alternative 1 – No Action Alternative

Under this alternative, none of the proposed action would be implemented. As a result there would be no tailings removal, no addition of large woody material into the channel, no restructure of the old sill log structures, no road obliteration, no dispersed recreation site riparian improvement, and no planting.

The current condition of the upper Grande Ronde River would remain the same. This would leave the stream channel constricted and simplified without connection to the floodplain. Riparian vegetation would continue to recover at a slow rate. Lack of structure associated with the old sill logs would continue to exist. Old structures would continue to cause wider channel widths, which negatively influences stream temperature and floodplain accessibility. Large woody material within the channel would continue to rot away, with little recruitment from the surrounding riparian area. Juvenile jump heights would continue to be compromised. The dispersed sites would continue to have erosion and harassment impacts on native fish species. Channel migration at the downstream road obliteration site could occur, causing increased erosion, poor instream habitat and potential damage to the spring/summer chinook acclimation site.

Alternative 2 – Proposed Action

Direct and Indirect Effects To Water Quality

Sediment Delivery Rates: Short term effects to sediment delivery could occur as a result of this project. Large woody material (LWM) placement into the stream channel, side channel construction, tailing removal, stream crossings, temporary bridge installation, road obliteration, and dispersed recreation reclamation could all cause short-term direct and/or indirect effects. The effects would be minimized through temporary bridge placement, operating out of the stream channel as much as possible, limiting the amount of stream crossings, placing tailings on the existing road, and avoiding complete channel reconstruction in the area of the side channel construction operation. The potential for increased sediment delivery would be negligible after two years post project implementation. After two years, changes in floodplain function, riparian vegetation growth, dispersed recreation site reclamation, and road obliteration would decrease sediment delivery potential when compared with current conditions. Therefore, the project would not have adverse effects through activities that potentially affect this parameter.

Stream Temperature: There would not be any noticeable changes to stream temperature. Some vegetation removal, in the riparian area, would occur to remove mine tailings out of the floodplain and remove trees needed for LWM input. However, existing vegetation would be avoided as much as possible during tailing removal and LWM needed for structure construction would be thinned out of dense stands. A total of 131 cut logs would be taken from within or adjacent to the upper Grande Ronde River. Of these 131 logs, there would be 11 snags used, 1 down log, and 119 green trees over a 4.7 stream mile area. On the average, this equates to approximately one tree per 209 feet of stream. No green trees are over 21 inches dbh. The amount of vegetation removed would have negligible effects on stream temperature. In the long term, there is potential for decreased summer stream temperatures, due to increased floodplain connectivity, increased riparian vegetation, narrowing of the existing channel, and improved meander widths.

Flow Regimes: Short term effects to the flow regime are expected to be negligible. In the short term, this project would not alter vegetation to the point that any change in the flow regime would occur. However, in the long term, it is expected that the flow regime would positively change. The floodplain would me more capable of handling and dispersing large peak flows, increasing the potential to safely store water for safe release during the low flow periods. Increased vegetation within the floodplain, through plantings and natural recruitment, would also provide the potential for increased water storage. As a result, it is expected that the flow regime would be beneficially affected by this project.

Fish Habitat and Populations

Direct and Indirect Effects on Fish Habitat and Populations

Placing large woody material (LWM) into the stream channel, side channel construction, tailing removal, stream crossings, temporary bridge installation could all cause short-term direct and/or indirect effects to fish habitat and populations. All instream work would occur during the Oregon Department of Fish and Wildlife (ODFW) recommended timing for instream work, which would minimize direct effects to listed and sensitive fish species. Working within the

ODFW recommended timing for instream work would minimize effects to spawning fish and eggs/larvae incubating in the gravel. Spring/summer chinook spawn in August and September and fry have emerged between March and May. Steelhead and redband trout spawn in April and May, and fry have emerged from the gravel by the first of July. Bull trout spawn from August through November and fry emerge in the spring. During instream operations, fish would exhibit avoidance behavior and move either upstream or downstream a short distance, escaping harm. The effects would also be minimized through the placement of temporary bridges, operating out of the stream channel as much as possible, limiting the amount of stream crossings, implementing a spill prevention plan, location of staging areas at least 300 feet slope distance from the stream and avoiding complete channel reconstruction in the area of the side channel construction operation.

As a result of the activities associated with this project, there would be long term benefits to fish habitats and populations. This would occur through a functional floodplain; decreased harrassment; improved habitat complexity, fish cover, and pool quality; and an improved riparian area.

Project Effects On Riparian Management Objectives

Landscape-scale interim RMOs describing good habitat for anadromous fish were developed using stream inventory data for pool frequency, large woody debris, bank stability, and width to depth ratio. State water quality standards were used to define favorable water temperatures.

RMOs are as follows:

Pool Frequency: (varies by wetted width)

Wetted width in feet:	10	20	25	50	75	100	125	150
Number of pools per mile:	96	56	47	26	23	18	14	12

Water Temperature: Compliance with state water quality standards, or maximum <68F
Large Woody debris: > 20 pieces per mile; >12 inches diameter; 35 foot length
Bank Stability: >80 percent stable
Width/Depth Ratio: <10, mean wetted width divided by mean depth

This project would directly enhance the amount of LWM per mile. LWM placement into the Upper Grande Ronde River would add approximately 248 pieces of primarily medium and large pieces to approximately 4.7 miles of stream. The addition of the LWM and manipulation of the old sill log structures would have the potential to increase pool frequency and decrease the width/depth ratio in the long term. Bank stability is already 98% to 99% stable. Bank stability could be affected in the short term, due to equipment operation within the channel and on the streambanks and removal of tailings and structures that are constricting the channel. However, the bank stability is not expected to be reduced more than 1% less than current conditions. In the long term, bank stability would be near current conditions. Therefore, this project would positively affect the RMOs for LWM, pool frequency, and width/depth ratio. Bank stability has

the potential to be decreased in the short term, but would be near current conditions in the long term. Refer to the water temperature section above in relation to project effects on this RMO.

Throughout the project area, PACFISH riparian goals would be met. These goals are to maintain or restore:

1. Water quality;
2. Stream channel integrity, channel processes, and the sediment regime;
3. Instream flows to support healthy riparian and aquatic habitats;
4. Riparian vegetation to provide an amount and distribution of LWM characteristic of natural aquatic and riparian ecosystems; provide adequate summer and winter thermal regulation within the riparian and aquatic zones; and help achieve surface rates of erosion, and channel migration characteristic of those under which the communities developed.

This project is occurring to improve and enhance the above goals for PACFISH, through tailing removal, road obliteration, dispersed recreation site rehabilitation, plantings, and LWM additions. Some vegetation removal in the riparian area would be needed to remove the mine tailings out of the floodplain and acquire trees needed for LWM input. However, existing vegetation would be avoided as much as possible and trees used for LWM input would be thinned out of dense stands. In addition, the riparian area would be planted. The amount of vegetation removed is presumed to have minor effects on riparian vegetation in the short term and would be positive in the long term. In the long term, it is expected that water quality and instream flows would be improved through a connected, accessible, and functioning floodplain that would adequately store water for safe release throughout the low flow period.

Cumulative Effects for Fisheries and Watershed Resources

Potential cumulative effects are analyzed by considering the proposed activities in the context of past, present and reasonably foreseeable actions. For this project, activities are considered in the Meadowbrook-Grande Ronde River (170601040103) and Tanner Gulch-Grande Ronde River (170601040101) subwatersheds. This is the area where cumulative effects have occurred or may occur.

Fire and Fuels

Wildfires have contributed to cumulative effects in the past and have the potential to do so in the future. There have been no major wildfires within these subwatersheds for the past 5 years. Past wildfires have caused increased sediment delivery through recent rainstorms that occurred after the wildfire burned. One such instance occurred in 1989, which caused a major sediment plume resulting in significant mortality on two age classes of spring/summer chinook. Since that time, the fire area has revegetated and is stable. The fuels program involves prescribed fire and fuel reduction projects. These projects are designed to lesson the impacts of wildfire. More of these projects would be planned in the future. In addition, fire rehabilitation efforts have increased to reduce effects of wildfire to fisheries and watershed resources. Therefore, cumulative effects

from fire and fuels has been reduced from the recent past.

Timber harvest

Historically, timber harvest started when mining began in the 1860s. The most recent timber harvest occurred in 1997 and involved a total of 160 acres. The total Equivalent Clear Cut Acres (%) for these subwatersheds are 3.2 % (Grande Ronde River-Tanner Gulch) and 2.1% (Grande Ronde River - Tanner Gulch). Past timber harvest has caused cumulative effects to the watershed in the form of sediment delivery, LWM in stream channels, pool frequency, and flow regime. However, these effects are lessoned as clear-cuts revegetate and through management guidelines that promote the protection and enhancement of riparian areas.

Livestock Grazing

There is no livestock grazing within either subwatershed. Therefore, there are no cumulative effects.

OHV Use

OHV use on closed and decommissioned roads, as well as, cross country travel have the potential to add to cumulative effects in the subwatershed in regard to an increase in sediment yield to streams. There is evidence of this use within both subwatersheds and has affected sediment yield and riparian vegetation in localized areas.

The Wallowa-Whitman Travel Management Plan is planned for completion in 2009. OHV use would be regulated and would reduce impacts to water quality and fisheries resources resulting in beneficial effects such as a reduction of sediment yield to streams and recovery of streambanks and riparian vegetation. Regulating OHV use would also prevent damage to perennial and seasonal wetlands.

Recreation

Cumulative effects from recreation use are possible. The only developed campground in the area, Woodley Campground, was closed down in the 1990s to avoid harassment and other effects to fish individuals and populations. However, there are dispersed camping sites located throughout the subwatersheds. Eight of these are a concern for potential sediment delivery and/or harassment effects to spring/summer chinook, steelhead and bull trout populations.

The Upper Grande Ronde Mine Tailings Restoration Project would reduce the potential for sediment delivery and harassment through obliterating the roads that lead to two of the dispersed sites. In addition, the other six dispersed sites would move sites further away from the stream. As a result, this project would reduce cumulative effects from recreation.

Mining

Historical mining has caused and continues to cause cumulative effects, which continue to affect

water quality, RMOs, and RHCAs. Mining probably began within a year of the historic settlement of the Grande Ronde Valley. Placer mining began at the mouth of Tanner Gulch where it enters the Grande Ronde River around 1862-1864. Small ditches were constructed and the deposits washed into the stream beds. Over approximately 40 years of placer mining occurred, involving 18 major and minor water transportation ditches. For approximately one year, starting late in 1940 and ending in 1941 (at the start of World War II) a dredge worked the deposits of a portion of Tanner Gulch and the floodplain of the Grande Ronde River from Tanner Gulch downstream to Woodley Campground. The placer mining operations, like other forms of mineral extraction, required large quantities of lumber for the construction of housing, cook shacks, blacksmith shops, gold processing plants, flumes, head gates, sluice boxes, fuel for cooking, heating, etc.

Currently, there are two lode mining claims that have current operating plans for activity in the subwatersheds. This mining technique, includes the driving of adits into the hillside. There are no activities within the stream channel. It was determined that the proposed activities associated with this claim would nave "NO EFFECT" on listed fish species.

Many other mining claims are located within the subwatersheds. However, many are either inactive or are not required to submit an operating plan for approval on Forest Service lands. The code of Federal Regulations (36 CFR 2228.4(a)(1)) states that a claimant shall not be required to submit a plan of operation under the following circumstances: (1) If the planned operations would be limited to the use of vehicles on existing public roads or roads used and maintained for Nationals Forest purposes. (2) If individuals desire to search for and occasionally remove small mineral samples. (3) If prospecting and sampling would not cause significant surface resource disturbance and would not involve the removal of more than reasonable amount of mineral deposit for analysis and study. (4) If individuals are marking and monumenting a mining claim. (5) If subsurface operations would not cause significant surface resource disturbance.

This Upper Grande Ronde Mine Tailings Restoration Project would reduce cumulative effects by restoring the floodplain, increasing LWM in stream channel, and planting riparian vegetation.

Roads

The current road density within the project area for all roads open and closed is 3.1 mi/mi2 (Grande Ronde River – Meadowbrook Cr.) and 1.1 mi/mi2 (Grande Ronde River – Tanner Gulch). Cumulative effects could occur in regard to sediment delivery from the presence and use of the above roads and road maintenance. However, road maintenance could potentially reduce sediment delivery to stream channels through improved drainage and reduced erosion by directing water off of the road surface.

The road density within the above subwatersheds would decrease with the implementation of the Upper Grande Ronde Mine Tailings Restoration Project by obliterating 0.4 mile of road. This would lower the risk of cumulative effects.

Fisheries and Watershed Restoration Projects

Fisheries and watershed restoration projects that have occurred in the past, add to beneficial cumulative effects in the subwatersheds. Some restoration projects, such as road obliteration and recontouring, culvert removal, and channel reconfiguration can have short term (0-2 years) effects, primarily an increase in sediment yield. In the long term (> 2 years and beyond) there is a net reduction in sediment yield as a result of these restoration projects. Combined with the large wood additions, restoration projects have enhanced water quality and fish habitat in the subwatersheds.

The Upper Grande Ronde Mine Tailings Restoration Project would further add to beneficial cumulative effects through LWM additions, floodplain connectivity, riparian plantings, etc.

Private Land Activities

Private land activities include livestock grazing, roads, and past timber harvest. These activities occur just downstream of the project area. The potential cumulative effects from private land activities include effects to sediment delivery, water temperature, bank stability, flow regime, and width to depth ratio.

Implementation of this Upper Grande Ronde Mine Tailings Restoration Project would improve downstream fish habitat through the actions mentioned above.

Conclusion

Cumulative effects occur in the watershed, due to past timber harvest operations, mining operations, wildfire and current road use, OHV use, recreation use, and private land activities. Past mining operations have caused the largest effect to the habitat on USFS lands. Effects from the other activities are limited to small, localized areas, are healing over time, or have management in place to lesson impacts. In the long term, the Upper Grande Ronde Mine Tailings Restoration Project would lesson cumulative impacts on populations and habitat. There is potential for a slight increase in cumulative effects from this project in the short term.

Determination of Effects to Listed Fish, Fish Habitat and Sensitive Fish Species

Alternative 1 – No Action

The No Action Alternative May Affect, but is Not Likely To Adversely Affect spring Chinook salmon or their designated critical habitat, bull trout or their Designated Critical Habitat, or summer steelhead or their designated critical Habitat. These are primarily indirect effects due to lack of tailing removal from the floodplain, existing old sill log structures, riparian area vegetative component, dispersed recreation sites, and road obliteration. This alternative would result in a slower recovery of the stream and could have impacts in regards to lack of wood recruitment, old structure failure, stream accessing the road prism, and continued confinement from the floodplain.

The No Action Alternative may impact redband trout individuals or habitat for this species, but is not likely to contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Alternative 2

Implementation of the Upper Grande Ronde Mine Tailings Restoration Project may impact spring Chinook salmon or their designated critical habitat, bull trout or their Designated Critical Habitat, or summer steelhead or their designated critical Habitat for the short term (2 years or less). Potential impacts could include sediment delivery and harassment. In addition, there is a very low risk of fuel spillage within or directly in the stream, although, mitigation measures are in place to prevent fill spillage. In the long term, project results would substantially improve and benefit populations, habitat and watershed function within the project area for listed fish species.

Implementation of the Upper Grande Ronde Mine Tailings Restoration Project may impact redband trout individuals or habitat for this species, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Water Quality Compliance Statement, Floodplains and Wetlands Executive Orders

Compliance Statement

The Upper Grande Ronde Mine Tailings Restoration Project would not degrade water quality in the long term. The project would have the potential to increase sediment delivery in the short term (2 years). The effects would be minimized through the temporary bridge placement, operating out of the stream channel as much as possible, limiting the amount of stream crossings, placing tailings on the existing road, implementing a spill prevention plan, location of staging areas at least 300 feet slope distance from the stream and avoiding complete channel reconstruction in the area of the side channel construction operation. After two years, it is expected that the changes in floodplain function, riparian vegetation growth, dispersed recreation site reclamation, and road obliteration would decrease sediment delivery potential when compared with current conditions. Therefore, this project would not have adverse effects through activities that affect this parameter.

Floodplains, Executive Order 11988

Executive Order (EO) 11988 requires the Forest Service to "avoid to the extent possible the long and short term adverse impacts associated with the occupation or modification of floodplains. This project would benefit the floodplain by connecting it back to the stream and watershed.

Wetlands, Executive Order 11990

Executive Order (EO) 11990 requires the Forest Service to "avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands". This project is consistent with this EO because wetlands would be avoided and historic channel scrolls/side channels would be protected.

Cultural/Heritage

Currently, there are cultural resources identified within the boundaries of the project area. These resources cannot be disclosed, due to Section 9 of the Archeological Resource Protection Act of 1979.

Effects Analysis

All identified sites within the Upper Grande Ronde Mine Tailings Restoration Project would be flagged and avoided during the implementation of accepted work. All historic sites would be carefully managed to avoid any ground disturbing effects during the staging and implementation of this project.

This undertaking is considered to be a "Stipulation III(B)2: Undertaking meets the criteria in the PA for a Historic Properties Avoided determination."

It is recognized that even the most intensive field surveys may not locate all heritage sites therefore:

> "If cultural resources are located/relocated during implementation of any of the action, work would be halted and the Wallowa Whitman Archaeologist would be notified. The cultural resource would be evaluated and a mitigation plan developed in consultation with the Oregon SHPO if necessary."

By following Stipulation III(B)2 "Historic Properties Avoided", all known cultural sites would not be affected during the implementation of the Upper Grande Ronde Mine Tailings Restoration Project for either of the Alternatives.

Mineral Resources

Introduction

The Upper Grande Ronde Mine Tailings Restoration project would remove and redistribute mine tailings to improve the riparian area and floodplain connectivity. The affected area is located within the floodplain of the upper Grande Ronde River (approximately 2.5 stream miles) and East Fork Grande Ronde River (approximately 0.25 mile). In addition, structures including logs, boulders and root wads would be placed in the stream at approximately 69 sites. Two road obliterations would occur within the project area to reduce erosion; one is located beyond the weir site for Chinook acclimation and the other is located at the end of the 5138 road.

Mining in this area along the Upper Grande Ronde River is of historic importance. Camp Carson, just upstream, was an established mining camp in the early 1860s

(http://www.oregongenealogy.com/union/historictowns.htm), and the tailings to be reclaimed were dredge mined during the 1940s. Currently, there are four mining claims that are within the project area. The mining on these claims are small scale, take place in the summer, and some of the dispersed campsites are associated with mining claims.

This document describes the effects for claimants whose claims are within the project area, including direct, indirect, and cumulative effects.

Effects Analysis

All of the work to be done on the Upper Grande Ronde Mine Tailing Restoration project, which is outside the claimed area, would not affect the mine claimants. Also, the road obliteration is not blocking any access to active claims in the area. These activities and their effects would not be addressed further.

Effects on Mining

The mine tailings have been in piles within the flood plain of the Upper Grande Ronde since the dredging took place in the 1940s. The potential mineral value located within these tailings would be important to the mine claimant. The gold value currently, on January 12, 2009, is at $825.00 per ounce (http://www.monex.com/monex/controller?pageid=prices). The two actions involved with this project are No Action and Action. The No Action alternative would not have any direct, indirect or cumulative effects on mine claimants in the area. The description below is a summary of the Action alternative as related to the mine claimants.

The mine tailings would be hauled for placement on the native surface portion of the 5138 road, at designated stock pile sites (12 sites: Refer to Appendix A and Figures 1 - 2), redistributed as far away from the wetted edge as possible, or redistributed and recontoured within the floodplain to provide for tree growth and wetland development.

The estimated construction period, June 2009 to August 2009, is during the height of the mining season and may cause some difficulties in access for the 2009 season.

Effects by Altemative

The effects for the Action alternative are separated below into categories related on where the tailings would be moved. Due to the miner's rights to the minerals on their claim under the Mining Law of 1872, we are not allowed to prevent them from recovering those potential mineral values.

Placer Tailings Restoration Activities - General

The Forest Service cannot materially interfere with on-going mining operations. Currently, there are no proposed Plan of Operations submitted. There is a Notice of Intent in the area and a comment was entered for interest in mining on two of the claims along the river (SE corner section

9, SW corner section 10 on Figures 1-2). The Forest Service would work with the current claimants to ensure that these restoration activities do not interfere with their operations.

Placer Tailings Within The Existing Mining Claims

The tailings to be moved within the mining claims are to be contoured and placed on stockpile areas, redistributed as far away from the wetted edge as possible, or redistributed within the floodplain. The future mining plans would have to include a stockpiling of topsoil and reclamation for the site to be mined. All mine tailings located within existing claims would not be moved outside of the claim boundary.

Recreation

Introduction

The Upper Grande Ronde Mine Tailings Restoration project would remove and redistribute mine tailings to improve the riparian area and floodplain connectivity. The affected area is located within the floodplain of the upper Grande Ronde River (approximately 4.7 stream miles) and East Fork Grande Ronde River (approximately 0.25 mile). In addition, structures including logs, boulders and root wads would be placed in the stream at approximately 69 sites. Two road obliterations would occur within the project area to reduce erosion; one is located beyond the weir site for Chinook acclimation and the other is located at the end of the 5138 road.

Recreation, cultural and viewing resources are of local significance within the Upper Grande Ronde corridor that encompasses the 5138 and 5125 road systems. Although no developed recreation sites exist within this corridor, there are numerous dispersed sites. Other recreation activities are focused on day use activities such as hunting, fishing and hiking. The high use in this area occurs during the big game hunting seasons when hunters occupy many of the dispersed campsites within the area.

This document describes the project effects to recreation users within the project area and includes direct, indirect and cumulative effects.

Effects Analysis

The following restoration activities associated with the Upper Grande Ronde Mine Tailing Restoration project are of such limited and constrained nature that they would not affect recreational opportunities.

- Seeding
- Planting
- Structure construction

These activities and their effects would not be discussed further in this section.

Recreation Effects

Two dispersed camp sites, associated with road obliteration, would no longer be available to the motorized user. Numerous dispersed camping opportunities would continue to be available. Six dispersed sites would have defined access points and be pulled back from the stream bank. Other dispersed camping areas would not be affected and numerous recreation opportunities would continue to be available to the recreation user.

The estimated construction period (mid-June 2009 through August 2009) may cause a short term impact to recreation users along the 5125 and 5138 roads, due to equipment placement, noise and road blocks.

In the long term, dispersed recreation would continue to be available along the Upper Grande Ronde corridor; camping and day use recreation activities are not expected to be altered by this project. This project is expected to improve the overall riparian habitat.

CONSULTATION WITH OTHERS

The Upper Grande Ronde Mine Tailings Restoration Project was published in the Wallowa-Whitman Schedule of Proposed Actions (SOPA), a quarterly publication, in October 2008 and has appeared in each quarterly SOPA since then. The SOPA is available on the forest website at www.fs.fed.us/r6/w-w/projects/. It is also mailed to approximately 100 government offices, elected officials, and individuals.

A detailed description of the proposed action was mailed on October 24, 2008 to seven mine claimants. Three phone calls were received which consisted of the following comments: (1) Mining claimants wanted to ensure that access to mining claims is not compromised. (2) Claimants wanted to ensure that recreation in the area was not compromised. (3) Claimants were interested in drilling and testing for minerals. (4) Claimants expressed interest in the historical aspect of the minerals.

Scoping, consultation, a field site visit, and coordination for the project was initiated and is ongoing with the Confederated Tribes of the Umatilla Indian Reservation, US Fish and Wildlife Service, National Marine Fisheries Service, Grande Ronde Model Watershed and Bonneville Power Administration.

The Confederated Tribes of the Umatilla Indian Reservation is partnering with the LaGrande Ranger District for cultural resource inventory, project design, and project implementation.

This project has been submitted to The State Historical Preservation Officer (SHPO) for review.

An analysis file for this project is available for public review at the La Grande Ranger District. The analysis file includes specialist's reports, data specific to the project, public notifications and their responses, meeting notes, and miscellaneous documentation.

Resource specialists from the Wallowa-Whitman Forest Headquarters reviewed the project at several checkpoints along the way to provide feedback on the project design, analysis, and documentation.

Consultation with National Marine Fisheries Service and US Fish and Wildlife Service for threatened and endangered species has been initiated and would be completed prior to signature of the decision document for this project.

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INTERDISCIPLINARY PARTICIPATION

We have participated in this analysis and believe the significant issues have been identified and addressed:

Name	Date	Title
Mark Penninger	1/14/2009	Wildlife Biologist
Greta Burles	1/14/2009	Minerals Specialist
Arlene Blumton	1/14/2009	Recreation Specialist
Joe Platz	1/14/2009	Fisheries Biologist and Team Leader
Margaret Doolittle	1/14/2009	Minerals Specialist
Penny D. Hall	1/14/2009	Botanist
Erik Harvey	1/14/2009	Archaeologist
Dean Blank	1/14/2009	Engineer
Alicia Bergschneider	1/14/2009	NEPA specialist

Recommended:

/s/ Kurt Wiedenmann ***1/23/2009***

LGRD Date
District Ranger Signature

FIGURE 1: UPPER GRANDE RONDE MINE TAILINGS RESTORATION PROJECT

(treatment units, stockpile sites, crossings, side channel construction, mining claim boundaries)

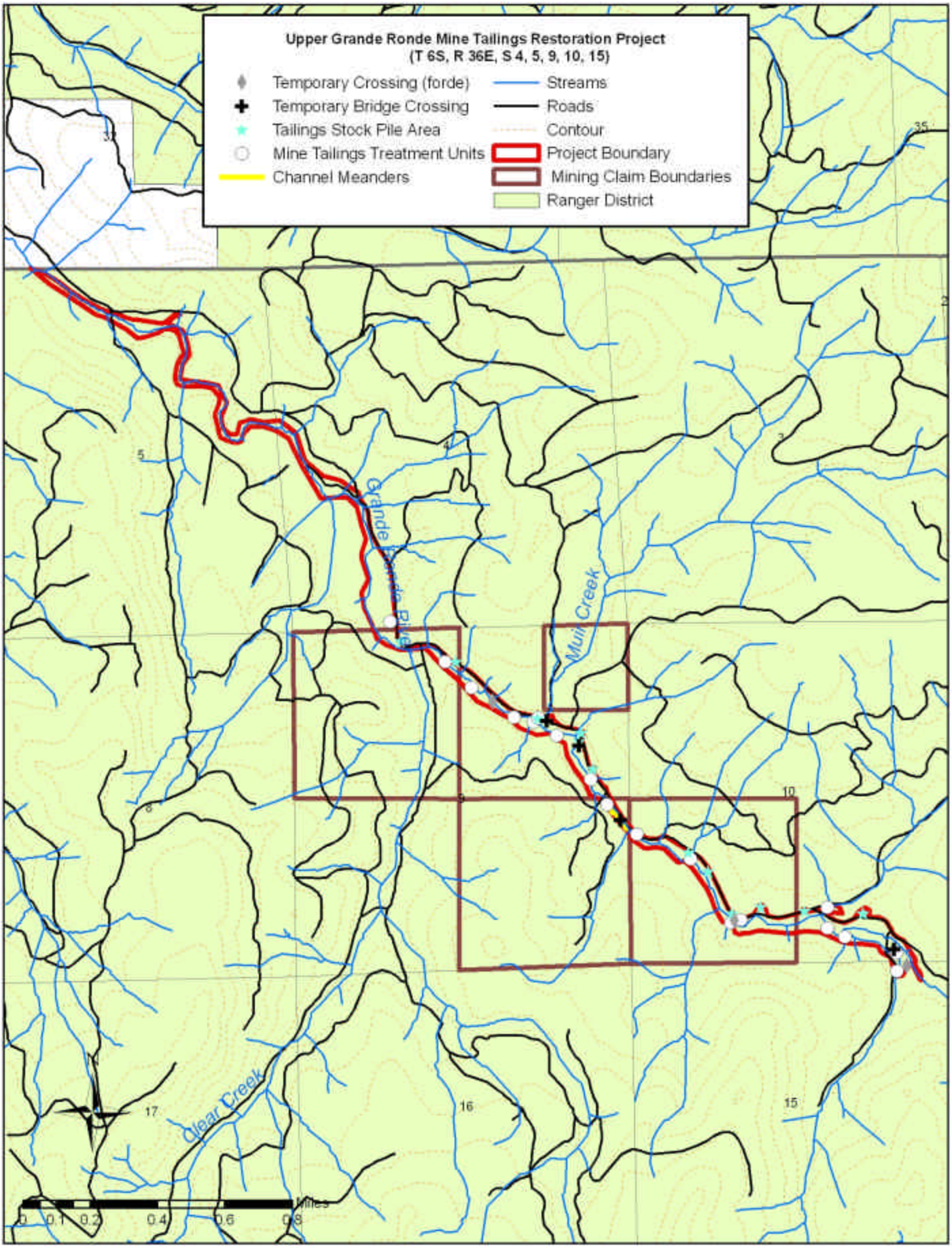
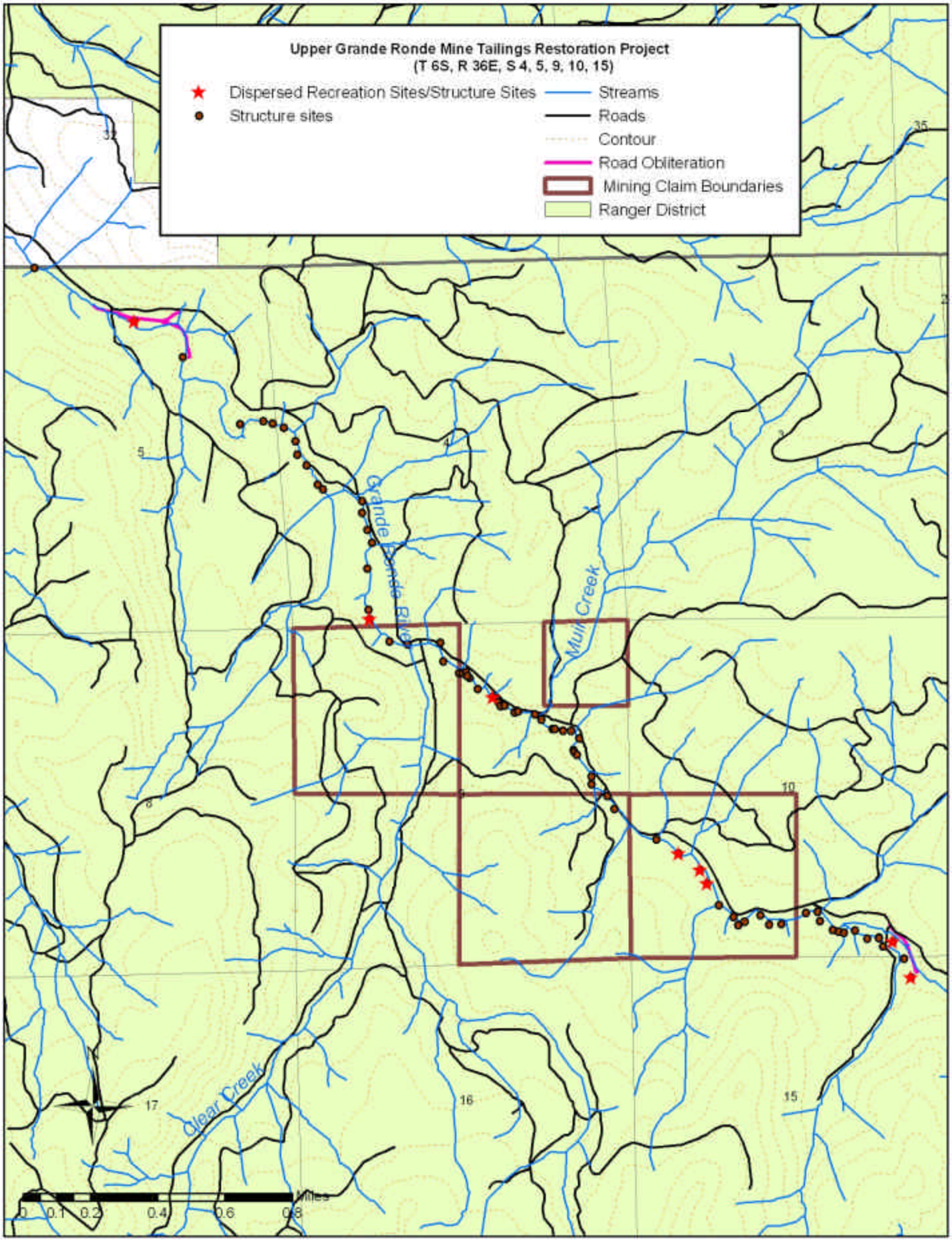

Upper Grande Ronde Mine Tailings Restoration Project
(T 6S, R 36E, S 4, 5, 9, 10, 15)
Temporary Crossing (forde)
Temporary Bridge Crossing
Tailings Stock Pile Area
Mine Tailings Treatment Units
Channel Meanders
Streams
Roads
Contour
Project Boundary
Mining Claim Boundaries
Ranger District
Grande Ronde River
Mule Creek
Clear Creek
Miles
0
0.1
0.2
0.4
0.6
0.8

FIGURE 2: UPPER GRANDE RONDE MINE TAILINGS RESTORATION PROJECT

(*Structure sites, road obliteration, dispersed recreation sites, mining claim boundaries)*


Upper Grande Ronde Mine Tailings Restoration Project
(T 6S, R 36E, S 4, 5, 9, 10, 15)
Dispersed Recreation Sites/Structure Sites
Structure sites
Streams
Roads
Contour
Road Obliteration
Mining Claim Boundaries
Ranger District
Grande Ronde River
Mule Creek
Clear Creek
5
4
10
8
17
16
15
35
Miles
0
0.1
0.2
0.4
0.6
0.8

Appendix A

Construction Summary

Appendix A
Construction Summary

Surveyed by: Joe Platz, USFS & Allen Childs, CTUIR: September 2008, Revised October 31, 2008, Revised Nov 4, 2008

SITE #	GENERAL AREA	GPS COORDINATES (WGS84, UTM)	WORK DESCRIPTION	EST. CUBIC YARDS
TREATMENT UNITS (TU)				
1	Site begins upstream of Clear Cr dispersed camp site along GR. Right Bank (RB) of GR River	11T 0396741 E / 4990936 N	Tailings graded into upstream portion of dispersed campsite. Excess will be hauled to SP-10.	3041
2	Upstream of Clear Cr., RB	0396996/4990736	Haul tailings to SP-10 to protect side channels. Site ends at dispersed camp site.	1093
3	Muir Cr., RB	039430/4990455	Haul tailings to SP-10 or 9.	1464
4	Upstream of Muir Cr., RB	0397671/4990156	Haul tailings to SP-9 east of 5125 Rd in dispersed camp site.	282
5	Downstream of FS Rd. 5138-5125 Junction, RB	0397883/4989887	Haul tailings to SP-6 or 7.	1811
6	Upstream of FS Rd. 5138-5125 Junction, RB	0398135/4989762	Haul tailings materials to FS Rd. 5138 for road surface and/or to SP-6.	6556
7	Downstream of East Fork Gr and GR Confluence, RB	0398366/4989466	Haul tailings materials to FS Rd. 5138 and utilize for road surface or to SP-3 and 4.	13177
8	East Fork GR River	0398771/4989523	Haul tailings to FS Rd. 5138 and utilize for road surface or to SP-1 and 2.	1970
9	Upstream of East Fork to dispersed camping site (Mining Claim) to side channel, RB	0398778/4989410	Hauling tailings to FS Rd. 5138 and utilize for road surface or to SP-1.	3544
10	Upstream of Mining Claim. Last site on RB, east of Tanner Cr. Confluence with GR	0399094/4989290	Haul material across side channel through site 9 to 5138 road or SP-1.	1301
11	Upstream Clear Cr, west of Muir Creek on LB of GR (west side of river)	0397119/4990609	Site is heavily vegetated. Tailings will be pulled back from channel and graded to hillslope in into dry swells. Utilize TC-1 to mobilize track-hoe to west side of river.	1325

12	Upstream of site 11	0397315/4990463	Site is heavily vegetated. Accessible tailings will be hauled across BC-1 and stockpiled in SP-10. Balance of tailings material will be graded back from GR River and contoured.	2924
13	Site is located in mining claim area with 3 hard rock mining tunnels against west toeslope of GR floodplain.	0397409/4990437	Tailings will be hauled across BC-2 and stockpiled in SP-10. Additional tailings material will be graded in place while minimizing impact on vegetation.	3344
14	Upstream of site 13 mining area in large wet meadow complex	0397518/4990367	Heavy existing vegetation on downstream portion of site. Tailings will be hauled across BC-2 and deposited in SP-9. Balance of tailings will be graded in-place. Upper site includes meadow complex with scattered tailings which will be graded in place.	2665
15	Upstream of meadow complex adjacent to FS Rd. 5125	0397746/4990034	Channel confined between FS Rd. 5125 and tailings. Tailings will be hauled across BC-3 and disposed in SP-7. Site includes channel construction of channel meanders, floodplain contour, and installation of log debris jams.	1673
16	Site is located on LB of GR River at FS Rd. 5125/5138 junction	0398310/4989453	Tailing will be graded back approximately 30-50 feet from GR River and contoured into floodplain.	84
17	Upstream of Site 16 on island between GR River and side channel	0398860/4989365	Tailings will be hauled across side channel using TC-4 and deposited at designated stockpile locations/5138 road surface.	210
18	Grande Ronde floodplain at Tanner Creek confluence	0399102/4989195	Tailings along Grande Ronde floodplain (left bank) at confluence of Tanner Creek. Material will be graded back from Grande Ronde River approximately 75 to 100 and graded flat contoured in place. Larger tailings along Tanner Creek will remain in place and not disturbed.	500
			Total Estimated Yardage (cubic yards)	**46964**

TAILINGS STOCKPILE/DISPOSAL UNITS (SP)		
1	118^0 16’ 59.70”W/45^0 3’ 5.49”N	
2	118^0 17’ 12.51”/45^0 3’ 5.99”	
3	118^0 17’ 21.99”/45^0 3’ 6.82”	
4	118^0 17’ 28.33”/45^0 3’ 5.88”	
5	118^0 17’ 33.41”/45^0 3’ 12.43”	
6	118^0 17’ 37.64/45^0 3’ 15.36”	
7	118^0 17’ 58.14/45^0 3’ 28.48”	
8	118^{0}18’ 0.98”/45^0 3’ 32.66”	
9	118^0 18’ 0.42/45^0 3’ 34.03”	
10	118^0 18’ 10.03”/45^{0}3’ 36.38”	
11	118^0 18’ 27.64”/45^0 3’ 45.33”	
12	118^0 18’ 38.55”/45^0 3’ 48.65”	
TEMPORARY BRIDGE CROSSING (BC)		
1	11T 0397472 E /4990441 N	Access to TU-12 & 13
2	0397621/4990318	Access to 13&14
3	0398242/4989635	Access to TU-15
4	0399095/4989297	Access to TU-17
TEMPORARY CROSSING (FORDE) (TC)		
1	11T 0397214 E / 4990542 N	Access to TU-11
2	0398334/4989464	Access to scatter tailings
3	0399151/4989222	Access to upper lower Tanner Creek tailings upstream of TU-17

Appendix B

Region 6 PETS Plants Occurrence for the Wallowa-Whitman National Forest, La Grande Ranger District, and Upper Grande Ronde Mine Tailings Restoration Project 2008

Appendix B
Region 6 PETS Plants Occurrence for the Wallowa-Whitman National Forest, La Grande Ranger District, and Upper Grande Ronde Mine Tailings Restoration Project 2008

Species	Common name	Classification	WWNF	LGRD	UGR Mine Tailings Project
(Vascular Plants)					
ACHNATHERUM WALLOWAENSIS	WALLOWA RICEGRASS	OR-SEN	D	P	No habitat
ALLIUM GEYERI VAR. *GEYERI*	GEYER'S ONION	OR-SEN	D	No habitat	No habitat
ARABIS HASTATULA	HELLS CANYON ROCKCRESS	OR-SEN	D	P	No habitat
ASPLENIUM TRICHOMANES-RAMOSUM	GREEN SPLEENWORT	OR-SEN	D	No habitat	No habitat
BOTRYCHIUM ASCENDENS	UPWARD-LOBED MOONWORT	SEN	D	S	P
BOTRYCHIUM CAMPESTRE	PRAIRIE MOONWORT	OR-SEN	D	S	P
BOTRYCHIUM CRENULATUM	CRENULATE MOONWORT	SEN	D	**D**	S
BOTRYCHIUM LINEARE	SLENDER MOONWORT	SEN	D	S	No habitat
BOTRYCHIUM LUNARIA	MOONWORT	OR-SEN	D	**D**	No habitat
BOTRYCHIUM MINGANENSE	GRAY MOONWORT	OR-SEN	D	**D**	S
BOTRYCHIUM MONTANUM	MOUNTAIN GRAPE-FERN	OR-SEN	D	**D**	S
BOTRYCHIUM PARADOXUM	TWIN-SPIKED MOONWART	SEN	D	S	S
BOTRYCHIUM PEDUNCULOSUM	STALKED MOONWORT	SEN	D	**D**	S
BUPLEURUM AMERICANUM	BUPLEURUM	OR-SEN	D	P	No habitat
CALOCHORTUS MACROCARPUS VAR. *MACULOSUS*	GREEN-BAND MARIPOSA-LILY	SEN	D	P	No habitat
CALOCHORTUS NITIDUS	BROAD-FRUIT MARIPOSA-LILY	SEN	D	P	No habitat
CAREX ABRUPTA	ABRUPT-BEAKED SEDGE	OR-SEN	D	S	P
CAREX ATROSQUAMA	BLACKENED SEDGE	OR-SEN/ WA-STR	D	No habitat	No habitat
CAREX CAPITATA	CAPITATE SEDGE	OR-SEN/ WA-STR	S	P	P
CAREX CORDILLERANA	CORDILLERAN SEDGE	OR-SEN	D	**D**	P
CAREX DIANDRA	LESSER PANICLED SEDGE	OR-SEN	S	S	P
CAREX DIOICA (VAR. *GYNOCRATES)*	YELLOW BOG SEDGE	SEN	D	P	P
CAREX IDAHOA	IDAHO SEDGE	OR-SEN	S	S	S
CAREX LASIOCARPA VAR. *AMERICANA*	SLENDER SEDGE	OR-SEN	D	S	S
CAREX MEDIA	INTERMEDIATE SEDGE	SEN	D	No habitat	No habitat
CAREX NARDINA	SPIKENARD SEDGE	OR-SEN	D	No habitat	No habitat
CAREX PELOCARPA	NEW SEDGE	OR-SEN	D	No habitat	No habitat
CAREX PYRENAICA SSP. *MICROPODA*	PYRENAEAN SEDGE	OR-SEN	D	No habitat	No habitat
CAREX RETRORSA	RETRORSE SEDGE	OR-SEN	D	S	P

Species	Common name	Classification	WWNF	LGRD	UGR Mine Tailings Project
CAREX SUBNIGRICANS	DARK ALPINE SEDGE	OR-SEN	D	No habitat	No habitat
CAREX VERNACULA	NATIVE SEDGE	OR-SEN	D	No habitat	No habitat
CASTILLEJA FRATERNA	FRATERNAL PAINTBRUSH	OR-SEN	D	No habitat	No habitat
CASTILLEJA RUBIDA	PURPLE ALPINE PAINTBRUSH	OR-SEN	D	No habitat	No habitat
CHEILANTHES FEEI	FEE'S LIP-FERN	SEN	D	No habitat	No habitat
CRYPTOGRAMMA STELLERI	STELLER'S ROCKBRAKE	SEN	S	No habitat	No habitat
CYPERUS LUPULINUS SSP. *LUPULINUS*	A CYPERUS	OR-SEN	D	No habitat	No habitat
CYPRIPEDIUM FASCICULATUM	CLUSTERED LADY'S-SLIPPER	SEN	D	S	S
ELATINE BRACHYSPERMA	SHORT SEEDED WATERWORT	OR-SEN	S	S	S
ELEOCHARIS BOLANDERI	BOLANDER'S SPIKERUSH	OR-SEN	D	S	S
ERIGERON DISPARIPILUS	WHITE CUSHION ERIGERON	OR-SEN	D	P	No habitat
ERIGERON ENGELMANNII VAR. *DAVISII*	ENGELMANN'S DAISY	OR-SEN/ WA-STR	D	P	No habitat
GENTIANA PROSTRATA	MOSS GENTIAN	OR-SEN	S	No habitat	No habitat
GENTIANELLA TENELLA SSP. *TENELLA*	SLENDER GENTIAN	OR-SEN	S	S	P
HELIOTROPIUM CURASSAVICUM	SALT HELIOTROPE	OR-SEN	S	P	No habitat
JUNCUS TRIGLUMIS VAR. *ALBESCENS*	THREE-FLOWERED RUSH	OR-SEN	D	No habitat	No habitat
KOBRESIA BELLARDII	BELLARD'S KOBRESIA	OR-SEN	D	No habitat	No habitat
KOBRESIA SIMPLICIUSCULA	SIMPLE KOBRESIA	OR-SEN	D	P	P
LIPOCARPHA ARISTULATA	ARISTULATE LIPOCARPHA	SEN	D	No habitat	No habitat
LISTERA BOREALIS	NORTHERN TWAYBLADE	OR-SEN	D	S	S
LOMATIUM ERYTHROCARPUM	RED-FRUITED LOMATIUM	OR-SEN	D	No habitat	No habitat
LOMATIUM GREENMANII	GREENMAN'S DESERT PARSLEY	OR-SEN	D	No habitat	No habitat
LOMATIUM RAVENII	RAVEN'S LOMATIUM	OR-SEN	S	P	No habitat
LYCOPODIUM COMPLANATUM	GROUND CEDAR	OR-SEN	D	**D**	S
MIMULUS HYMENOPHYLLUS	MEMBRANE-LEAVED MONKEYFLOWER	OR-SEN	D	No habitat	No habitat
MIRABILIS MACFARLANEI	MACFARLANE'S FOUR-O'CLOCK	**Threatened**	D	No habitat	No habitat
MUHLENBERGIA MINUTISSIMA	ANNUAL DROPSEED	OR-SEN	S	S	P
OPHIOGLOSSUM PUSILLUM	ADDER'S-TONGUE	SEN	D	**D**	P
PELLAEA BRIDGESII	BRIDGES' CLIFF-BRAKE	OR-SEN	D	**D**	No habitat
PHACELIA MINUTISSIMA	DWARF PHACELIA	SEN	D	**D**	No habitat
PHLOX MULTIFLORA	MANY-FLOWERED PHLOX	OR-SEN	D	**D**	No habitat

Species	Common name	Classification	WWNF	LGRD	UGR Mine Tailings Project
PLATANTHERA OBTUSATA	SMALL NORTHERN BOG-ORCHID	SEN	D	S	P
PLEUROPOGON OREGONUS	OREGON SEMAPHOREGRASS	OR-SEN	S	P	P
POTAMOGETON DIVERSIFOLIUS	RAFINESQUE'S PONDWEED	OR-SEN	S	S	No habitat
RORIPPA COLUMBIAE	COLUMBIA CRESS	SEN	S	S	P
ROTALA RAMOSIOR	LOWLAND TOOTHCUP	SEN	S	S	No habitat
RUBUS BARTONIANUS	BARTONBERRY	OR-SEN	D	No habitat	No habitat
SALIX FARRIAE	FARR'S WILLOW	OR-SEN	D	No habitat	No habitat
SALIX WOLFII	WOLF'S WILLOW	OR-SEN	D	P	No habitat
SAXIFRAGA ADSCENDENS SSP. OREGONENSIS	WEDGE-LEAF SAXIFRAGE	OR-SEN	D	No habitat	No habitat
SENECIO DIMORPHOPHYLLUS	PAYSON'S GROUNDSEL	OR-SEN	D	No habitat	No habitat
SILENE SPALDINGII	SPALDING CATCH-FLY	**Threatened**	D	No habitat	No habitat
SUKSDORFIA VIOLACEA	VIOLET SUKSDORFIA	OR-SEN	S	P	P
THALICTRUM ALPINUM	ALPINE MEADOWRUE	OR-SEN	D	No habitat	No habitat
THELYPODIUM EUCOSMUM	ARROW-LEAF THELYPODY	OR-SEN	S	P	No habitat
TOWNSENDIA MONTANA	MOUNTAIN TOWNSENDIA	OR-SEN	D	P	No habitat
TOWNSENDIA PARRYI	PARRY'S TOWNSENDIA	OR-SEN	D	S	No habitat
TRIFOLIUM DOUGLASII	DOUGLAS' CLOVER	SEN	D	**D**	P
TROLLIUS LAXUS VAR. *ALBIFLORUS*	AMERICAN GLOBEFLOWER	OR-SEN	D	No habitat	No habitat
UTRICULARIA MINOR	LESSER BLADDERWORT	OR-SEN/ WA-STR	S	S	No habitat
(Nonvascular Plants)					
BARBILOPHOZIA LYCOPODIOIDES	LIVERWORT	OR-SEN	D	No habitat	No habitat
ENCALYPTA INTERMEDIA	MOSS	OR-SEN	D	No habitat	No habitat
HELODIUM BLANDOWII	MOSS	OR-SEN	S	S	P
JUNGERMANNIA POLARIS	LIVERWORT	OR-SEN	D	S	P
PELTOLEPIS QUADRATA	LIVERWORT	OR-SEN	D	S	P
PTILIDIUM PULCHERRIMUM	LIVERWORT	OR-SEN	S	S	P
RHIZOMNIUM NUDUM	MOSS	OR-SEN	S	S	P
SCHISTIDIUM CINCLIDODONTEUM	MOSS	OR-SEN	D	S	P
SCHISTOSTEGA PENNATA	MOSS	SEN	S	S	P
SPLACHNUM AMPULLACEUM	MOSS	OR-SEN	S	No habitat	No habitat
TETRAPHIS GENICULATA	MOSS	SEN	S	P	P

Species	Common name	Classification	WWNF	LGRD	UGR Mine Tailings Project
TOMENTYPNUM NITENS	MOSS	OR-SEN	S	No habitat	No habitat
TORTULA MUCRONIFOLIA	MOSS	OR-SEN	S	P	P
DERMATOCARPON MEIOPHYLLIZUM	LICHEN	SEN	S	S	S
LEPTOGIUM BURNETIAE	LICHEN	SEN	S	S	S
LEPTOGIUM CYANESCENS	LICHEN	SEN	S	S	S
PELTIGERA PACIFICA	LICHEN	SEN	S	S	S

Threatened species are listed in the Federal Register

03/15/1996	61 FR 10693 10697	ETWP; Reclassification of Mirabilis Macfarlanei (MacFarlane's Four-O' clock) From Endangered to Threatened Status
10/10/2001	66 FR 51597 51606	ETWP; Final Rule To List Silene spaldingii (Spalding's Catchfly) as Threatened

W-W NF = Occurrence on the Wallowa-Whitman National Forest.
LGRD = Occurrence on the (La Grande) Ranger District.

- D = Species that have been documented on land owned or administered by the W-W NF and LGRD.
- H = Historical records (exact locations have not been confirmed or relocated).
- S = Species that are suspected to occur on land within the W-W NF, LGRD.
- P = Species that may possibly (but not as likely) occur on land within the by the W-W NF, LGRD.

Appendix C

Photos of Project Site

Dispersed campground boulder placement to lesson effects to the stream. A root wad with log attached will be added to a pool just downstream of this picture to provide cover and improve pool quality. Wood will be added to the bank of this picture to improve bank stability, and provide cover.

Natural movement of wood created a pool with good cover on a meander bend. There will be structures that try to mimic this habitat on the stream.

Potential juvenile passage barrier – two logs on top of each other. Top log will be removed. Bottom log will have a notch that is wide and deep. Three logs will be added to provide cover, maintain the pool and narrow the channel.

Cover will be added to the pool.

Failed structure. The middle of the log will be removed. One root wad with log attached and 3 – 50’ logs will be added to structure to maintain a pool, provide cover and narrow the channel.

Mine tailings, preventing access to the floodplain.

Mine Tailings in the floodplain.

Mine tailings in the floodplain.