

Grande Ronde River – Reach 1 Asotin County

Reach Description: Reach 1 of the Grande Ronde River runs from the Washington/Oregon state line to NE ¼ of T7N_R46E_S31.

Shoreline Jurisdiction: 1,852 acres, 25.1 miles



Source: Google Earth

Subreaches (SR); see Map B-1

SR 1a: Begins at the Washington/Oregon state line to the NW ¼ of T6N_R44E_S04; 597 acres, 8.0 miles

SR 1b: Begins at the NW ¼ of T6N_R44E_S04 to the SW ¼ of T7N_R44E_S36, at Bigfoot Creek; 315 acres, 4.2 miles

SR 1c: Begins at the SW ¼ of T7N_R44E_S36 (Bigfoot Creek) to the NW ¼ of T6N_R45E_S03; 513 acres, 7.1 miles

SR 1d: Begins just below Deer Creek at the NW ¼ of T6N_R45E_S03 to the NE ¼ of T7N_R46E_S31; 428 acres, 5.8 miles

CHARACTERISTICS

Ownership:

SR 1a: Ownership is 80% U.S. Bureau of Land Management (BLM) and 20% private.

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<p>SR 1b: Ownership is 80% BLM and 20% private.</p> <p>SR 1c: Ownership is 70% BLM, 20% Washington State Department of Natural Resources (DNR), and 10% private.</p> <p>SR 1d: Ownership is 30% BLM, 30% Washington Department of Fish & Wildlife (WDFW), 10% DNR, and 30% private.</p>
<p>Land Use/Current Shoreline Master Program (SMP):</p> <p>Current land use designation:</p> <ul style="list-style-type: none">• Specific land uses have not been designated. The reach land uses include state and federal open space, agriculture, residential, and recreation. <p>Current zoning designation:</p> <ul style="list-style-type: none">• The entire reach is zoned Rural/Residential. <p>Current SMP environment designation:</p> <ul style="list-style-type: none">• The entire reach is designated Rural.
<p>Existing Land Cover/Development:</p> <p>The majority of the Reach 1 of the Grande Ronde River is public lands. This reach has little development, except for a paved road running the length of it. The river is surrounded by steep cliffs and open space.</p>
<p>Geomorphic Character:</p> <p>Description: The Grande Ronde River, throughout most of its extent, flows within a mostly confined, bedrock valley. It has an overall sinuous planform with large, well developed river meanders. Bedrock throughout the valley consists primarily of thick sequences of Grande Ronde Basalt flows with minor occurrences of continental sedimentary rocks. The channel and valley bottom consists of areas of alluvium with large alluvial bars present. Channel migration is limited by bedrock banks and valley margins. In the lower segments of the river, the Snake River Road is aligned adjacent to the river, further limiting the potential lateral channel migration.</p> <p>Channel Migration Zone Characterization: Channel migration is limited by the presence of bedrock throughout the channel and valley. The overall bedrock valley is generally confined with limited floodplain connectivity. The presence of infrastructure features also impedes channel migration, including the Snake River Roadway and a bridge crossing.</p> <p>Hardened Banks: Approximately 2,100 feet of hardened bank appears to exist along the Snake River Road near the Grande Ronde River’s confluence with the Snake River.</p>

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Flooding and Geological Hazards:	
<p>Flooding: Federal Emergency Management Agency (FEMA) floodplains have been established in this reach; floodplain widths are relatively narrow due to steep river banks. In SR 1a, floodplains are relatively wider at meandering portions of the reach.</p>	
<p>Geological Hazards: Both moderately and severely erodible soils can be found in this reach. More than half of SR 1a and 1b has moderate to high liquefaction susceptibility. A portion of SR 1c and 1d contain areas with varying liquefaction susceptibility. Landslide hazards exist in SR 1a, 1b, and, 1d where slopes are steeper than 15% over underlying alluvial deposits.</p>	
Existing Public Access:	
SR 1a:	
<ul style="list-style-type: none">• Grande Ronde Road runs along the shoreline for most of this subreach.• Cougar Creek Road enters the drainage and intersects with Grande Ronde Road.• There are numerous areas of shoreline that would accommodate small vessel beaching along this subreach.	
SR 1b:	
<ul style="list-style-type: none">• Grande Ronde Road runs the length of the shoreline for this subreach.• There are numerous areas of shoreline where small vessels could beach.• Bezona access is managed by WDFW and has primitive camping, parking, restrooms, and water access.• R. Boggan access is managed by WDFW and has primitive camping, parking, restrooms, and water access.• C. Boggan is managed by WDFW and has primitive camping, parking, restrooms, and water access.• Cottonwood access has restrooms, parking, and water access, but no camping.• State Route 129 crosses the Grande Ronde River via a bridge.• There is a restaurant located at the base of the State Route 129 bridge.	
SR 1c:	
<ul style="list-style-type: none">• There are no roads accessing this subreach.• Due to the rugged terrain and no road access, public access is limited.• There are several areas along the shoreline where personal watercraft could beach, so boat access is possible along this subreach.	
SR 1d:	
<ul style="list-style-type: none">• Half of this subreach has no road access.• Shumaker Road runs along the northern shore of the Grande Ronde River halfway through the subreach.• Shumaker Road turns north, and an unimproved access road continues along the shoreline.	

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- There are no improved public access sites along this subreach.
- There are several areas along the shoreline that could accommodate small water vessels.

Informal river access is found on WDFW lands and BLM-owned property.

Identified Public Access Improvements: None identified.

Public Access Opportunities:

Opportunities are limited in most of this reach because of steep banks and terrain in some areas and due to limited accessibility (private property). WDFW provides a boat launch, restrooms, and camping in this reach.

ECOLOGICAL CONDITIONS

Water Quantity and Sediment:

Several minor tributaries flow into the Grande Ronde River, including Menatchee Creek and Cougar Creek in SR 1a, Cottonwood Creek and Rattlesnake Creek in SR 1b, Deer Creek in SR 1c, and Shumaker Creek in SR 1d. These tributaries are all small compared to the overall flow in the Grande Ronde River; therefore, these tributaries should not have a major effect on water quantity. The USGS gage nearest to this reach (Gage No. 13333000, Grand Ronde River at Troy, OR) is located approximately 7 miles upstream. The mean annual flow for the period of record at this gage (1945-present) is 3,027 cubic feet per second (cfs), and the maximum flow recorded is 51,800 cfs.

Sediment inputs will likely occur at tributaries and at potential landslide areas during extreme flood events. This reach has a relatively high potential for sediment input because of minimal riparian cover in the reach drainage area.

Water Quality:

This reach is not on the Washington State Department of Ecology's (Ecology) 305b list; however, Menatchee Creek is a tributary entering the Grande Ronde River in SR 1a that is listed as requiring a total maximum daily load for temperature. Riparian cover is generally absent along this reach, which may cause impacts to temperature. Runoff from agricultural activity may locally impact water quality in SR 1a and 1b.

Habitat Characteristics and Priority Habitat Species (PHS) Presence:

The Grande Ronde River in this reach has been identified to provide habitat for and support elk, chukar, bighorn sheep, bald eagle, and mule deer, as well as to provide foraging, resting, and nesting habitat for concentrations of migratory waterfowl. The river also supports the other species as identified in Table 28 of the Inventory, Analysis, and Characterization (IAC) Report. The Grande Ronde River supports Endangered Species Act (ESA)-listed bull trout, as well as Grande Ronde summer steelhead, Joseph Creek summer steelhead, and Wenaha River spring/summer Chinook. The Grande Ronde River in Asotin County also provides hatchery steelhead, smallmouth bass, and channel catfish.

Production of steelhead and spring/summer Chinook salmon in the lower Grande Ronde below the Wenaha confluence is moderately impacted by a lack of habitat diversity and key habitat quantity (pools)

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(SRSRB 2011). Very slight impacts due to predation and flow are also noted. The abundance of ESA-listed salmonids in the Grande Ronde River is limited by sedimentation and lack of habitat diversity, including key habitat quantity (pools). Water quantity and flow and temperature are an issue due to natural climate, as well as irrigation withdrawals in the upper (Oregon) portion of the watershed (SRSRB 2011).

The Grande Ronde Subbasin Plan (Nowak 2004) attributed the lack of habitat diversity within the Grande Ronde River within the area of Reach 1 to anthropogenic confinement, sedimentation from upstream, and low amounts of large woody debris (LWD). Because this reach is a natural transport zone and due to natural confinement of the channel, increasing woody debris loading is unlikely.

Riparian vegetation along the Grande Ronde River in this reach has limited tree cover; vegetation is dominated by grasses and a few small shrubs (SRSRB 2011). This is partially due to the natural confinement of the channel. Sediment and temperature problems within this subreach may be attributed to riparian degradation associated with streamside roads and grazing in tributaries, as well as some areas of this reach (Nowak 2004).

SR 1a: This subreach begins at the Oregon border but briefly makes a bend that takes it back into Oregon. This description does not specifically address conditions of the reach within Oregon. The subreach is confined to a narrow valley. Grande Ronde Road runs adjacent to the river on the north/western shoreline for the entirety of the subreach. Riparian vegetation in this subreach is limited to narrow bands or small patches along the shoreline and is generally more prevalent on the north/northwest facing shoreline. The presence of the road occasionally encroaches on or prevents the growth of vegetation in the riparian area. The slopes of the cliffs and bluffs on either side of the river support shrub-steppe and grass species, with the north/west facing slopes retaining more moisture, allowing growth of patches of deciduous forested areas. Residential and agricultural development along this subreach is limited to a few farms located along the shoreline of the north/western bank; there is no development along the southeast shoreline in this subreach. Two islands (McNeil Island and an unnamed island) are located within the channel. Both are marked by informal trails, with McNeil Island appearing to be more regularly used for public access.

SR 1b: Characteristics of vegetation along the shoreline and slopes on either side of the river in this subreach are similar to those described for SR 1a. There is additional development within this reach with rural and agricultural residences on both sides of the river. State Route 129 crosses the river in this subreach, and the shoreline is hardened on either side of the bridge on both shorelines. Development increases near the State Route 129 bridge, particularly along the southern shoreline, with agricultural activities occurring within the 200-foot shoreline boundary. These activities limit the amount of natural riparian habitat.

SR 1c: Characteristics of vegetation along the shoreline and slopes on either side of the river in this subreach are similar to those described for SR 1a; however, there is only a limited amount of paved road along the shoreline of this subreach. This paving is just downstream from the State Route 129 bridge. An informal vehicle access route is apparent along stretches of the northern shoreline, within the 200-foot shoreline boundary. There are several sand and gravel-bar islands and spits within this subreach that all generally support some amount of vegetation but do not appear to be heavily accessed by people. A number of canyon/gullies drain into the river in this subreach from the slopes above the southern shoreline, and these areas are generally forested with shrubs and deciduous trees and provide robust patches of

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riparian vegetation.

SR 1d: Characteristics of vegetation along the shoreline and slopes on either side of the river in this subreach are similar to those described for SR 1a, with development and access generally on the north shoreline. This subreach begins at the terminus of Shumaker Road. This road follows along the northern shoreline for several miles and does impact the riparian vegetation along the shoreline. Shumaker road presents a number of access points to the shoreline. There is a gravel road that continues along the shoreline once Shumaker Road turns away from the river. The gravel road is associated with agricultural activities occurring in the middle of this subreach.

ECOLOGICAL FUNCTIONS ANALYSIS

Riparian areas of Reach 1 were determined to be partially functioning but at risk (SRSRB 2011).

Habitat functions affected include rearing and migration as a result of lack of habitat diversity, in part due to lack of LWD caused by past land management, sedimentation, and stream temperature.

The lower Grande Ronde River in this reach has benefited from salmon habitat restoration actions performed in the drainage area, including federal and state programs to improve grazing practices, converting tilled lands to minimum-till agriculture, establishing sediment retention basins in problem areas, and improving riparian habitat in tributaries. The result has been reduced fine sediment loads, reduced streambed embeddedness, and improvements in riparian habitat; however, until floodplain and riparian cover matures and additional restoration actions are completed, the damaged stream banks, low habitat diversity, and disturbed habitat structures will continue to generate fine sediment and elevate stream temperatures.

Restoration Actions:

- Implement restoration projects that may include passive (e.g., Conservation Reserve Expanded Program riparian buffers or protected area conservation easements) or active (e.g., riparian plantings) efforts to reduce erosion and increase filtration, particularly SR 1b and 1d.
- Implement aquatic habitat protection plans, including list of prioritized projects from the Grande Ronde Implementation Area of the Water Resource Inventory Area (WRIA) 35 Watershed Plan (Asotin PUD 2007), e.g., riparian buffer replacement/enhancement.
- Reduce riparian and water quality impacts from livestock through expanded use of best management practices (BMPs) (e.g., exclusionary fencing and rotational grazing) for livestock operations within shoreline jurisdiction, particularly in SR 1b and 1d.
- Address fish barriers such as improperly screened diversions and inadequate culverts.

SR 1a:

Level of Existing Function: Partially Functioning

Stressors:

- Grande Ronde Road inside shoreline jurisdiction and related shoreline stabilization (riprap)
- Low summer flows, high turbidity

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<ul style="list-style-type: none"> • Lack of LWD <p>Runoff from Grande Ronde Road impacts water quality and in turn impacts aquatic forage and rearing habitat functions. Upland development may also impact continuity of riparian habitats through placement of riprap and riparian functions such as migratory corridors for nearshore aquatic and terrestrial species. Upstream logging may limit availability of LWD, which slightly reduces habitat complexity in this reach.</p> <p>Potential Restoration Opportunities: Implement actions identified above.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual.</p>
<p>SR 1b:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Road development inside shoreline jurisdiction and related shoreline stabilization (riprap) • Low summer flows, high turbidity • Lack of LWD • Agricultural activities within shoreline jurisdiction <p>Runoff from Grande Ronde Road and State Route 129 impact water quality, thus impacting aquatic forage and rearing habitat functions. By reducing riparian vegetation and the conversion of other native upland vegetation, upland agricultural development may impact continuity of riparian habitats. Impacts affect riparian functions such as migration, forage, and rearing, as well as protection of water quality.</p> <p>Potential Restoration Opportunities: Implement actions identified above.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual.</p>
<p>SR 1c:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Grande Ronde Road and other roadways inside shoreline jurisdiction and related shoreline stabilization (riprap) • Low summer flows, high turbidity • Lack of LWD • Recreational access <p>Runoff from Grande Ronde Road and other roads impacts water quality and aquatic forage and rearing habitat functions. Impacts of development affect riparian functions such as migration, forage, and rearing, as well as protection of water quality.</p>

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<p>Potential Restoration Opportunities: Implement actions identified above.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual.</p>
<p>SR 1d:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none">• Shumaker Road inside shoreline jurisdiction and related shoreline stabilization (riprap)• Low summer flows, high turbidity• Lack of LWD• Agricultural activities within shoreline jurisdiction <p>Runoff from Shumaker Road impacts water quality and aquatic forage and rearing habitat functions. Upland agricultural development may also impact continuity of riparian habitats through reduced riparian vegetation and conversion of other native upland vegetation. Impacts affect riparian functions such as migration, forage, and rearing, as well as protection of water quality.</p> <p>Potential Restoration Opportunities: Implement actions identified above.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual.</p>

Grande Ronde River – Reach 2 Asotin County

Reach Description: Reach 2 of the Grande Ronde begins at NE ¼ of T17N_R46E_S31 and ends at the mouth of the Snake River.

Shoreline Jurisdiction: 981 acres, 13.2 miles



Source: <https://fortress.wa.gov/ecy/coastalatlus/UICoastalAtlas/Tools/ShorePhotos.aspx>

Subreaches (SR); see Map B-2

SR 2a: Begins at the NE ¼ of T7N_R46E_S31 to the NE ¼ of T7N_R46E_S33; 297 acres, 4.0 miles

SR 2b: Begins at the NE ¼ of T7N_R46E_S33 to the center of T7N_R46E_S26; 356 acres, 4.7 miles

SR 2c: Begins at the center of T7N_R46E_S26 to the center of T7N_R46E_S23, at Joseph Creek; 121 acres, 1.6 miles

SR 2d: Begins at Joseph Creek (center of T7N_R46E_S23) to the center of T7N_R46E_S24; 118 acres, 1.6 miles

SR 2e: Begins at T07N_R46E_S24 to the mouth at the Snake River; 89 acres, 1.2 miles

CHARACTERISTICS

Ownership:

SR 2a: Ownership is 50% WDFW and 50% private.

SR 2b: Ownership is 20% BLM and 80% private.

SR 2c: Ownership is 100% WDFW.

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<p>SR 2d: Ownership is 100% WDFW.</p> <p>SR 2e: Ownership is 50% BLM and 50% WDFW.</p>
<p>Land Use/Current SMP:</p> <p>Current land use designation:</p> <ul style="list-style-type: none"> • Specific land uses have not been designated. Current land uses in the reach include state open space, agriculture, recreation, and residential. <p>Current zoning designation:</p> <ul style="list-style-type: none"> • The entire reach is zoned Rural Residential. <p>Current SMP environment designation:</p> <ul style="list-style-type: none"> • The entire reach is designated Rural.
<p>Existing Land Cover/Development:</p> <p>Reach 2 of the Grande Ronde River is dotted with campgrounds and recreation areas along with a few residences. Development is almost exclusively along the shoreline with the remainder of the watershed in open space surrounded by steep cliffs. A paved road runs the length of the reach.</p>
<p>Geomorphic Character:</p> <p>Description: The Grande Ronde River flows within a mostly confined bedrock valley throughout most of its extent. It has an overall sinuous planform with large river meanders. Bedrock throughout the valley consists primarily of thick sequences of Grande Ronde Basalt flows. The channel and valley bottom consists mostly of bedrock in the upstream extents. Limited infrastructure is present throughout Reach 2.</p> <p>Channel Migration Zone Characterization: Channel migration is limited by the presence of bedrock throughout the channel and valley.</p> <p>Hardened Banks: No artificial hardened banks appear to exist along Grande Ronde River Reach 2.</p>
<p>Flooding and Geological Hazards:</p> <p>Flooding: FEMA floodplains are established within this reach, and floodways are delineated in SR 2d and 2e. Floodplains are relatively narrow, and floodways generally take up most of the floodplain area where floodways are delineated.</p> <p>Geological Hazard: Both moderately and severely erodible soils can be found in SR 2a, 2c, and 2e. Severely erodible soils are found in SR 2b and 2d. There are a few sections in SR 2b – 2e with moderate to high liquefaction susceptibility. Landslide hazards exist throughout Reach 2 where slopes are steeper than 15% over underlying alluvial deposits.</p>

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Shoreline and public access includes the following:

SR 2a, WDFW:

- The Shumaker Grade Recreation Area includes a boat launch and camping.
- This subreach can also be accessed by boat.
- The majority of this subreach is steep, limiting public access.

SR 2b:

- The road into this subreach is unimproved, reducing the amount and type of public access.
- This subreach can be accessed by boat.
- There is no improved public access in this subreach.
- A gravel road runs along the south shoreline of this subreach.

SR 2c:

- Ebson No. 3 Campground is managed by WDFW. Primitive camping, restrooms, water access, and parking are available.
- Ebson No. 4 Campground is managed by WDFW. Primitive camping, restrooms, parking, and a boat launch are available.
- This subreach can be accessed by boat.
- The majority of the shoreline rises into steep cliffs, making public access limited.
- A gravel road runs the length of the south shoreline through this subreach.

SR 2d:

- Ebson No. 1 Campground is managed by WDFW. The site has primitive camping, restrooms, water access, and parking.
- Ebson No. 2 Campground is managed by WDFW and has primitive camping, restrooms, water access, parking, and a boat launch.
- Joseph Creek Road crosses the Grande Ronde River in this subreach then continues downstream.
- Snake River Road runs along the north shore of this subreach.
- Rogersburg Road runs along the south shore of this subreach.

SR 2e:

- Mouth of Grande Ronde includes a boat launch and camping.
- Cottonwood Access site is managed by WDFW. The site has vault toilets and a parking area. There is no camping or boat launch.

Identified Public Access Improvements: None identified.

Public Access Opportunities: There is currently ample access to this reach of the Grande Ronde River, and no additional public access has been identified.

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ECOLOGICAL CONDITIONS
<p>Water Quantity and Sediment:</p> <p>Joseph Creek is a relatively major tributary to Grande Ronde River and is at the boundary between SR 2b and 2c. A minor tributary entering Grande Ronde River at SR 2a is Slippery Creek. No additional gages are located in this reach, so mean annual flow and peak flow data from USGS Gage No. 13333000 is the most relevant data available, where the mean annual flow is 3,027 cubic feet per second (cfs), and the maximum flow recorded is 51,800 cfs.</p> <p>Sediment inputs will likely occur at tributaries and at potential landslide areas during extreme flood events. This reach has a relatively high potential for sediment input because of minimal riparian cover in the reach drainage area. In SR 2e, a delta has formed at the mouth of the Grande Ronde River.</p>
<p>Water Quality:</p> <p>This reach is not on the Ecology 305b list. Water quality may be slightly impacted from agricultural activities near SR 2b – 2e.</p>
<p>Habitat Characteristics and PHS Presence:</p> <p>The Grande Ronde River has been identified to provide habitat that supports elk, chukar, bighorn sheep, bald eagle, mountain quail, and mule deer, as well as breeding, nesting, and feeding habitat for concentrations of migratory waterfowl. The river also supports the species as identified in Table 28 of the IAC Report. The Grande Ronde River supports ESA-listed bull trout, as well as Grande Ronde summer steelhead, Joseph Creek summer steelhead, and Wenaha River spring/summer Chinook. This reach also provides hatchery steelhead, smallmouth bass, and channel catfish.</p> <p>Production of steelhead and spring/summer Chinook salmon in the lower Grande Ronde is moderately impacted by a lack of habitat diversity and key habitat quantity (pools) (SRSRB 2011). Very slight impacts due to predation and flow are also noted. The abundance and productivity of ESA-listed salmonids in the Grande Ronde River within Reach 2 is limited by sedimentation and lack of habitat diversity, including key habitat quantity (pools). Water quantity and flow and temperature are an issue due to natural climate, as well as irrigation withdrawals in the upper (Oregon) portion of the watershed (SRSRB 2011). The Grande Ronde Subbasin Plan (Nowak 2004) attributed the lack of habitat diversity within the Grande Ronde River in Reach 2 to anthropogenic confinement, sedimentation from upstream, and low amounts of LWD. Because this reach is a natural transport zone and due to the natural confinement of the channel, increasing woody debris loading is unlikely.</p> <p>Riparian vegetation along the Grande Ronde River in Reach 2 has limited tree cover; vegetation is dominated by grasses and a few small shrubs (SRSRB 2011). This is partially due to the natural confinement of the channel. Sediment and temperature problems within this subreach may be attributed to riparian degradation associated with streamside roads and grazing in tributaries, as well as some areas of Reach 2 (Nowak 2004). Both moderately and severely erodible soils can be found in SR 2a, 2c, and 2e, with areas of severely erodible soils are found in SR 2b and 2d; these highly erodible soils originating on seep valley slopes remain a concern and have potential to have continued impacts on salmon habitat.</p>

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SR 2a: Riparian vegetation in this subreach is limited to narrow bands or small patches along the shorelines facing south and east and is generally more prevalent on the north/northwest facing shoreline, particularly along the drainages of the canyons and gullies of the southern slopes with northern exposure. The slopes of the cliffs and bluffs on either side of the river support shrub-steppe and grassland species, with the northwest facing slopes retaining more moisture, allowing growth of patches of deciduous forested areas. The habitat in this area is relatively undisturbed, and there is no apparent development. The slopes of the northern shoreline have some wildlife or cattle trails that may contribute to erosion of soils and impact shrub-steppe habitat.

SR 2b: The riparian and shoreline vegetation conditions in this subreach are similar along the shorelines and slopes on either side of the river. This subreach has agricultural development on the southern shoreline, which has areas of broad floodplain habitat available where the bluffs have much more gradual slopes and river sediment has accumulated at bends in the river. Some agricultural activities occur within the 200-foot shoreline boundary, which limits the growth of natural riparian habitat or has replaced native shrub-steppe or grassland species with cropland. There is a gravel road along the southern shoreline that connects agricultural fields. This road is within the shoreline boundary and has a displaced or disconnected habitat of native shrubs and grasses in the uplands. This subreach ends at the mouth of Joseph Creek, where the riverbed becomes rockier and rapids have formed. Some small trees grow among rocky outcrops near the mouth of Joseph Creek.

SR 2c: In this subreach, most development occurs on the northwestern shoreline. Joseph Creek Road runs along the Grande Ronde River for part of the subreach and occasionally crosses into the shoreline boundary. In general, the presence of the road does not impact growth of riparian vegetation, but it does disconnect habitat in the uplands to the river. An unnamed gravel road runs along the northern and eastern shoreline with similar conditions. There are several sand and gravel bars or spits in this subreach that are vegetated with small trees, shrubs, and grasses, with some shrub-steppe species present. This subreach ends at the crossing of Joseph Creek Road, where the shoreline on both sides of the river has been stabilized.

SR 2d: This subreach is characterized by roads on either side, with upland development on the northern shoreline consisting of agriculture and residential parcels. There are some development and agricultural activities occurring within the shoreline boundary on the waterward side of Snake River Road, but in general these developed areas do not impede the growth riparian vegetation along the shoreline.

SR 2e: This subreach is characterized by roads on either side, with upland development on the northern shoreline consisting of agriculture and residential parcels. There are some activities occurring within the shoreline boundary on the waterward side of Snake River Road, but in general these developed areas do not impede the growth of riparian vegetation along the shoreline. The cliff bluffs are less steep along this reach, and there is little forested area in the uplands on either side of the river; instead upland areas within the shoreline boundary are predominantly shrub-steppe. At the mouth of the Grande Ronde River is a significant sand bar causing the channel to diverge, with the shorelines appearing to be stabilized at the mouth.

ECOLOGICAL FUNCTIONS ANALYSIS

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Riparian areas of Reach 2 were determined to be functioning but at risk (SRSRB 2011).

Habitat factors that have been identified as limiting in Reach 2 of the Grande Ronde River include low habitat diversity in part due to lack of LWD caused by past land management and limited riparian, fine sediment, stream temperature, and key habitat quantity.

The Grande Ronde River in this reach has benefited from salmon habitat restoration actions performed in the drainage area, including federal and state programs to improve grazing practices, converting tilled lands to minimum till agriculture, establishing sediment retention basins in problem areas, and improved riparian habitat in tributaries. The result has been reduced fine sediment loads, reduced streambed embeddedness, and improvements in riparian habitat; however, until floodplain and riparian cover matures and additional restoration actions are completed, the damaged stream banks, low habitat diversity, and disturbed habitat structures will continue to generate fine sediment and elevate stream temperatures.

Restoration Actions:

- Implement restoration projects that may include passive (e.g., Conservation Reserve Expanded Program riparian buffers or protected area conservation easements) or active (e.g., riparian plantings) efforts to reduce erosion and increase filtration, particularly in SR 2b and 2d.
- Implement aquatic habitat protection plans, including list of prioritized projects from the Grande Ronde Implementation Area of the WRIA 35 Watershed Plan (Asotin PUD 2007), e.g., riparian buffer replacement/enhancement
- Reduce riparian and water quality impacts from livestock through expanded use of BMPs (e.g., exclusionary fencing and rotational grazing) for livestock operations within shoreline jurisdiction, particularly in SR 2b and 2d
- Address fish barriers such as improperly screened diversions and inadequate culverts, particularly in SR 2c and 2d

SR 2a:

Level of Existing Function: Partially Functioning

Stressors:

- Low summer flows, high turbidity
- Lack of LWD
- Livestock access

Upland cattle ranching, roads, and residential development may impact continuity of riparian habitats through reduced riparian vegetation and contribute to soil erosion and runoff. The impacts of reduced riparian function affect water quality and aquatic habitat functions such as migration, forage, and rearing.

Potential Restoration Opportunities: Implement actions identified above.

Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protecting existing intact riparian buffers.

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SR 2b:

Level of Existing Function: Partially Functioning

Stressors:

- Road development within shoreline jurisdiction
- Low summer flows, high turbidity
- Lack of LWD
- Agricultural activity and livestock access

Upland cattle ranching, roads, and residential development may impact continuity of riparian habitats through reduced riparian vegetation and contribute to soil erosion and runoff. The impacts of reduced riparian function affect water quality and aquatic habitat functions such as migration, forage, and rearing.

Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production.

Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.

SR 2c:

Level of Existing Function: Partially Functioning

Stressors:

- Road development within shoreline jurisdiction
- Low summer flows, high turbidity
- Lack of LWD

Upland cattle ranching, roads, and residential development may impact continuity of riparian habitats through reduced riparian vegetation and contribute to soil erosion and runoff. The impacts of reduced riparian function affect water quality and aquatic habitat functions such as migration, forage, and rearing.

Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production.

Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.

SR 2d:

Level of Existing Function: Partially Functioning

Stressors:

- Road development within shoreline jurisdiction
- Agricultural land use and development
- Low summer flows, high turbidity

Grande Ronde River – Reach 2 Asotin County
<ul style="list-style-type: none">• Lack of LWD <p>Upland cattle ranching, roads, and residential development may impact continuity of riparian habitats through reduced riparian vegetation and contribute to soil erosion and runoff. The impacts of reduced riparian function affect water quality and aquatic habitat functions such as migration, forage, and rearing.</p> <p>Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.</p>
<p>SR 2e:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none">• Road development• Agricultural land use and development• Stabilization at mouth• Lack of LWD <p>Upland cattle ranching, roads, and residential development may impact continuity of riparian habitats through reduced riparian vegetation and contribute to soil erosion and runoff. The impacts of reduced riparian function affect water quality and aquatic habitat functions such as migration, forage, and rearing.</p> <p>Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.</p>

Joseph Creek Asotin County	
Reach Description: Joseph Creek runs from the Washington/Oregon state border to the Grande Ronde River.	
Shoreline Jurisdiction: 424 acres, 8.5 miles	
	
Source: USDA	
Subreaches (SR); see Map B-3	
SR 1a: Begins at the Washington/Oregon state border and ends at Cottonwood Creek; 201 acres, 4.0 miles	
SR 1b: Begins at Cottonwood Creek and ends at the NE ¼ of T06N_R46E_S02; 125 acres, 2.5 miles	
SR 1c: Begins at the NE ¼ of T6N_R46E_S02 and ends at the mouth of Joseph Creek (center of T7N_R46E_S23) on the Grande Ronde River; 98 acres, 2.0 miles	
CHARACTERISTICS	
Ownership:	
SR 1a: Ownership is 60% BLM, 38% WDFW, and 2% private.	
SR 1b: Ownership is 80% WDFW and 20% private.	
SR 1c: Ownership is 40% WDFW and 60% private.	

Joseph Creek	Asotin County
<p>Land Use/Current SMP:</p> <p>Current land use designation:</p> <ul style="list-style-type: none"> • Specific land uses have not been designated. Current land uses in the entire reach are residential, recreation, and agriculture. <p>Current zoning designation:</p> <ul style="list-style-type: none"> • The entire reach is zoned Agricultural. <p>Current SMP environment designation:</p> <ul style="list-style-type: none"> • SR 1a is designated Conservancy. • SR 1b is designated Rural (south half) and Conservancy (north half). • SR 1c is designated Conservancy (south half) and Rural (north half). 	
<p>Existing Land Cover/Development:</p> <p>Joseph Creek has several farms at its mouth. Joseph Creek Road runs through much of the reach and the road crosses the over the creek via a bridge. The rest of the area is mostly open space.</p>	
<p>Geomorphic Character:</p> <p>Description: Joseph Creek is a single-thread channel that flows within a bedrock valley that consists mostly of Imnaha Basalt and channel and valley bottom that consists mostly of alluvium. The overall valley width narrows upstream where the stream flows within a confined, bedrock valley at the Washington/Oregon boundary. Outburst flood deposits also occur along the valley margins within the lower reaches of the stream. Limited artificial features are present that limit the overall channel migration.</p> <p>Channel Migration Zone Characterization: Channel migration is limited by the presence of bedrock throughout the channel and valley.</p> <p>Hardened Banks: No artificial hardened banks appear to exist along Joseph Creek.</p>	
<p>Flooding and Geological Hazards:</p> <p>Flooding: FEMA floodplains are present for most of SR 1a and all of SR 1b and 1c. Floodplains are relatively narrow throughout the reach.</p> <p>Geological Hazards: No erosion hazard soils can be found in Joseph Creek. A short downstream section of SR 1a, as well as most of SR 1b and 1c have moderate to high liquefaction susceptibility. Landslide hazards exist throughout Joseph Creek where slopes are steeper than 15% over underlying alluvial deposits.</p>	
<p>Existing Public Access:</p> <p>SR 1a:</p> <ul style="list-style-type: none"> • There is only a dirt two-track road accessing this subreach. • There is no boat access for this subreach. 	

Joseph Creek	Asotin County
<ul style="list-style-type: none"> • The area is heavily timbered and steep, reducing the amount of possible public access. • The area can be accessed by foot and does have a scenic view shed. <p>SR 1b:</p> <ul style="list-style-type: none"> • Joseph Creek Road runs the length of this subreach. • Joseph Creek Road crosses Joseph Creek via a bridge in this subreach. • There are multiple informal river access sites from Joseph Creek Road along this subreach. • Much of the subreach is private ground, which reduces the amount of possible public access. • There is a scenic view shed all along this subreach. • Chief Joseph State Wildlife Recreation Area is located within this subreach. There are several parking places with vault toilets. <p>SR 1c:</p> <ul style="list-style-type: none"> • Joseph Creek Road runs the length of this subreach. • There are no formal public access sites in this subreach. <p>Identified Public Access Improvements: None identified.</p> <p>Public Access Opportunities: Opportunities are limited in some areas due to high banks and accessibility; however, the bridges and roadways may offer additional opportunities in this reach.</p>	
ECOLOGICAL CONDITIONS	
<p>Water Quantity and Sediment:</p> <p>Joseph Creek had an Ecology flow gage (Gage No. 35G060) located in SR 1b. Cottonwood Creek is a tributary that drains into Joseph Creek between SR 1a and 1b. The mean annual flow at Ecology Gage No. 35G060 for the period of record (2004-2012) is 132 cubic feet per second (cfs), and the maximum flow recorded is 1,240 cfs.</p> <p>Sediment is likely to be efficiently transported through SR 1a due to relatively steep slopes. Sediment may be less likely to be transported in SR 1b and 1c because slopes appear to be more gradual.</p>	
<p>Water Quality:</p> <p>Joseph Creek is not on Ecology’s 305b list. Water quality may be minimally impacted by agricultural activities in all subreaches.</p>	
<p>Habitat Characteristics and PHS Presence:</p> <p>Joseph Creek in this area has been identified to support elk, chukar, bighorn sheep, bald eagle, mountain quail, and mule deer, as well as breeding, nesting, and feeding habitat for concentrations of migratory waterfowl. The river also supports other species as identified in Table 28 of the IAC Report. Joseph Creek supports ESA-listed bull trout, as well as Joseph Creek summer steelhead. The Grande Ronde River in Asotin County also provides hatchery steelhead, smallmouth bass, and channel catfish, which may be found in the lower portion (SR 1c) of Joseph Creek near the confluence with the Grande Ronde River.</p>	

Joseph Creek	Asotin County
<p>Production of steelhead in Joseph Creek has been identified as highly viable, with only moderate impacts from sedimentation and minor impacts from pathogens, predation, temperature, and a lack of key habitat (pools) (SRSRB 2011). Incubation and overwintering are the salmonid life stages most affected by sedimentation.</p> <p>Joseph Creek has higher streamflows, and irrigation withdrawals are not significant enough to affect flows (SRSRB 2011). The headwaters are heavily forested, including along the riparian zone. Riparian vegetation includes a buffer of deciduous trees that may provide canopy cover (SRSRB 2011). This reach of Joseph Creek flows through mostly privately owned land, within a confined canyon, that is partly paralleled by a road. The Grande Ronde Subbasin Plan (Nowak 2004) identified some grazing, a reasonably intact riparian corridor, no logging, and isolated ranches; it is likely that the activities and conditions affecting habitat and salmonid productivity in this reach are related to upstream conditions and activities (in Oregon; SRSRB 2011).</p> <p>SR 1a: This subreach has a riparian zone that includes larger deciduous trees that establish a dense canopy along the both banks of the creek for entire subreach. The creek channel is narrow, but forest vegetation extends upslope from the creek channel. The rocky and steep cliff slopes prevent establishment of significant vegetation outside of this riparian area until the latter half of the subreach, when the valley becomes less confined. Upland vegetation is typical of the shrub-steppe community. The reach ends at the crossing of Joseph Creek Road.</p> <p>SR 1b: This subreach has much less dense cover along the riparian zone, which consists mostly of shrubs rather than larger trees. There is a wider floodplain valley in this reach, but the creek is still constrained by presence of steep slopes on the southern shoreline. There is sparse agricultural development on both sides of the creek. This, combined with Joseph Creek Road on the northern shoreline, impedes the development of riparian vegetation in some areas and fragments the native shrub-steppe habitat.</p> <p>SR 1c: This subreach begins at the next crossing of Joseph Creek Road, which transitions to run alongside the southeastern shoreline. The riparian and upland vegetation characteristics and presence of development is similar to the conditions described for SR 1b. Joseph Creek Road again crosses the creek, along an area that has been developed for agricultural use. At the mouth of Joseph Creek there are steep slopes and rocky substrates.</p>	
ECOLOGICAL FUNCTIONS ANALYSIS	
<p>Joseph Creek within this reach is functioning (SRSRB 2011).</p> <p>Habitat and functions provided within Joseph Creek are directly related to activities that occur in the Oregon Reach of the creek. Therefore, actions taken strictly within lower Joseph Creek may not appreciably improve conditions.</p> <p>Restoration Actions:</p> <ul style="list-style-type: none"> • Implement restoration projects that may include passive (e.g., Conservation Reserve Expanded Program riparian buffers or conservation easements) or active efforts to reduce erosion and increase filtration, particularly in SR 1b and 1c. 	

Joseph Creek	Asotin County
<ul style="list-style-type: none"> • Address fish-passage barriers such as improperly screened diversions and inadequate culverts. • Implement aquatic habitat protection plans, including a list of prioritized projects from the Grande Ronde Implementation Area of the WRIA 35 Watershed Plan (Asotin PUD 2007), e.g., LWD replenishment and riparian buffer replacement/enhancement. • Reduce erosion and runoff from roadway development, particularly in SR 1c. • Reduce riparian and water quality impacts from livestock through expanded use of BMPs (e.g., exclusionary fencing and rotational grazing) for livestock operations within shoreline jurisdiction, particularly in SR 1c. 	
<p>SR 1a:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Low summer flows • Sedimentation • Grazing and ranching <p>Upland development outside of this subreach may contribute to sedimentation, which affects water quality functions, as well as ability to support spawning.</p> <p>Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.</p>	
<p>SR 1b:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Low summer flows • Sedimentation • Habitat fragmentation • Agriculture, livestock access <p>Upland agricultural development and other upstream practices contribute to sedimentation, which affects water quality functions and spawning habitat. Disturbances to riparian habitat impact from upland development affect rearing and forage functions, particularly as a result of related water quality affects.</p> <p>Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.</p>	

Joseph Creek	Asotin County
<p>SR 1c:</p> <p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none">• Low summer flows• Sedimentation• Habitat fragmentation• Agriculture, livestock access• Joseph Creek Road within shoreline jurisdiction <p>Upland agricultural development and other upstream practices contribute to sedimentation, which affects water quality functions and spawning habitat. Disturbances to riparian habitat impact from upland development affect rearing and forage functions, particularly as a result of related water quality affects.</p> <p>Potential Restoration Opportunities: Implement actions identified above, and explore the potential to restore shrub-steppe habitat in agriculture areas not currently in production.</p> <p>Potential Protection Opportunities: Implement or retrofit stormwater controls consistent with the Eastern Washington Stormwater Manual and protect existing intact riparian buffers.</p>	