

## **Appendix B – Management Objectives and Direction**

### **Common to All by Major Allocation**

#### **Riparian Reserves**

##### ***Management Objectives in the Decision Area West of Highway 97***

- Contribute to the conservation and recovery of listed fish species and their habitats and provide for conservation of special status fish and other special status riparian associated species.
- Maintain and restore the proper functioning condition of riparian areas, stream channels and wetlands by providing forest shade, sediment filtering, wood recruitment, stability of stream banks and channels, water storage and release, vegetation diversity, nutrient cycling and cool and moist microclimate.
- Maintain water quality and streamflows within the range of natural variability, to protect aquatic biodiversity, provide quality water for contact recreation and drinking water sources.
- Meet ODEQ water quality targets for 303(d) water bodies with approved Total Maximum Daily Loads (TMDLs).
- Maintain high quality water and contribute to the restoration of degraded water quality downstream of BLM-administered lands.
- Maintain high quality waters within ODEQ designated Source Water Protection watersheds.
- See also below under Fisheries.

##### ***Management Direction in the Decision Area West of Highway 97***

- Maintain access to roads and facilities by removing danger trees and blowdown.
- Yarding corridors, skid trails, road construction, maintenance, and improvement would be allowed, where there is no practicable alternative to accomplish resource management objectives.
- Use site-specific BMPs (**Appendix I**) to maintain water quality during road construction and maintenance activities, including discretionary actions of others crossing BLM lands.
- Suspend winter haul when the ground is saturated and monitoring indicates sediment runoff to streams is predicted to occur from road degradation.
- Any substantive modifications of flood plains or wetlands must include off-site mitigation on Federal lands and maintain a “no net loss” of floodplains and wetlands value.
- Maintain equal value for floodplains and wetlands in terms of structure and function between the Selected and Offered lands in an exchange.
- Install sanitation systems that maintain water quality, (e.g. sealed vault or similar in new recreational developments).
- Mining operators with an accepted Notice or approved Plan of Operations will comply with performance standards (43 CFR 3809.420) including all applicable State and Federal water quality standards.
- Prevent slash burning within 30 feet of streams.

- Ground-based machinery for fuels reduction projects would not be operated within 50 feet of streams or on slopes >35 percent.
- Decommission streamside roads, where not needed for future management purpose.
- See also below under Fisheries.

***Management Objectives for Forested Lands in the Decision Area East of Highway 97***

- Provide for conservation of special status fish and other special status aquatic species.
- Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood sources, and stream bank stability.
- Maintain and restore water quality and hydrologic functions.
- Maintain and restore access to stream channels for all life stages of fish species.

***Management Directions for Forested Lands in the Decision Area East of Highway 97***

**Table B-1.** Riparian Reserve distances by water feature.

<b>Feature</b>	<b>Riparian Reserve Distance*</b>
Perennial and fish-bearing streams	150 feet on each side of a stream channel as measured from the ordinary high water line.
Non-fish bearing intermittent streams, lakes, natural ponds, and wetlands >1 acre	100 feet on each side of a stream channel as measured from the ordinary high water line.
Constructed impoundments and ponds, and wetlands < 1 acre	Extent of riparian vegetation

\* Reported distances are measured as slope distance

**All water features**

- Implement salvage harvest of timber after a stand-replacing disturbance as needed to reduce hazards to public health and safety in the Wildland Urban Interface.
- Fall and remove trees as needed for safety or operational reasons, including but not limited to: danger tree removal, creation of yarding corridors adjacent to nearby harvest units, and road construction, improvement, or maintenance.
- Implement instream and riparian restoration activities, such as placement of boulders and large wood in streams including tree lining from adjacent riparian areas for all streams. Place an emphasis on streams that have high intrinsic potential for fish, high priority fish populations (such as those defined in recovery plans), or high levels of chronic sediment inputs.
- Remove or modify constructed fish passage barriers to restore access to stream channels for all life stages of fish species.
- Apply fuels treatments and prescribed burns in the Riparian Reserve as needed to reduce the potential for uncharacteristic wildfires.
- Restrict livestock from the Riparian Reserve of streams with ESA-listed or anadromous fish species until 30 days following the emergence of salmonids from spawning beds.
- Manage livestock grazing in the Riparian Reserve at a level that allows maintenance or development of the proper functioning condition of riparian and wetland plant communities. Implement practices

such as installing and maintaining livestock exclosures, managing season of use and intensity, developing off-stream watering facilities, and other appropriate techniques to attain this condition.

### **Perennial and fish-bearing streams**

- Apply thinning and other silvicultural treatments to accelerate the development of potential natural forest stand conditions including late successional stand characteristics and native riparian shrub communities.
- Do not apply mechanical treatments within 60 feet (slope distance) on either side of the edge of the stream channel, as measured from the ordinary high water line.
- Retain snags and coarse woody debris in thinning operations, except for safety or operational reasons (e.g., maintaining access to roads and facilities).
- Do not apply mechanical treatments on slopes >35 percent, sensitive soils, or slide prone areas.
- Retain and promote long-term shade conditions.

### **Non-fish-bearing intermittent streams**

- Apply thinning and other treatments to speed the development of large trees to provide an eventual source of large woody debris to stream channels.
- Do not apply mechanical treatments within 35 feet (slope distance) on either side of the edge of the stream channel, as measured from the ordinary high water line.
- Retain all snags and coarse woody debris in thinning operations except for safety or operational reasons (e.g., maintaining access to roads and facilities).

### **Lakes, natural ponds, and wetlands**

- Apply thinning and other treatments to speed the development of potential natural vegetation communities. Do not apply mechanical treatments within 35 feet (slope distance) on either side of the edge of the water body, area of riparian vegetation, or seasonally saturated soils (whichever is greater).
- Retain all snags and coarse woody debris in thinning operations except for safety or operational reasons (e.g., maintaining access to roads and facilities).

### **Constructed impoundments and ponds**

- Apply thinning and other treatments to speed the development of potential natural vegetation communities.

### ***Management Objectives for non-forested lands in the decision area east of Highway 97***

- Provide for conservation of Special Status fish and other Special Status aquatic species.
- Provide for the riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and stream bank stabilization.
- Maintain and restore water quality.
- Maintain and restore access to stream channels for all life stages of fish species.
- Maintain and restore the proper functioning condition and ecological site potential of riparian and wetland areas.

***Management Directions for non-forested lands in the decision area east of Highway 97***

**Table B-2.** Riparian Reserve distances.

Feature	Riparian Reserve Distance <sup>1</sup>
Non-forested lands: all streams and wetlands	The extent of riparian vegetation as indicated by hydrophilic vegetation

- Manage livestock grazing in the Riparian Reserve at a level that allows maintenance or development of the proper functioning of riparian and wetland plant communities. Methods for attaining this condition will include, but are not be limited to, installing and maintaining livestock exclosures, managing season of use and intensity, developing off-stream watering facilities, and implementing other appropriate techniques.
- Remove conifer encroachment in the Riparian Reserve where conifers are interfering with the natural vegetation community type, or where excessive erosion may occur.
- Implement road improvement, storm proofing, maintenance, or decommissioning to reduce chronic sediment inputs along stream channels and water bodies.
- Apply prescribed burns and weed treatments in the Riparian Reserve as needed to reduce the potential for uncharacteristic wildfires.
- Implement instream and riparian restoration activities, such as placement of large wood and boulders in streams. Remove or modify constructed fish passage barriers to restore access to stream channels for all life stages of fish species.
- Apply BMPs for roads, stream and riparian restoration work, and vegetation management as needed to maintain or restore water quality (**Appendix I**).
- Manage livestock grazing where listed fish species occur to prevent direct impacts to spawning and incubation.

---

<sup>1</sup> Reported distances are measured as slope distance.

## **Fisheries**

### ***Management Objectives***

- Improve the distribution and quantity of high quality fish habitat across the landscape for all life stages of ESA-listed, BLM Special Status Species, and other fish species.
- Maintain and restore access to stream channels for all life stages of aquatic species.

### ***Management Direction***

#### **Riparian Reserve**

- Create spawning, rearing, and holding habitat for fish using a combination of accepted techniques including log and boulder placement in stream channels, tree tipping, and gravel enhancement to create habitat for fish species.
- Where appropriate for restoration purposes, fell trees into the stream channel from the Riparian Reserve to create habitat for aquatic species and to create gaps and openings near streams to promote early seral vegetation.
- Maintain or improve roads in the Riparian Reserve in a condition that will not contribute sediment to streams that will hinder spawning habitat for fish. This could include maintaining vegetated ditch lines, improving road surfaces and installing cross drains at appropriate spacing.
- Replace stream crossings that currently or potentially block or hinder fish passage with crossings that allow aquatic species to pass at each life stage and at a range of flows.

#### **All Allocations**

- When no longer needed for stand management and where adjacent landowner rights-of-way allow, decommission roads along streams in valley bottoms.

## **Hydrology**

### ***Management Objective***

- Maintain water quality within the range of natural variability that meets ODEQ water quality standards for drinking water, contact recreation, and aquatic biodiversity.

### ***Management Direction***

- Select and implement site-level BMPs to maintain water quality, for BLM activities and discretionary actions of others crossing BLM lands.

## **Invasive Species**

### ***Management Objective***

- Prevent the introduction of invasive species and the spread of existing invasive species infestations on BLM-administered lands.

### ***Management Direction***

- Implement measures to prevent, detect, and rapidly control new invasive species infestations.
- Use manual, mechanical, cultural, chemical, and biological treatments to manage invasive species infestations.
- Treat invasive plants and host species for invasive forest pathogens in accordance with the Records of Decision (RODs) for the Northwest Area Noxious Weed Control Program Environmental Impact Statement and the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in Oregon Environmental Impact Statement (July 2010).

## **Lands Managed for their Wilderness Characteristics**

Note: These objectives and direction apply to areas outside of designated Wilderness Areas and Wilderness Study Areas that the BLM has identified as having wilderness characteristics and for which the BLM is analyzing a plan decision to manage for the protection of those wilderness characteristics.

### ***Management Objectives***

- Provide appropriate levels of protection to preserve inventoried wilderness characteristics of areas determined to possess wilderness characteristics (e.g., appearance of naturalness, outstanding opportunities for primitive unconfined recreation or solitude) outside of existing Wilderness Study Areas, while considering competing resource demands and manageability.

### ***Management Direction***

- Petition for withdrawal from locatable mineral entry
- Establish *closed* OHV area designation
- Require no surface occupancy for leasable mineral development.
- Close to salable mineral development

- Designate as Right-Of-Way Exclusion Areas
- Designate as Visual Resource Management (VRM) Class II
- Restrict construction of new structures and facilities unrelated to the preservation or enhancement of wilderness characteristics or necessary for the management of uses allowed under the land use plan.
- Retain public lands in Federal ownership

## Alternative A

### Riparian Reserve

#### ***Management Direction in the decision area west of Highway 97***

- See common to all alternatives

#### ***Management Direction in the decision area west of Highway 97***

- See common to all alternatives

**Table B-10.** Riparian Reserve distance by water feature.

<b>Feature</b>	<b>Riparian Reserve Distance*</b>
All streams	One site-potential tree height distance from the edge of its active stream channel on each side of a stream
Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails	The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.
Lakes, natural ponds, and wetlands >1 acre	One-hundred feet extending from the edge of the water feature
Ponds and wetlands <1 acre and constructed impoundments of any size	The extent of riparian vegetation
Non-forest ecosystem streams and wetlands	Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation
Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails	The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

\* Reported distances are measured as slope distance.

**Table B-11.** Zone-specific management direction.

<b>All Streams</b>
<i>Inner Zone</i> All fish-bearing streams and perennial non-fish-bearing streams: 0 to 120 feet Non-fish-bearing intermittent streams: 0 to 50 feet Do not thin stands, except as described below under “all zones” for fuels treatments.
<i>Outer Zone</i> All fish-bearing and perennial non-fish-bearing streams: 120 feet to one site-potential tree height Non-fish-bearing intermittent streams: 50 feet to one site-potential tree height Thin stands as needed to ensure that stands are able to provide stable wood to the stream. Maintain at least 30 percent canopy cover and 60 trees per acre expressed as an average across the riparian reserve portion of the stand.

**Moist Forests:** Remove trees only as needed for safety or operational reasons.

**Dry forests:** Apply fuels reduction and thinning treatments and remove cut trees as needed to reduce the risk of large, high severity or high intensity fire. Retain at least 30 percent canopy cover and 60 trees per acre, expressed as an average across the riparian reserve portion of the stand. Merchantable timber from thinning and other silvicultural treatments may be made available for sale. Otherwise, remove trees only as needed for safety or operational reasons.

*All Zones (Edge of active stream channel to one site-potential tree height)*

See common to all alternatives

Fell trees as needed for stream restoration and towards the stream as feasible, if key pieces, size and volume are inadequate, based on ODFW benchmarks or NMFS habitat analytical procedure.

**Moist Forest:** Retain cut or blown down trees within the Riparian Reserve. Remove trees only as needed for safety or operational reasons.

**Dry Forests:**

Apply low or moderate-severity burns where needed to invigorate native deciduous tree species. Moderate severity burns will be limited to no more than 20 percent of area of the Riparian Reserve subwatershed (HUC 12) each year.

Apply non-commercial tree thinning as necessary to adjust fuel loads prior to a moderate-severity burn.

**Lakes, Ponds and Wetlands > 1 acre (Edge of the water body to 100 feet)**

See common to all

**Moist Forest:** Retain cut or blow down trees within the Riparian Reserve.

**Dry Forests:** Apply low or moderate-severity burns where needed to invigorate native tree deciduous species. Moderate severity burns will be limited to no more than 20 percent of area of the Riparian Reserve subwatershed (HUC 12) each year.

Apply non-commercial tree thinning as necessary to adjust fuel loads prior to a moderate-severity burn.

**Ponds and Wetlands < 1 acre and Constructed Water Impoundments of any size<sup>2</sup>**

Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation.

See management direction for all riparian zones for Alternative A.

**Non-forest ecosystems streams and wetlands**

Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation.

See management direction for all riparian zones for Alternative A.

**Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails.**

The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

See management direction for all riparian zones for Alternative A.

---

<sup>2</sup> Typically, small ponds in forest environments used for fire suppression activities.

## Alternative B

### Riparian Reserve

***Management Objectives (applicable throughout planning area except eastside Klamath Falls)***

- See common to all alternatives

***Management Direction (applicable throughout planning area except eastside Klamath Falls)***

**Table B-16.** Riparian Reserve distance by water feature.

<b>Feature</b>	<b>Riparian Reserve Distance*</b>
All fish-bearing streams and perennial non-fish bearing streams	One site-potential tree height Riparian Reserve from the edge of its active stream channel on each side of a stream
Intermittent non-fish-bearing headwaters streams with high debris flow potential <sup>3</sup>	One-hundred foot Riparian Reserve from the edge of its active stream channel on each side of a stream
Intermittent non-fish-bearing streams without high debris flow potential	Fifty foot Riparian Reserve from the edge of its active stream channel on each side of a stream
Lakes, ponds, and wetlands > 1 acre	One site-potential tree height Riparian Reserve extending from the edge of its water feature
Ponds and wetlands <1 acre and constructed impoundments of any size	Fifty foot Riparian Reserve from the edge of its water body
Non-forest ecosystems: streams and wetlands	Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation.
Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails.	The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

\* Reported distances are measured as slope distance.

**Table B-17.** Zone-specific management direction.

<b>All Fish-Bearing Streams and Non-Fish-Bearing Perennial Streams Lakes, Ponds and Wetlands &gt; 1 Acre</b>
<i>Inner Zone (0 to 60 feet)</i>
Do not fall or remove trees except for safety or operational reasons or as described in all zones for in stream restoration, disease treatments, alder, and brushfield conversion.

<sup>3</sup> High debris flow potential determined from geospatial modeling (Miller *et al.* 2006) with a calibration dataset for extreme storms to generate a relative landslide density mapping. A classification of the relative landslide density mapping is performed to isolate the most susceptible areas; generally, the upper tier (25%) based on a geometric mean or breaks in the data.

*Outer Zone (60 feet to one site-potential tree height)*

Apply thinning to promote the development of large, open grown trees, develop layered canopies and multi-cohort stands, develop diverse understory plant communities, and allow for hardwood vigor and persistence.

Apply silvicultural treatments to increase diversity of riparian species and develop structurally complex stands.

Retain at least 50 percent canopy cover and 80 trees per acre expressed as an average across the riparian reserve portion of the stand. Created canopy openings may not exceed ½ acre, and may not exceed 10 percent of the riparian reserve area in the stand.

Fall and remove trees as needed for riparian restoration projects or stand maintenance.

Tree tipping requirements: 15 percent of tree basal area marked for removal will be directionally felled towards the stream channel and left on site.

Retain snags and coarse woody debris in thinning operations, except for safety or operational reasons (e.g. maintaining access to roads and facilities)

Merchantable timber from thinning and other silvicultural treatments may be made available for sale.

*All Zones (Edge of active stream channel to one site-potential tree height)*

Fell trees as needed to supply wood for in-stream restoration.

Apply treatments, including commercial treatments, as needed for treatment of diseases including but not limited to: Port-Orford-cedar root rot disease.

Apply commercial treatments as needed for red alder (*Alnus rubra*) or brush field conversions where the desired forest community type is being constrained. Projects must maintain water quality targets along 303(d) listed streams with an approved TMDL.

**Dry Forests:**

Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.

**Intermittent Non-Fish-Bearing Streams with High Debris Flow Potential**

*Inner Zone (0 to 50 feet)*

Do not fall or remove trees except for safety or operational reasons or for dry forest resiliency treatments. New permanent road crossings would not be allowed.

*Outer Zone (50 to 100 feet)*

Apply thinning to promote the development of large, open grown trees, develop layered canopies and multi-cohort stands, develop diverse understory plant communities, and allow for hardwood vigor and persistence.

Apply silvicultural treatments to increase diversity of riparian species and develop structurally complex stands for the benefit of riparian and aquatic species including early seral species.

Retain at least 50 percent canopy cover and 80 trees per acre expressed as an average across the riparian reserve portion of the stand. Created canopy openings may not exceed ½ acre, and may not exceed 10 percent of the riparian reserve area in the stand.

Fall and remove trees as needed for riparian restoration projects or stand maintenance, including but not limited to alder or brush field conversions, or for treatment of diseases including but not limited to Port-Orford-cedar root rot disease outbreaks.

Tree tipping requirements: 15 percent of tree basal area marked for removal will be directionally felled towards the stream channel and left on site.

Retain snags and coarse woody debris in thinning operations, except for safety or operational reasons (e.g., maintaining access to roads and facilities).

Merchantable timber from thinning and other silvicultural treatments may be made available for sale, where it is economically viable to do so.

*All Zones (Edge of active stream channel to 100 feet)*

**Dry Forests:** Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.

**Intermittent Non-Fish Bearing Streams with No High Debris Flow Potential (0 to 50 feet)**

Do not fall or remove trees except for safety, operational reasons, or dry forest resiliency treatments.

Apply commercial treatments as needed for treatment of diseases including but not limited to Port-Orford-cedar root rot disease outbreaks.

**Dry Forests:** Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.

**Ponds And Wetlands <1 acre and Constructed Impoundments of Any Size (0 to 50 feet)**

Do not fall or remove trees except for safety, operational reasons, or dry forest resiliency treatments.

**Dry Forests:** Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.

**Non-forest Ecosystems, Streams and Wetlands**

Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation.

See management direction for all riparian zones for Alternative B.

**Unstable Areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails**

The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

See management direction for all riparian zones for Alternative B.

## Alternative C

### Riparian Reserve

#### ***Management Objectives (applicable throughout planning area except eastside Klamath Falls)***

- See common to all.

#### ***Management Objectives (applicable throughout planning area except eastside Klamath Falls)***

**Table B-25.** Riparian Reserve distance by water feature.

<b>Riparian Reserve</b>	<b>Riparian Reserve Distance*</b>
All fish-bearing streams and perennial non-fish-bearing streams	150 feet from the edge of its active stream channel on each side of a stream
Intermittent non-fish-bearing streams	50 feet from the edge of its active stream channel on each side of a stream
Lakes, ponds, and wetlands > 1 acre	150 feet extending from the edge of its water feature
Ponds and wetlands < 1 acre and constructed impoundments of any size	50 feet from the edge of its water body
Non-forest ecosystems streams and wetlands	Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation
Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails	The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

\* Reported distances measured as slope distance.

**Table B-26.** Zone-specific management direction.

<b>All Fish-Bearing Streams and Non-Fish-Bearing Perennial Streams Lakes, Ponds, and Wetlands &gt; 1 Acre</b>
<i>Inner Zone (0 to 60 feet)</i>
Do not fall or remove trees except for safety or operational reasons or as described in all zones for in-stream restoration, disease treatments, alder, and brush field conversion.
<i>Outer Zone (60 to 150 feet)</i>
Apply thinning to promote the development of large, open grown trees, develop layered canopies and multi-cohort stands, develop diverse understory plant communities, and allow for hardwood vigor and persistence.
Apply silvicultural treatments to increase diversity of riparian species and develop structurally complex stands.
Retain at least 50 percent canopy cover and 80 trees per acre expressed as an average across the riparian reserve portion of the stand. Created canopy openings may not exceed ½-acre, and may not exceed 10 percent of the riparian reserve area in the stand.

<p>Fall and remove trees as needed for riparian restoration projects or stand maintenance.</p> <p>Tree tipping requirements: 15 percent of tree basal area marked for removal will be directionally felled towards the stream channel and left on site.</p> <p>Retain snags and coarse woody debris in thinning operations, except for safety or operational reasons (e.g., maintaining access to roads and facilities).</p> <p>Merchantable timber from thinning and other silvicultural treatments may be made available for sale.</p>
<p><i>All Zones (Edge of active stream channel to 150 feet)</i></p>
<p>Fell trees as needed to supply wood for in-stream restoration.</p> <p>Apply treatments, including commercial treatments, as needed for treatment of diseases including but not limited to: Port-Orford cedar root rot disease and sudden oak death outbreaks.</p> <p>Apply commercial treatments as needed for red alder (<i>Alnus rubra</i>) or brush field conversions where the desired forest community type is being constrained. Projects must maintain water quality targets along 303(d) listed streams with an approved TMDL.</p> <p><b>Dry Forests:</b> Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.</p>
<p><b>Non-Fish Bearing Intermittent Streams (0 to 50 feet)</b></p>
<p>Do not fall or remove trees except for safety, operational reasons, or dry forest resiliency treatments.</p> <p>Apply treatments, including commercial treatments, as needed for treatment of diseases including but not limited to Port-Orford-cedar root rot disease and sudden oak death outbreaks.</p> <p><b>Dry Forests:</b> Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.</p>
<p><b>Constructed Water Impoundments,<sup>4</sup> Ponds, and Wetlands &lt; 1 Acre (0 to 50 feet)</b></p>
<p>Do not fall or remove trees except for safety, operational reasons, or dry forest resiliency treatments.</p> <p><b>Dry Forests:</b> Apply fuels reduction and silvicultural treatments as needed to increase stand resistance and resilience to insects, disease, and fire.</p>
<p><b>Non-forest ecosystems streams and wetlands</b></p>
<p>Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation.</p> <p>See management direction for all riparian zones for Alternative C.</p>
<p><b>Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails</b></p>
<p>The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.</p>

<sup>4</sup> Typically, small ponds in forest environments used for fire suppression activities.

See management direction for all riparian zones for Alternative C.

## Alternative D

### Riparian Reserve

***Management Objectives (applicable throughout planning area except eastside Klamath Falls)***

- See common to all.

***Management Direction: applicable throughout planning area except eastside Klamath Falls)***

**Table B-30.** Riparian Reserve distance by water feature.

Feature	Riparian Reserve Distance*
All streams	One site-potential tree height distance from the edge of its active stream channel on each side of a stream
Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails	The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.
Lakes, natural ponds, and wetlands > 1 acre	One-hundred feet extending from the edge of the water feature
Ponds and wetlands < 1 acre and constructed impoundments of any size	The extent of riparian vegetation
Non-forest ecosystems: streams and wetlands	Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation
Unstable areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails	The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

\* Reported distances are measured as slope distance.

**Table B-31.** Zone-specific management direction.

All Streams
<i>Inner Zone (0 to 120 feet)</i>
Do not thin stands, except as described below under “all zones” for disease treatments and fuels treatments.
<i>Outer Zone (120 feet to one site-potential tree height)</i>
Thin stands as needed to ensure that stands are able to provide stable wood to the stream. Maintain at least 30 percent canopy cover and 60 trees per acre expressed as an average across the riparian reserve portion of the stand.
Merchantable timber from thinning and other silvicultural treatments may be made available for sale.
Retain existing snags and coarse woody debris in thinning operations, except where needed to be removed for safety.

**Dry forests:**

Apply fuels reduction treatments as needed to reduce the risk of catastrophic fire. Retain at least 30 percent canopy cover and 60 trees per acre.

*All Zones (Edge of active stream channel to one site-potential tree height)*

Fell trees as needed to supply wood for in-stream restoration.

Sudden Oak Death (SOD) eradication activities in watersheds (HUC 10) shall not exceed:

1. Removal of >30 percent canopy cover over a contiguous 0.5 mile stream length or removal of > 50 percent canopy cover over a contiguous 0.25 mile stream length for small perennial streams (active channel width < 27 feet) where a 4,600-foot separation of non-treatment between sequential contiguous treatments would be maintained,
2. Removal of >50 percent canopy cover over a contiguous 0.5 mile stream length for medium-large perennial streams (active channel width > 27 feet) where a 4,600-foot separation of non-treatment between sequential contiguous treatments would be maintained,
3. Limit of three miles of treatment for any 5-year period and 3 percent of the total Federal perennial stream miles (Aquatic Restoration Activities in States of Oregon and Washington (ARBO II) NWR-2013-9664).

**Dry Forests:**

Apply low or moderate-severity burns where needed to invigorate native tree deciduous species. Moderate severity burns will be limited to no more than 20 percent of area of Riparian Reserves subwatershed (HUC 12) each year (ARBO II) NWR-2013-9664).

Apply non-commercial tree thinning as necessary to adjust fuel loads prior to a moderate-severity burn.

**Lakes, Ponds, and Wetlands > 1 Acre**

Edge of the water body to 100 feet.

See management direction for all riparian zones for Alternative D.

**Ponds And Wetlands < 1 acre (0 to 50 feet) and Constructed Water Impoundments<sup>5</sup> of any size**

No treatments, except for restoration, road access, or safety

**Non-forest Ecosystems, Streams and Wetlands**

Edge of the water body to the limit of the water influence area, as indicated by hydrophilic vegetation.

See management direction for all riparian zones for Alternative D.

**Unstable Areas that are above or adjacent to stream channels and are likely to deliver material such as sediment and logs to the stream if the unstable area fails.**

The extent of the unstable area. Where there is a stable area between such an unstable area and the unstable area has the potential to deliver material such as sediment and logs to the stream, extend the Riparian Reserve from the stream to include the intervening stable area as well as the unstable area.

See management direction for all riparian zones for Alternative D.

---

