

# Aquatic Ecosystems (Biological): Riparian, T&E Species, and Species of Conservation Concern

## ID Team and Aquatic Subgroup Recommended Plan Components

### Desired Conditions

Vegetation in Riparian Conservation Areas (RCAs) is composed of a diverse structure of plant communities that perpetuate the distribution of woody debris, soil cover, streambank stability, and thermal control characteristic of resilient and aquatic and riparian ecosystems. <<INSERT OVERSTORY DESIRED CONDITIONS HERE>>. Ground cover is comprised of organic litter, shrubs, downed wood, grasses, and forbs, sufficient to provide sediment buffering from soil movement off upslope areas. Measured by stream reach, exposed mineral soil does not exceed 5 percent. Non-native invasive weeds comprise a minor component (<5 percent) of the plant species composition in both forested and meadow ecosystems.

Periodic floods, low to moderate intensity fire, and wind-throw are the primary disturbance factors shaping vegetation patterns in riparian conservation areas. Fires create patchy openings, which include green strips of trees along streams and adjacent to wetlands, ponds, and lakes. Riparian vegetation and floodplain conditions are not affected by new, persistent human disturbances (e.g. new permanent road or trail construction) in greater than 95 percent of stream reaches in non-Key watersheds, and are not affected at all in Key watersheds<sup>1</sup> (i.e. 0 percent), thus providing resilience to the effects natural disturbances to stream temperature, sediment delivery, and streambank and streambed stability<sup>2</sup>. The effects of existing persistent human development in RCAs (e.g. streamside roads, recreation sites) are reduced or eliminated in >40 percent<sup>3</sup> of stream reaches where they currently exist.

Native at-risk fish species<sup>4</sup> present in the North Fork Clearwater subbasin include westslope cutthroat trout, interior redband trout, and bull trout, and these species are widely distributed within the mainstem river and all tributaries with suitable habitat. Native at-risk fish species present in the Forests' portion of the Lower Clearwater, Middle Fork Clearwater, Lochsa, Lower Selway, Upper Selway, and South Fork Clearwater Rivers include fall chinook salmon, spring chinook salmon, steelhead trout, bull trout, westslope cutthroat trout, interior redband trout, and Pacific lamprey. Watershed and habitat conditions in these subbasins are consistent with goals identified in Idaho Department of Fish and Game 5-year management plans, NOAA Fisheries Snake River Recovery Plan for steelhead trout in the Clearwater basin, and the U.S. Fish and Wildlife Service's bull trout recovery plan.

Native at-risk fish species present on the Nez Perce/Clearwater National Forests' portion of the Lower Salmon, Little Salmon, and Middle Salmon – Chamberlain subbasins include fall chinook salmon, spring/summer chinook salmon, sockeye salmon, white sturgeon, steelhead trout, bull trout, westslope cutthroat trout, interior redband trout, and Pacific lamprey (other fish SCC??). Habitat conditions in

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<sup>1</sup> **Key watersheds** were identified by an interagency team of watershed and fishery specialists and are included separately in Table "Z".

<sup>2</sup> Everest and Reeves, 2007; Minshall, 2003;

<sup>3</sup> Percent to be refined by subbasin, based on analysis of existing condition in Aquatic Ecosystem assessment (2013).

<sup>4</sup> **Native at-risk fish species** refers to those species listed as threatened or endangered or identified as a species of conservation concern.

these subbasins are consistent with goals identified in Idaho Department of Fish and Game 5-year management plans, NOAA Fisheries Snake River Recovery Plan for steelhead trout and spring/summer chinook salmon in the Salmon basin, and the U.S. Fish and Wildlife Service's bull trout recovery plan.

Robust populations of western pearlshell mussels are present in the mainstem Clearwater, Lochsa, Selway, South Fork Clearwater, and Salmon Rivers and all larger tributaries with suitable habitat.

A network of high quality aquatic habitats supports well-distributed subpopulations of these species across the river basins on the Nez Perce/Clearwater National Forests. Stronghold populations, and/or habitat conditions necessary to support them, are established in at least 30 - 60 percent<sup>5</sup> of total watershed area within the Clearwater/Nez Perce National Forests' portions of each subbasin. Habitat refugia are present and well distributed across subbasins, such that they provide resilience to watershed scale disturbances. Anticipated changes associated with climate change (e.g. earlier runoff and reduced summer streamflows) result in a 0 net loss of refuge watersheds<sup>6</sup>. Native aquatic populations exhibit genetic integrity and life history strategies necessary to assure self-sustaining populations, and are strong, well-distributed, and well-connected, forming metapopulations in each river subbasin that can expand and are resilient to natural disturbances<sup>7</sup>. Human-caused migration barriers are absent unless they are needed to prevent invasions by non-native species.

Aquatic invasive species are absent from most or all water bodies. Non-native brook trout populations have not expanded and have reduced abundance in streams and lakes, where their presence is resulting in undesirable effects to native species.

Specific desired conditions related to riparian function, streams, and aquatic species at the stream reach scale are as follows:

- a. Life stage desired water temperatures for salmonids include the following<sup>8</sup>:
  - For streams supporting chinook salmon, steelhead trout, westslope cutthroat trout, and redband trout summer rearing: desired temperatures are between 10 and 16°C
  - For streams supporting chinook salmon, steelhead trout, westslope cutthroat trout, and redband trout, spawning and incubation: desired temperatures are below 14°C
  - For streams supporting juvenile bull trout summer rearing: desired temperatures are less than 12°C
  - For streams supporting bull trout spawning, desired temperature are between 4 and 9°C
  - For streams supporting bull trout egg incubation: desired temperatures are between 2 and 5°C
  
- b. Instream habitats are characterized by the numeric values in Table X. It should be recognized that the dynamic nature and complexity of aquatic systems can result in a wide range of values that make selection of precise target values difficult, and that these habitat features may not all occur within a specific stream segment all the time, even in those not affected by recent disturbance. They should, however, be achievable through time and represented within the watershed.

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<sup>5</sup> Range to be refined by subbasin, based on Key watersheds identified for the ACS

<sup>6</sup> Rieman and Isaac, 2010

<sup>7</sup> Rieman and Dunham, 2000

<sup>8</sup> From: Clearwater Matrix of Pathways and Indicators, Nez Perce/Clearwater NFs, 1998

**Table X. Desired Condition of Instream Habitat Features (DRAFT – numeric values to be refined based on local reference data and best available science).**

Habitat Feature	Rosgen Channel Type							
	A		B		C		E/G	
Pool Frequency (#/mile)	width (ft)*	#pools	width (ft)*	#pools	width (ft)*	#pools	width (ft)*	#pools
	<5	184	<5	184	<5	184	<5	184
	>5 - 10	96	>5 - 10	96	>5 - 10	96	>5 - 10	96
	>10 - 15	70	>10 - 15	70	>10 - 15	70	>10 - 15	70
	>15 - 20	56	>15 - 20	56	>15 - 20	56	>15 - 20	56
	>20 - 25	47	>20 - 25	47	>20 - 25	47	>20 - 25	47
	>25 - 50	26	>25 - 50	26	>25 - 50	26	>25 - 50	26
	>50 -75	23	>50 -75	23	>50 -75	23	>50 -75	23
	>75	18	>75	18	>75	18	>75	18
Bankfull Width:Depth	≤10		≤20		≤40		<7 E, < 9 G	
Large Woody Debris (pieces per mile)	>20		>20		>20		>20	
Percent Surface Fines – spawning	≤10		≤10		≤20		≤20	
Percent Fines by Depth - spawning	≤20		≤20		≤20		≤20	
Percent Cobble Embeddedness - rearing	<30 in A2, A3		<30 in B2, B3		<30 in C2, C3		<30 in E3, G2, G3	
Lower Bank Angle (mean within any stream reach)	n/a		n/a		≤90		≤90	
Bank Stability (within 80% of any stream reach)	>95		>95		>90		>90	

\*channel width

**Objectives:**

1. Within 15 years of Plan approval, 300 miles of streams and 50 acres of lakes will be improved, with at least 75 percent of total stream miles located in the following subwatersheds:
  - a. North Fork Clearwater: Isabella, Moose, Cold Springs, Lower Skull, Quartz
  - b. Lochsa: Pete King, Canyon, Deadman, Legendary Bear, Lower Colt Killed, Lower Crooked Fork, Lower Brushy Fork
  - c. Lower Selway: O’Hara
  - d. Middle Fork Clearwater: South Fork Clear, Upper Clear, Main Clear
  - e. Lower Clearwater: Upper Lolo, Middle Lolo, Musselshell, West Fork Upper Potlatch River, Potlatch River – Corral Creek
  - f. South Fork Clearwater: Lower Crooked River, Upper Crooked River, Lower American River, Upper Red River, Lower Red River, South Fork Red River, Upper Newsome, Lower Newsome.
  
2. Within 15 years of Plan approval, relocate or restore 150 miles of roads or trails that pose a substantial risk to the integrity of aquatic and other riparian dependent resources, with 75 percent of the total road miles located in the watersheds named above under Objective 1.

3. Within 15 years of Plan approval, relocate, remove or restore 50 facilities or dispersed use areas that pose a substantial risk to the integrity of aquatic and other riparian dependent resources.
4. Starting 2 years after Plan approval, improve 10 acres of flood plains, wetlands and/or riparian vegetation each year.
5. After Plan approval, consult annually with Idaho Department of Fish and Game to review aquatic habitat, fisheries, address aquatic and fisheries concerns and coordinate management.

### **Standards:**

- 1) RCA widths may be increased where necessary to achieve desired aquatic conditions, or decreased where widths are not needed to attain desired aquatic conditions. Proposals to decrease RCA widths shall only be made where adverse effects to aquatic threatened or endangered species or aquatic species of conservation concern are avoided, and the following conditions are met:
  - a) In 6th HUC watersheds where threatened or endangered aquatic species are present, any changes in RCA widths are made in consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service.
  - b) In all cases, any changes to RCA widths, the rationale supporting the change, and the effects of the change are documented.
- 2) Activities in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA by implementing the following:
  - a) Activities in RCAs that are intact and functioning, as indicated by desired stream conditions in Table X, must be designed to at least maintain those conditions.
  - b) Activities in RCAs that are not intact and functioning as indicated by desired stream conditions in Table X should include a restoration component as part of the project.
  - c) Activities in RCAs must not result in long-term degradation to aquatic conditions. Limited short-term effects from activities in RCAs may be acceptable when outweighed by the long-term benefits to the RCA, desired stream conditions in Table X, and other aquatic desired conditions.
- 3) When planning timber, silvicultural, and/or fuels projects, to achieve desired conditions for streams, threatened and endangered aquatic species, and aquatic species of conservation concern:
  - a. Timber harvest and salvage logging shall be conducted in RCAs only where needed to restore or enhance the physical and biological characteristics of the RCA, including desired stream conditions in Table X.
  - b. Silvicultural practices not resulting in impaired soil function (e.g. pre-commercial thinning and planting) and/or prescribed burning shall be conducted in RCAs to achieve vegetation and fuels management objectives, where existing aquatic ecosystem conditions are maintained or improved, and adverse effects to threatened or endangered aquatic species are avoided.

- c. Mechanical fuel treatments proposed in RCAs with the specific objective of reducing fire risk immediately adjacent<sup>9</sup> to Forest Service administrative sites and communities at risk shall be conducted only where existing stream conditions are maintained and adverse effects to threatened and endangered aquatic species are avoided. If RCAs are not intact and functioning at the sites, as indicated by desired stream conditions in Table X, the activities should include an aquatic restoration component.

### **Guidelines:**

- 1) To construct and maintain a transportation system that contributes to establishment of a network of high quality aquatic habitats and stronghold populations, avoids adverse effects to threatened and endangered aquatic species and designated critical habitat, and avoids adverse effects to aquatic species of conservation concern:
  - a. Road density should not increase in Key Watersheds, either temporarily or permanently, if increase would result in short or long-term adverse effects to streams.
  - b. In all other watersheds<sup>10</sup>, road density should not increase if increase would result in long-term adverse effects to streams.
  - c. Construction of new roads in RCAs, including new permanent and temporary roads, should be avoided except where necessary for stream crossings.
  - d. New roads, including temporary roads, should be designed to avoid or minimize stream crossings.
  - e. Roads being decommissioned or put into long-term storage should be treated to provide hydrologic stability and fish passage where native fish populations are present.
  - f. Existing roads should only be reconstructed and reconditioned where long-term adverse effects to watershed and stream conditions are avoided, and any short term effects are minimized.
  - g. New, replacement, and reconstructed crossing sites should be designed to provide and maintain fish passage where native fish, or other desired aquatic organisms, are present.
  - h. New landings for timber harvest should not be constructed in RCAs.
- 2) For proposed Minerals projects, to achieve desired conditions for streams and avoid adverse effects to threatened and endangered aquatic species, designated critical habitat, and aquatic species of conservation concern:
  - a. Projects should be designed and implemented so that mine waste (waste rock, spent ore, tailings, etc.) and facilities are located outside RCAs.
  - b. Any Notice of Intent or Plan of Operation that proposes activities in RCAs should include a reclamation plan and a reclamation bond that address the cost of removing facilities, equipment, and materials; recontouring disturbed areas to pre-mining topography; isolating and neutralizing or removing toxic materials; and salvage or replacement of topsoil and seedbed preparation and revegetation to attain desired stream conditions and avoid adverse effects on native fish.
  - c. Solid and sanitary waste facilities should be located outside of RCAs.

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<sup>9</sup> "Immediately adjacent" is defined as 40 meters, or 125 feet (Cohen, 2008)

<sup>10</sup> "Watersheds" in this case refers to all 6<sup>th</sup> HUC watersheds not identified as Key

- d. Construction of roads needed to access proposed mining sites should be located outside of RCAs. Where no alternatives exist, the road should be kept to the minimum necessary for the approved mineral activity. Roads no longer needed for mineral activity should be closed, obliterated, and re-vegetated within 1 year of project completion.
- 3) During the allotment planning process and at any time adjustments to ongoing grazing practices are considered, to achieve desired conditions for streams, threatened and endangered aquatic species, and aquatic species of conservation concern:
- a. The relationship between existing grazing practices and stream reach conditions should be evaluated, using accepted protocols (e.g. PIBO). This evaluation should be used to develop site-specific grazing practices that contribute to meeting desired aquatic conditions, and implement monitoring of stream conditions that documents trend. One or more stream parameters should be identified to serve as management triggers for removal of livestock from the area during the allotment planning process.
  - b. Riparian forage utilization should not exceed 45 percent to allow forage plants to maintain vigor, root development, and soil cover. Green line stubble height should be 6 inches or greater along designated key stream reaches<sup>11</sup>. Specific riparian forage utilization, green line stubble height, and bank disturbance guidelines should be developed during the allotment planning process.
  - c. New livestock handling, management or watering facilities should be located outside of RCAs, except for those needed for resource protection.
  - d. Livestock herding and driving in RCAs should be limited to areas and times that do not prevent meeting desired conditions in Table X.
  - e. Salting and off-channel watering facilities should be located outside RCAs.
  - f. Grazing management should prevent trampling of native fish redds by livestock.
- 4) For fire suppression planning or implementation, to meet desired aquatic conditions and reduce risks to threatened and endangered aquatic species, designated critical habitat, and species of conservation concern:
- a. Fire suppression strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression actions could be damaging to long-term ecosystem function.
  - b. Minimum Impact Suppression Tactics (MIST) should be used in RCAs.
  - c. Incident bases, camps, helibases, helispots, staging areas, and other centers for incident activities should be located outside RCAs, unless no other alternatives exist.
  - d. When drafting water from streams, pumps should be screened to prevent fish entrainment.

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<sup>11</sup> Designated key stream reaches are those identified for both implementation and effectiveness monitoring that would be expected to be susceptible to grazing effects (e.g. low gradient reaches and/or meadows).

- 5) For planning, maintenance, and management of existing recreation and/or administrative sites within RCAs, to meet desired aquatic conditions:
- Recreation facilities, including trails, bridges, fords, trailheads, and campgrounds, should be designed, constructed, maintained, and managed in a manner that does not prevent attainment of desired stream conditions in Table X.
  - Trees felled in RCAs for safety reasons should be left on-site and directionally felled towards or into streams where feasible.
  - To prevent introduction of toxic materials into streams, refueling, equipment maintenance, and storage of fuels and other toxicants shall be avoided in RCAs.
- 6) For broad-scale planning purposes associated with watershed restoration and vegetation management:
- To achieve desired aquatic conditions, watershed, fish, and wildlife restoration projects should be designed and implemented in a manner that promotes the long term ecological integrity of ecosystems, conserves the genetic integrity of native species, and contributes to meeting desired conditions for riparian and aquatic ecosystems.
  - To contribute to establishment of a network of high quality aquatic habitats, sediment yield in Key watersheds should not be increased to thresholds where measurable increases in deposited sediment would occur, and sediment yield should be reduced in watersheds where it has been determined that conditions that already exceed base sediment yields are causing or contributing to degraded substrate conditions.
  - In all other watersheds, sediment yield should be reduced long term.
  - To contribute to establishment of a network of high quality aquatic habitats and stronghold populations, in restore-designated Key watersheds in Table Y, project decisions that include >500 acres of ground-based mechanical vegetation treatments (i.e. timber harvest) and /or greater than 0.5 miles of road construction, including temporary road construction, should include aquatic restoration components that provide for a net long-term improvement in stream conditions.

**Table Y. Restore-designated Key watersheds<sup>12</sup>.**

Palouse/Hangman	Clearwater	North Fork Clearwater	Lochsa	Middle Fork/Selway	South Fork Clearwater	Salmon
Headwaters Hangman, Headwaters Palouse River	Upper Lolo, Middle Lolo, Musselshell, Eldorado, West Fork Upper Potlatch River, East Fork Potlatch River, Potlatch River – Hog Meadows, Corral Creek, Upper Big Bear	Isabella, Little North Fork Clearwater - Minnesoka, Vanderbilt, Elizabeth, Long, Lake, Gravy, Moose, Osier, Cold Springs, Quartz, Lower Skull	Pete King, Canyon, Deadman, Legendary Bear, Fishing, Wendover, Post Office, Walton, Lower Colt Killed Creek, Lower Brushy Fork, Upper Brushy Fork, Lower Crooked Fork	Upper Clear, Lower Clear, South Fork Clear, O’Hara, Selway River - Goddard	Upper Red River, South Fork Red River, Middle Red River, Lower Red River, Upper American River, East Fork American River, Lower American River, Elk, Upper Newsome, Lower Newsome, Upper Crooked River, Lower Crooked River, Mill, Meadow	Upper Little Slate, Lower Little Slate, Upper Slate, Lower Slate, South Fork White Bird, North Fork White Bird

<sup>12</sup> Restore-designated to meet desired conditions related to establishment of aquatic habitat network. Maintain designated watersheds have also been identified (reference Table “Z”, included as a separate document)

## **Suitability of Uses:**

1. RCAs are not suitable for timber production and are not included in the suitable timber base.
2. RCAs are suitable for timber harvest for purposes other than timber production.
3. RCAs are generally unsuitable for:
  - a. scheduled timber production
  - b. new leasable minerals extraction
  - c. new surface occupancy for oil, gas, and geothermal exploration and development salable mineral activities such as sand and gravel extraction.
  - d. waste and disposal areas
  - e. new facilities, except as needed for resource protection or those that inherently must be in RMA's
  - f. new designated motorized use areas

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## **Glossary**

The definition of Riparian Conservation areas is included below. The definition does not fit as a plan component. It should be included as *Optional content in the plan* (36 CFR 219.7 (e)(2)).

- 1) Riparian Conservation Areas (RCA's) are defined as follows:
  - a) Category 1 - Fish-bearing streams: RCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.
  - b) Category 2 – Permanently flowing non-fish bearing streams: RCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.
  - c) Category 3 – Ponds, lakes, reservoirs, and wetlands greater than 1 acre: RCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the distance of the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond, or lake, whichever is greatest.
  - d) Category 4 – Seasonally flowing or intermittent streams and wetlands less than 1 acre: This category includes features with high variability in size and site-specific characteristics. At a minimum, the RCA must include: (1) the intermittent stream channel and the area to the top of the inner gorge; (2) the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation; and (3) for Forest Priority watersheds, the area from the

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edges of the stream channel or wetland to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest; or (4) for watersheds not identified as Forest Priority watersheds, the area from the edges of the stream channel or wetland to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greater.