

Part 1 - Identification of Aquatic Species

The Responsible Official shall identify federally threatened and endangered species, species-of-concern, and species-of-interest whose ranges include the plan area (FSH 1909.12 Chapter 43.22).

Federally Listed Aquatic Species

The initial list of Threatened and Endangered aquatic species was determined through a review of three data sources:

1. Department of Interior, U.S. Fish and Wildlife Service
<http://www.fws.gov/endangered/> (Accessed: February 15, 2007).
2. National Oceanic and Atmospheric Administration, National Marine Fisheries Service
<http://www.nmfs.noaa.gov/pr/species/concern/>; (Accessed: February 15, 2007).
3. NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.1. NatureServe, Arlington, Virginia. Available
<http://www.natureserve.org/explorer>. (Accessed: February 15, 2007).

The State of Idaho was the geographic extent for developing the potential aquatic species list. See Table 1 for the complete list of aquatic federally listed species in the State of Idaho.

Table 1. Federally listed aquatic species present in the State of Idaho and whose ranges include the administrative boundaries of the Clearwater (CWNF) or Nez Perce National Forests (NPNF).

Scientific Name	Common Name	Suitable Habitat and Range within Plan Area	US ESA	Present within Plan Area
Ray-Finned Fishes				
<i>Acipenser transmontanus</i> pop. 1	White Sturgeon - Kootenai River	No	LE	No
<i>Oncorhynchus mykiss</i> pop. 13	Steelhead - Snake River Basin	Yes	LT	CWNF, NPNF
<i>Oncorhynchus mykiss</i> pop. 21	Steelhead - Snake River Run A	Yes	LT	CWNF, NPNF
<i>Oncorhynchus mykiss</i> pop. 22	Steelhead - Snake River Run B	Yes	LT	CWNF, NPNF
<i>Oncorhynchus nerka</i> pop. 1	Sockeye Salmon - Snake River	Yes	LE	NPNF
<i>Oncorhynchus tshawytscha</i> pop. 2	Chinook Salmon - Snake River Fall Run	Yes	LT	NPNF
<i>Oncorhynchus tshawytscha</i> pop. 8	Chinook Salmon - Snake River Spring/Summer Run	Yes	LT	NPNF
<i>Oncorhynchus clarkii henshawi</i>	Lahontan Cutthroat Trout	No	LT	No
<i>Salvelinus confluentus</i> pop. 2	Bull Trout - Columbia River DPS	Yes	LT	CWNF, NPNF
<i>Salvelinus confluentus</i> pop. 4	Bull Trout - Jarbridge River Basin DPS	No	LT	No
Invertebrates Mollusks				
<i>Lanx</i> sp. 1	Banbury Springs Limpet	No	LE	No
<i>Physa natricina</i>	Snake River Physa	No	LE	No
<i>Pyrgulopsis bruneauensis</i>	Bruneau Hot Springsnail	No	LE	No
<i>Pyrgulopsis idahoensis</i>	Idaho Springsnail	No	LE	No
<i>Taylorconcha serpenticola</i>	Bliss Rapids Snail	No	LT	No
<i>Valvata utahensis</i>	Desert Valvata	No	LE	No

Aquatic Species-of-Concern

Species-of-concern (SOC) are species for which the Responsible Official determines that management actions may be necessary to prevent listing under the Endangered Species Act. Criteria used in identification of potential aquatic SOC follow Forest Service Handbook direction (43.22b). In summary, these criteria include:

1. proposed and candidate species for federal listing,
2. species with ranks of G-1 through G-3 on the NatureServe ranking system,
3. subspecific taxa with ranks of T-1 through T-3 on the NatureServe ranking system,
4. species that have been petitioned for federal listing and for which a positive 90-day finding has been made,
5. species delisted in the past 5-years.

The State of Idaho was the geographic extent for applying the above criteria to develop the potential aquatic SOC list. See Table 2 for the complete list of aquatic SOC species meeting the above criteria. Review of current Department of Interior and NatureServe databases did not reveal any proposed, candidate, petitioned, or delisted species meeting the evaluation criteria. Although included in the initial list, California golden trout a game species introduced outside their native range was not considered further in the planning process.

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Table 2. Listed are aquatic species meeting Species-of-Concern NatureServe ranking criteria in the State of Idaho. Also noted are species known locations, range, and suitable habitat within the plan area.

Scientific Name	Common Name	NatureServe ¹	Observed within Forest Boundary ³	Observed within 10 km of Plan Area ³	Suitable Habitat and Range within Plan Area
Ray-Finned Fishes					
<i>Lepidomeda copei</i>	Northern Leatherside Chub	G1G2			No
<i>Oncorhynchus clarkii bouvieri</i>	Yellowstone Cutthroat Trout	G4T2			No
<i>Lepidomeda copei</i>	Northern Leatherside Chub	G1G2			No
<i>Oncorhynchus clarkii lewisi</i>	Westslope Cutthroat Trout	G4T3	CWNF, NPNF		Yes
<i>Oncorhynchus clarkii</i> ssp. 2	Snake River Fine-spotted Cutthroat Trout	G4T1T2Q			No
<i>Oncorhynchus mykiss aguabonita</i>	California Golden Trout	G5T1	CWNF		No
<i>Prosopium abyssicola</i>	Bear Lake Whitefish	G1			No
<i>Prosopium gemmifer</i>	Bonneville Cisco	G1			No
<i>Prosopium spilonotus</i>	Bonneville Whitefish	G1			No
<i>Cottus extensus</i>	Bear Lake Sculpin	G1			No
<i>Cottus greenei</i>	Shoshone Sculpin	G2			No
<i>Cottus leiopomus</i>	Wood River Sculpin	G2			No
Amphibians					
<i>Rana luteiventris</i> pop. 3	Columbia Spotted Frog - Great Basin	G4T2T3Q			No
<i>Dicamptodon aterrimus</i>	Idaho Giant Salamander	G3	CWNF, NPNF		Yes
<i>Rana luteiventris</i> pop. 3	Columbia Spotted Frog - Great Basin	G4T2T3Q			No
Invertebrates Insects					
<i>Agapetus montanus</i>	An Agapetus Caddisfly	G2			Yes
<i>Apatania comosa</i>	A Caddisfly	G2G3			Yes
<i>Arctopora salmon</i>	A Caddisfly	G1G3			?
<i>Glossosoma idaho</i>	A Caddisfly	G2G3			Yes
<i>Goereilla baumanni</i>	A Caddisfly	G2G3			Yes
<i>Homophylax auricularis</i>	A Caddisfly	G1G3			No
<i>Limnephilus challisa</i>	A Caddisfly	G1G2			Yes
<i>Limnephilus rhea</i>	A Caddisfly	G1G3			No
<i>Manophylax annulatus</i>	A Caddisfly	G1G3			?

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Scientific Name	Common Name	NatureServe ¹	Observed within Forest Boundary ³	Observed within 10 km of Plan Area ³	Suitable Habitat and Range within Plan Area
<i>Ochrotrichia buccata</i>	A Caddisfly	G1G3			?
<i>Philocasca antennata</i>	A Caddisfly	G1G3			?
<i>Philocasca banksi</i>	A Caddisfly	G1G3			?
<i>Psychoglypha smithi</i>	A Caddisfly	G1G3			?
<i>Rhyacophila belona</i>	A Caddisfly	G2G4			?
<i>Rhyacophila oreia</i>	A Caddisfly	G1G3			?
<i>Rhyacophila potteri</i>	A Caddisfly	G1G2			?
<i>Sericostrata surdickae</i>	A Caddisfly	G1G3			?
<i>Ameletus suffusus</i>	A Mayfly	G2G4	CWNF		Yes
<i>Ameletus tolae</i>	A Mayfly	G1G3			Yes
<i>Baetisca columbiana</i>	A Mayfly	G2G4			Yes
<i>Caudatella edmundsi</i>	A Mayfly	G1G3			Yes
<i>Caurinella idahoensis</i>	A Mayfly	G1G3	CWNF, NPNF		Yes
<i>Cinygma dimicki</i>	A Mayfly	G1G3			Yes
<i>Paraleptophlebia jenseni</i>	A Mayfly	G2G4			Yes
<i>Parameletus columbiae</i>	A Mayfly	G2	CWNF		Yes
<i>Bolshecapnia milami</i>	A Stonefly	G3			Yes
<i>Capnia lineata</i>	A Stonefly	G3		CWNF	Yes
<i>Capnia zukeli</i>	A Stonefly	G2	CWNF		Yes
<i>Isoperla bifurcata</i>	A Stonefly	G3			?
<i>Isoperla sordida</i>	A Stonefly	G3			Yes
<i>Malenka tina</i>	A Spring Stonefly	G3		NPNF	Yes
<i>Megaleuctra kincaidi</i>	A Stonefly	G2	CWNF		Yes
<i>Perlomyia collaris</i>	A Stonefly	G3			Yes
<i>Pictetiella expansa</i>	A Stonefly	G3	CWNF		Yes
<i>Setvena bradleyi</i>	A Stonefly	G3			Yes
<i>Soyedina potteri</i>	A Stonefly	G3	CWNF, NPNF		Yes
<i>Sweltsa gaufini</i>	A Stonefly	G3			Yes
<i>Taenionema umatilla</i>	A Stonefly	G3	CWNF		Yes
<i>Utacapnia nedia</i>	A Stonefly	G3			?
<i>Zapada cordillera</i>	A Stonefly	G3	CWNF	NPNF	Yes
<i>Invertebrates Mollusks</i>					

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Table 2. Listed are aquatic species meeting Species-of-Concern NatureServe ranking criteria in the State of Idaho. Also noted are species known locations, range, and suitable habitat within the plan area.

Scientific Name	Common Name	NatureServe ¹	Observed within Forest Boundary ³	Observed within 10 km of Plan Area ³	Suitable Habitat and Range within Plan Area
<i>Anodonta californiensis</i>	California Floater	G3Q			Yes
<i>Gonidea angulata</i>	Western Ridged Mussel	G3		CWNF, NPNF	Yes
<i>Fisherola nuttalli</i>	Shortface Lanx	G2	NPNF		Yes
<i>Fluminicola coloradoensis</i>	Green River Pebblesnail	G2G3			No
<i>Fluminicola fuscus</i>	Ashy Pebblesnail	G2		NPNF	Yes
<i>Helisoma newberryi</i>	Great Basin Rams-horn	G1Q			No
<i>Physa megalochlamys</i>	Cloaked Physa	G3			Yes
<i>Physella cooperi</i>	Olive Physa	G3			?
<i>Pristinicola hemphilli</i>	Pristine Pyrg	G3		NPNF	Yes
<i>Pyrgulopsis pilsbryana</i>	Bear Lake Springsnail	G2			No
<i>Stagnicola hinkleyi</i>	Rustic Pondsnailed	G2			No
<i>Stagnicola idahoensis</i>	Shortspire Pondsnailed	G1			Yes
<i>Stagnicola montanensis</i>	Mountain Marshsnail	G3		NPNF	Yes
<i>Stagnicola traski</i>	Widelip Pondsnailed	G3			?
<i>Taylorconcha insperata</i>	A Freshwater Snail	G1			?
<i>Vorticifex effusa</i>	Artemesian Rams-horn	G3			Yes
<i>Invertebrates Crustaceans</i>					
<i>Stygobromus idahoensis</i>	Idaho Amphipod	G1G2			Yes

¹ Note: Data presented in NatureServe Explorer were updated to be current with NatureServe's central databases as of October 6, 2006. All other data were updated as of October 6, 2006. This report was printed on February 12, 2007.

³ Data Source: Idaho Department of Fish and Game. 2005. Idaho Comprehensive Wildlife Conservation Strategy. Idaho Conservation Data Center, Boise, ID.

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Aquatic Species-of-Interest

Species-of-interest (SOI) are species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple use objectives. Criteria used in identification of potential aquatic SOC follow Forest Service Handbook direction (43.22b). In summary, these criteria include:

1. Species with ranks of S-1, S-2, N-1 or N-2 on the NatureServe ranking system.
2. State listed threatened and endangered species that do not meet the criteria as species-of-concern¹.
3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies.
4. Species that are of regional or local conservation concern due to threats, declining trends rarity, or restricted range.
5. Public interest species such as game animals or invasive species.

The State of Idaho was the geographic extent for applying the above criteria to develop the potential aquatic SOI list. See Table 3 for the complete list of potential aquatic SOI species meeting the above criteria.

Table 3. Aquatic species meeting Species-of-Interest criteria in the State of Idaho.

Scientific Name	Common Name	NatureServe Ranking	Idaho Ranking	CWCS ²	Public Interest
Lampreys					
<i>Lampetra tridentata</i>	Pacific Lamprey	N5	S2	X	X
Ray-Finned Fishes					
<i>Acipenser transmontanus</i>	White Sturgeon	N4	S1	X	X
<i>Couesius plumbeus</i>	Lake Chub	N5	S1S2	X	
<i>Oncorhynchus clarkii utah</i>	Bonneville Cutthroat Trout	N4	S1	X	X
<i>Oncorhynchus mykiss gairdneri</i>	Inland Redband Trout	N4	S2S3	X	X
<i>Oncorhynchus nerka</i>	Kokanee	N5	S1	X	X
<i>Oncorhynchus tshawytscha</i>	Chinook Salmon - Snake River Spring/Summer Run	N1	S1	X	X
<i>Prosopium coulterii</i>	Pygmy Whitefish	N4	S2	X	
<i>Percopsis transmontana</i>	Sand Roller	N4	S1?	X	
<i>Lota lota</i>	Burbot	N5	S2	X	
<i>Rhinichthys falcatus</i>	Leopard Dace	N4	SNR	X	
<i>Rhinichthys umatilla</i>	Umatilla Dace	N2	SNR	X	
<i>Catostomus discobolus</i>	Bluehead Sucker	N4	S4	X	
<i>Salvelinus fontinalis</i>	Brook Trout	N5	SNA		X
<i>Prosopium williamsoni</i>	Mountain Whitefish	N5	N5		X
<i>Oncorhynchus mykiss</i>	Rainbow Trout	N5	S4		X
<i>Oncorhynchus kisutch</i>	Coho Salmon	N4	SNA		X
<i>Micropterus dolomieu</i>	Smallmouth Bass	N5	SNA		X

¹ Idaho Department of Fish and Game does not maintain a list of State threatened and endangered species.

² Idaho Department of Fish and Game. 2005. Idaho Comprehensive Wildlife Conservation Strategy. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID.

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Table 3. Aquatic species meeting Species-of-Interest criteria in the State of Idaho.

Scientific Name	Common Name	NatureServe Ranking	Idaho Ranking	CWCS ²	Public Interest
Amphibians					
<i>Bufo woodhousii</i>	Woodhouse's Toad	N5	S3?	X	
<i>Rana pipiens</i>	Northern Leopard Frog	N5	S3	X	
<i>Plethodon idahoensis</i>	Coeur d'Alene Salamander	N3	S3	X	X
Invertebrate Mollusks					
<i>Physella virginea</i>	Sunset Physa	N2	SNR		
<i>Margaritifera falcata</i>	Western Pearlshell	N4	SNR	X	X
<i>Fluminicola minutissimus</i>	Pixie Pebblesnail	NH	SNR	X	
<i>Pyrgulopsis robusta</i>	A Springsnail	N1	S1	X	
Invertebrate Insects					
<i>Rhyacophila coloradensis idahoensis</i>	A Caddisfly	N1N3	SNR		
<i>Baetis alius</i>	A Mayfly	N1	SNR		
<i>Cinygmula uniformis</i>	A Mayfly	N2	SNR		
<i>Ameletus sparsatus</i>	A Mayfly	N3	SNR	X	
<i>Ametropus ammophilus</i>	A Mayfly	N4	SNR	X	
<i>Centroptilum selanderorum</i>	A Mayfly	N4	SNR	X	
<i>Paraleptophlebia traveræ</i>	A Mayfly	NH	SNR	X	
<i>Paraleptophlebia vaciva</i>	A Mayfly	N3N4	SNR	X	
<i>Asioplax edmundsi</i>	A Mayfly	N3	SNR	X	
<i>Cascadoperla trictura</i>	A Spring Stonefly	N3N4	SNR	X	

Part 2 - Screening Species-of-Concern and Species-of-Interest for Further Consideration in the Planning Process

Aquatic Species-of-Concern

It was intended that all Species-of-Concern are accounted for in some manner (and documented) in the planning process. These species-of-concern were evaluated based upon the screening criteria in FSH 1909 43.22d. These criteria include:

1. There are known occurrences or habitat.
2. They are not entirely secure within the plan area.
3. They are potentially affected by management or potential plan components.
4. There is sufficient information to complete a credible assessment for the species.

Review of the life history, range and distribution information for each species in Table 2 resulted in identification of twelve species known to occur and have known ranges within the Clearwater National Forest administrative boundary (Table 4). Forty-one species have not been observed within the plan area; however, the plan area may contain suitable habitat and lie within those species range. The remaining 19 species in Table 2 are screened from further evaluation in the planning process. The plan area does not contain suitable habitat for those species.

Table 4. Aquatic Species-of-Concern known to occur and potentially have suitable habitat or range within the Clearwater National Forest administrative boundary. All species are potentially affected by land management activities.

Common Name	Scientific Name	Present within Plan Area	Suitable Habitat in Plan Area
Chinook Salmon (spring/summer-run)	<i>Oncorhynchus.tshawytscha</i>	Yes	Yes
Westslope Cutthroat Trout	<i>Oncorhynchus clarkii lewisi</i>	Yes	Yes
Idaho Giant Salamander	<i>Dicamptodon aterrimus</i>	Yes	Yes
A Mayfly	<i>Ameletus suffusus</i>	Yes	Yes
A Mayfly	<i>Caurinella idahoensis</i>	Yes	Yes
A Mayfly	<i>Parameletus columbiae</i>	Yes	Yes
A Stonefly	<i>Capnia zukeli</i>	Yes	Yes
A Stonefly	<i>Megaleuctra kincaidi</i>	Yes	Yes
A Stonefly	<i>Pictetiella expansa</i>	Yes	Yes
A Stonefly	<i>Taenionema umatilla</i>	Yes	Yes
A Stonefly	<i>Zapada cordillera</i>	Yes	Yes
A Stonefly	<i>Soyedina potteri</i>	Yes	Yes
An Agapetus Caddisfly	<i>Agapetus montanus</i>	Unknown	Yes
A Caddisfly	<i>Apatania comosa</i>	Unknown	Yes
A Caddisfly	<i>Arctopora salmon</i>	Unknown	?
A Caddisfly	<i>Glossosoma idaho</i>	Unknown	Yes
A Caddisfly	<i>Goereilla baumanni</i>	Unknown	Yes
A Caddisfly	<i>Limnephilus challisa</i>	Unknown	Yes
A Caddisfly	<i>Manophylax annulatus</i>	Unknown	?
A Caddisfly	<i>Ochrotrichia buccata</i>	Unknown	?

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A Caddisfly	<i>Philocasca antennata</i>	Unknown	?
A Caddisfly	<i>Philocasca banksi</i>	Unknown	?
A Caddisfly	<i>Psychoglypha smithi</i>	Unknown	?
A Caddisfly	<i>Rhyacophila belona</i>	Unknown	?
A Caddisfly	<i>Rhyacophila oreia</i>	Unknown	?
A Caddisfly	<i>Rhyacophila potteri</i>	Unknown	?
A Caddisfly	<i>Sericostriata surdickae</i>	Unknown	?
A Mayfly	<i>Ameletus tolae</i>	Unknown	Yes
A Mayfly	<i>Baetisca columbiana</i>	Unknown	Yes
A Mayfly	<i>Caudatella edmundsi</i>	Unknown	Yes
A Mayfly	<i>Cinygma dimicki</i>	Unknown	Yes
A Mayfly	<i>Paraleptophlebia jenseni</i>	Unknown	Yes
A Stonefly	<i>Capnia lineata</i>	Unknown	Yes
A Stonefly	<i>Bolshecapnia milami</i>	Unknown	Yes
A Stonefly	<i>Isoperla bifurcata</i>	Unknown	?
A Stonefly	<i>Isoperla sordida</i>	Unknown	Yes
A Spring Stonefly	<i>Malenka tina</i>	Unknown	Yes
A Stonefly	<i>Perlomyia collaris</i>	Unknown	Yes
A Stonefly	<i>Setvena bradleyi</i>	Unknown	Yes
A Stonefly	<i>Sweltsa gaufini</i>	Unknown	Yes
A Stonefly	<i>Utacapnia nedia</i>	Unknown	?
California Floater	<i>Anodonta californiensis</i>	Unknown	Yes
Shortface Lanx	<i>Fisherola nuttalli</i>	Unknown	Yes
Ashy Pebblesnail	<i>Fluminicola fuscus</i>	Unknown	Yes
Cloaked Physa	<i>Physa megalochlamys</i>	Unknown	Yes
Olive Physa	<i>Physella cooperi</i>	Unknown	?
Pristine Pyrg	<i>Pristinicola hemphilli</i>	Unknown	Yes
Shortspire Pondsnailed	<i>Stagnicola idahoensis</i>	Unknown	Yes
Mountain Marshsnail	<i>Stagnicola montanensis</i>	Unknown	Yes
Widelip Pondsnailed	<i>Stagnicola traski</i>	Unknown	?
A Freshwater Snail	<i>Taylorconcha insperata</i>	Unknown	?
Artemesian Rams-horn	<i>Vorticifex effusa</i>	Unknown	Yes
Idaho Amphipod	<i>Stygobromus idahoensis</i>	Unknown	Yes

Aquatic Species-of-Interest

Review of the life history, range and distribution information for each species in Table 3 resulted in identification of ten species known to occur and have known ranges within the Clearwater National Forest administrative boundary (Table 5). The remaining 25 species in Table 3 are screened from further evaluation in the planning process. The Responsible Official, as appropriate, may identify any of the animals listed in Table 5 as Species-of-Interest.

Table 5. Aquatic Species-of-Interest known to occur within the Clearwater National Forest administrative boundary.

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Common Name	Scientific Name	Secure w/in Plan Area?	Native Species?
Pacific Lamprey	<i>Lampetra tridentata</i>	No	Yes
Rainbow Trout	<i>Oncorhynchus mykiss</i>	Yes	No - Introduced strains
Inland Redband Trout ³	<i>O. mykiss gairdneri</i>	Yes	Yes
Kokanee ⁴	<i>O. nerka</i>	Yes	No - Introduced outside its range
Coho Salmon	<i>O. kisutch</i>	Yes	Yes - Reintroduced
Brook Trout	<i>Salvelinus fontinalis</i>	Yes	No - Exotic introduction
Mountain Whitefish	<i>Prosopium williamsoni</i>	Yes	Yes
Smallmouth Bass	<i>Micropterus dolomieu</i>	Yes	No - Exotic introduction
Coeur d'Alene Salamander	<i>Plethodon idahoensis</i>	Unknown	Yes
Western Pearlshell	<i>Margaritifera falcata</i>	Unknown	Yes

Species-of-Interest Recommended to Responsible Official

There are three species-of-interest recommended to the Responsible Official for further consideration in evaluating ecological conditions to support species diversity.

Pacific Lamprey

Coeur d'Alene Salamander

Western Pearlshell

This recommendation was based upon criteria described in FSH 1909.12 Chapter 43.22c. The main factors in selecting these 3 species were:

1. Species habitat or population has declined significantly on other ownerships in the area of evaluation, and National Forest System lands act as an important refuge.
2. Species habitat or population has declined significantly in the plan area, resulting in potential risk to the species.
3. Species population numbers are low in the plan area, resulting in potential risk to the species.
4. Species is dependent on a specialized habitat in the plan area, resulting in potential risk to the species.
5. Species is of concern due other threats (for example, invasion of exotic brook trout, disturbance due to road systems), resulting in potential risk to the species.
6. Species of public interest identified cooperatively with State fish and wildlife agencies consistent with the Sikes Act.

Part 3 - Species Groups and Surrogates

Cold Water Biota

Several aquatic species may be grouped to facilitate evaluation of plan components. This species grouping was considered after careful consideration of all possible species-of-

³ There are difficulties in distinguishing the 2 life forms of juvenile steelhead and redband. Above Dworshak dam stocking hatchery rainbow on redband trout makes the persistence of native genotype doubtful.

⁴ Exceptions are the kokanee which were introduced in Dworshak Reservoir, and inland redband trout.

concern and interest that occur on the Clearwater National Forest, their habitat requirements, known distributions, and life history requirements. In summary, the mayfly and stonefly species that met the species-of-concern criteria can all be grouped or labeled as freshwater stream dwelling invertebrates. Included in this group are the Western Pearlshell and Pacific Lamprey (SOI). The critical assumptions are that this species group have similar ecological requirements and are equally susceptible to natural or human disturbances.

Surrogate species to this group of stream dwelling invertebrates include the federally threatened and species-of-concern fish species listed above. This species group, all have very similar ecological requirements to this group of stream dwelling invertebrates in regards to cool clean water and diverse dynamic stream habitats. Lee et. al. (1997) in the Interior Columbia Basin assessment provided several reasons for focusing on salmonid species as cold water biota indicators⁵. These included:

- We know more about them, and therefore are more likely to discern important environmental relationships.
- They are widely distributed, which allows for broad-scale comparisons.
- They act as predators, competitors, and prey for a variety of other aquatic and terrestrial animals. Thus they are likely to influence the structure and function of aquatic ecosystems.
- Potentially more sensitive to disturbance than other groups.

By providing these ecological conditions that sustain native fish species, the critical assumption is the ecological conditions necessary to sustain these stream dwelling invertebrates are also provided. Even though these assumptions seem reasonable, there is some uncertainty because of the limited life history information on the stream dwelling invertebrates in relation to the fish species evaluated. The higher risk scenario is that an individual mayfly or stonefly species may have a unique habitat requirement that is not accounted for in the plan desired ecological conditions (coarse filter). Based upon the limited life history information available for these species this degree of uncertainty is acceptable.

Riparian Habitat Biota

Included in this group are the Idaho Giant Salamander (SOC) and Coeur d'Alene Salamander (SOI). This species group, all have very similar ecological requirements in regards to riparian vegetation and the water interface. The critical assumptions are that this species group have similar ecological requirements and are equally susceptible to natural or human disturbances. Even though these assumptions seem reasonable, there is some uncertainty because of the limited life history, known distributions, and risks and threats to these amphibians. The higher risk scenario is that an either amphibian species may have a unique habitat requirement that is not accounted for in the plan desired ecological conditions (coarse filter). Based upon the limited life history information available for these species this degree of uncertainty is acceptable.

⁵ Page 1146. Vol. 3, Chap. 4. ICBMP

Part 4 - Plan Components for Species Diversity

Ecosystem diversity elements were evaluated against plan components to determine the degree to which they satisfy species diversity requirements. Each plan component was evaluated based on how well they supported the elements contributing to ecosystem and species diversity. This is demonstrated by referencing each of the key ecosystem components to the appropriate plan components. See **Framework for Ecological Sustainability** report in the Clearwater National Forest Land Management Plan supporting documentation.

In summary, the forest plan is the watershed and aquatic species conservation strategy for the Clearwater National Forest. Watershed and aquatic ecosystem strategic direction is provided in the 5 plan components: desired conditions, objectives, suitability of uses, special areas, and project guidelines.

Provisions in the watershed and aquatic plan components provide the ecological conditions (coarse filter) that contribute towards recovery of federally listed species and ecosystem diversity to support species-of-concern and species-of-interest. This determination was the result of an evaluation process considering the following characteristics:

1. Amount, quality, distribution, and connectivity of habitat;
2. Species distributions;
3. Species status in terms of subpopulation size and life history diversity;
4. Key biological interactions (competition and predation);
5. The dynamics of habitat over time;
6. Threats and risks to critical life stages; and
7. Evaluation of needed actions to reduce threats and risks.

This evaluation was completed forest-wide at the subwatershed scale and summarized at the scale appropriate for each individual species. See **Subwatershed Summaries** in the Clearwater National Forest Land Management Plan supporting documentation for list of physical and biological characteristics listed above.

Additional specific plan provisions were included to address unique species requirements that were not provided through system-wide plan components (fine filter):

- Specific water temperature desired conditions for Bull trout;
- Stream substrate disturbance guideline for Western Pearlshell.

Part 5 – Species-of-Concern and Interest Distribution, Habitat Requirements, and Threats Summary

Species described below include those identified as occurring with the plan area (Table 4 and 5). Also see related document **Aquatic Species Status and Diversity Assessments** for the lamprey and fish species listed above.

Oncorhynchus tshawytscha, Chinook salmon (spring/summer run)

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Distribution: Populations in the Clearwater drainage were eliminated or severely depressed by the Lewiston dam in the 1950s. The Idaho portion of the Snake River spring/summer Chinook salmon Evolutionary Significant Unit (ESU) consists of all of all the Salmon River drainage and the Snake River drainage upstream to Hells Canyon Dam. The Clearwater drainage was not included due to loss of this population in the 1950s. Although not listed (as threatened) in the ESU, the reestablished Clearwater River populations need conservation consideration as part of the historical range and interactions with other populations.

Habitat: Cold water streams in reaches with a moderately swift current and coarse, rocky substrates. Spring/summer Chinook salmon use smaller, higher elevation tributary systems for spawning and juvenile rearing. Spring/summer Chinook salmon normally spawn in late July–September using gravel bars in smaller river and tributary streams. As with most salmon, adults die after spawning providing a large nutrient source for juvenile fish. Juvenile spring/summer Chinook salmon remain in headwater streams for a year and out-migrate the following spring. Juvenile Chinook salmon feed on small aquatic invertebrates in fresh water.

Threats: Diversions in spawning and rearing streams have caused direct mortality, loss of habitat and migration barriers. Land management activities have resulted in degraded habitat with the loss of riparian cover, sedimentation and artificial barriers to passage. See subwatershed summary for complete list of risks and threats where spring/summer Chinook salmon occur within the Clearwater National Forest.

Oncorhynchus clarkii lewisi, Westslope cutthroat trout

Distribution: Headwaters of the Missouri River basin and Upper Columbia River basin. See Aquatic Species Assessment report for a detailed species distribution and status within the Clearwater National Forest.

Habitat: Cold water streams and lakes. Generally found in stream reaches with a moderately swift current and coarse, rocky substrates.

Threats: Stocking of nonnative forms of rainbow trout. See subwatershed summary for complete list of risks and threats where Westslope cutthroat trout occur within the Clearwater National Forest.

Dicamptodon aterrimus, Idaho Giant Salamander

Distribution: The Idaho giant salamander occurs in portions of northern and central Idaho, including parts of the Coeur d'Alene, Clearwater, and Salmon River drainages.

Habitat: Populations are associated with habitat in mesic coniferous forests. Adults are terrestrial and seek cover under logs, bark, rocks, and other surface debris, most often in the riparian zones of streams and lakeshores but also in other moist upland environments. Undercut stream banks and other structure at the terrestrial–aquatic interface serve as oviposition sites (Nussbaum 1969). Larvae are aquatic, occurring in stream pools and lakes under rocks or plant debris. Larval densities in streams are positively correlated with cover availability (Carstens et al 2005).

Threats: Populations in the Clearwater and South Fork Salmon River drainages may be declining. Carstens et al. (2005) were unable to detect the species at 7 historically occupied sites. Riparian habitat alterations and fragmentation from logging and roads are threats to particularly in the Lochsa and North Fork Clearwater drainages (Carstens et al. 2005).

Plethodon idahoensis, Coeur d'Alene Salamander

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Distribution: The majority of records are from the St. Joe and North Fork Clearwater River basins (Wilson et al. 1997), but the species also occurs in the Selway, Kootenai, and Moyie drainages. Populations occur in small patches of suitable habitat and thus metapopulation dynamics may be important for maintaining population viability.

Habitat: The Coeur d'Alene salamander occurs in the riparian corridors along streams, among talus in the spray zone of waterfalls, and in seeps or springs (Cassirer et al. 1994). Eggs are laid in water, and larvae are aquatic.

Threats: Stream and riparian vegetation alterations associated with roads and developments; chemical pollution such as pesticides, herbicides, and dust abatement solutions; flow alterations from dams and diversions; elevated stream sediment; and fish predators.

Ameletus suffuses, a mayfly

Distribution: This species occurs in British Columbia, Alberta, Oregon, and Idaho. The species is known from 1 Idaho collection in Latah County where a single immature nymph was collected (Lester et al. 2002).

Habitat: No description of the habitat in Idaho is documented. In general, the nymphs of mayflies in the genus *Ameletus* are inhabitants of running waters in mountainous areas, from headwater spring brooks to large rivers where they occur in littoral vegetation (Zloty 1996; Zloty and Pritchard 1997).

Threats: Specific threats to populations have not been identified. In general, mayfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Caurinella idahoensis, a mayfly

Distribution: Currently known from Bridge Creek, Idaho Co., Idaho; and below Lolo Pass (same drainage) in Missoula, Montana (Jacobus and McCafferty, 2004). This species has also been encountered in macroinvertebrate samples at 7 sites by the Idaho Department of Environmental Quality.

Habitat: Collected from second order perennial mountain streams with moderately swift current and cobble/gravel rock substrates.

Threats: Specific threats to populations have not been identified. In general, mayfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Parameletus columbiae, a mayfly

Distribution: Occurs in Idaho, Utah, Wyoming, and British Columbia. The Idaho distribution includes 4 locations in Latah, Blaine, and Teton counties (Jensen 1966). The species appears to be extirpated in the high-mountain, Carex-wetland area of Utah where the species was studied in detail.

Habitat: Eggs are laid in swamps and pools in mid-June and remain dormant during the summer and winter. The nymphs occur in the ponds and pond-like areas around the edges of lakes in association with heavy growth of sedges (*Carex* sp). or at the edges of moderately flowing rivers and streams (Edmunds 1957; Jensen 1966).

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Threats: Specific threats to populations have not been identified. In general, mayfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Capnia zukeli, a stonefly

Distribution: Idaho endemic. The species is known from localities in Latah County (Nelson and Baumann 1989).

Habitat: No information has been documented that describes the habitat requirements of this species.

Threats: Specific threats to populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Megaleuctra kincaidi, a stonefly

Distribution: This species occurs in Idaho, Washington, and Oregon. Most populations occur in the Cascade Range, but a single population occurs in Clearwater County, near the Montana border on Lolo Pass (Baumann et al. 1977).

Habitat: This species is generally associated with springs and seeps.

Threats: Specific threats to populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Because this species is associated with springs and seeps, populations may be vulnerable to dewatering and riparian vegetation alteration.

Zapada cordillera, a stonefly

Distribution: Originally described from Missoula Co., Montana in 1991. Has since been collected from scattered localities in California, Idaho, Oregon, and Washington. In Idaho the species has been found only in Idaho County (Baumann et al. 1977).

Habitat: Large spring influenced creeks and rivers.

Threats: Specific threats to populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Taenionema umatilla, a stonefly

Distribution: A rarely collected species, known only from Idaho (Latah Co.) and eastern Oregon (Grant Co., Umatilla Co., Union Co.). Less than 20 locations are recorded by Stanger and Baumann (1993).

Habitat: Creeks and small rivers.

Threats: Specific threats to populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

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Pictetiella expansa, a stonefly

Distribution: Recorded from the higher Rocky Mountains of Colorado, Idaho, Montana, Utah, and Wyoming. About 30 locations are known. In Idaho, the species is widespread in the Idaho panhandle but sparsely known from the remainder of the state. The distribution includes localities in Boundary, Bonner, Benewah, Shoshone, Clearwater, Bonneville, and Teton counties.

Habitat: Nymphs are usually found in pristine high gradient smaller streams. Individuals have been encountered at elevations between 555-1255 m in north Idaho (Idaho Department of Environmental Quality Beneficial Use Reconnaissance Program Database).

Threats: Specific threats to populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Lampetra tridentate, Pacific lamprey

Distribution: Occur in rivers of the Pacific coast from Alaska to Baja California. Historical distribution within the Clearwater National Forest was presumed to be all waters occupied by Chinook salmon. Idaho Fish and Game Department has implemented an active presence and absence inventory since 1999. See map in Aquatic Species Assessment report.

Habitat: Stream spawning habitat is characterized by runs and riffles, gravel and sand substrates, slow to moderate flows, and cold, clear water. Ammocoetes occupy shallow backwaters and eddies in silt and sand.

Threats: Reduced number of returning adults because of downstream dams creating migration barriers to upstream migration. Habitat modifications, specifically increased sediment deposition within spawning and nursery streams; non-native fish predation on ammocoetes; passage barriers at road crossings; water depletions; channel modification and simplification.

Margaritifera falcate, Western Pearlshell

Distribution: Pacific drainages from Southern Alaska to California. Idaho historical range includes sites in the Snake, Coeur d'Alene, Lost, and Salmon River drainages (Frest 1999). Locally present in Lolo Creek watershed within the Clearwater National Forest, Selway and South Fork Clearwater River in the Nez Perce national Forest.

Habitat: Cold clean creeks and rivers that support salmonid populations. Coarse stable gravel and cobble stream substrate, often near stream banks.

Threats: Declining migratory salmonid populations; streambed disturbance; nutrient enrichment, and elevated stream sediment deposition, and chemical pollution.

Natural Heritage network global conservation status definitions

The Global (G) Conservation Status (Rank) of a species or ecological community is based on the *range-wide* status of that species or community. The rank is regularly reviewed and updated by experts, and takes into account such factors as number and quality/condition of occurrences, population size, range of distribution, population trends, protection status, and fragility. The definitions of these ranks, which are not to be interpreted as legal designations, are as follows:

- GX Presumed Extinct:** Not located despite intensive searches and virtually no likelihood of rediscovery
- GH Possibly Extinct:** Missing; known only from historical occurrences but still some hope of rediscovery
- G1 Critically Imperiled:** At high risk of extinction due to extreme rarity (often 5 or fewer occurrences), very steep declines, or other factors.
- G2 Imperiled:** At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3 Vulnerable:** At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4 Apparently Secure:** Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 Secure:** Common; widespread and abundant.

G(#)T(#): Trinomial (T) rank applies to subspecies or varieties; these taxa are T-ranked using the same definitions as the G-ranks above.

Variant Global Ranks

- G#G# Range Rank:** A numeric range rank (e.g., G2G3) is used to indicate uncertainty about the exact status of a species or community. Ranges cannot skip more than one rank (e.g., GU should be used rather than G1G4).
- GU Unrankable:** Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. NOTE: Whenever possible, the most likely rank is assigned and the question mark qualifier is added (e.g., G2?) to express uncertainty, or a range rank (e.g., G2G3) is used to delineate the limits (range) of uncertainty.
- GNR Not ranked:** Global rank not assessed.

Rank Qualifiers

- ? Inexact Numeric Rank:** Denotes inexact numeric rank.
- Q Questionable taxonomy that may reduce conservation priority:** Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.

State Rank

Idaho Conservation Data Center ranks the status of plants, animals, and plant communities on a scale of 1 to 5. The rank is primarily based on the number of known occurrences, but other factors such as habitat quality, estimated number of individuals, narrowness of range of habitat, trends in populations and habitat, threats to the element, and other factors are also considered. The ranking system is meant to exist alongside national and state rare species lists because these lists often include additional criteria (e.g., recovery potential, depth of knowledge) that go beyond assessing threats to extinction.

Components of Ranks:

S = State rank indicator; denotes rank based on status within Idaho.

1 = Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences).

2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences).

3 = Rare or uncommon but not imperiled (typically 21 to 100 occurrences).

4 = Not rare and apparently secure, but with cause for long-term concern (usually more than 100 occurrences).

5 = Demonstrably widespread, abundant, and secure.

U = Unrankable.

H = Historical occurrence (i.e., formerly part of the native biota; implied expectation that it might be rediscovered or possibly extinct).

X = Presumed extinct or extirpated.

Q = Indicates uncertainty about taxonomic status.

? = Uncertainty exists about the stated rank.

NR = Not ranked.

NA = Conservation status rank is not applicable.

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