Draft Nez Perce–Clearwater National Forests Forest Plan Assessment

5.0 Threatened, Endangered, Proposed and Candidate Species and Potential Species of Conservation Concern

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5. Threatened, Endangered, Proposed and Candidate Species and Potential Species of Conservation Concern

5.1 THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES—TERRESTRIAL WILDLIFE

5.1.1 *Existing Information*

- Lynx Conservation Assessment and Strategy (Maxwell 2000)
- National Lynx Detection Protocol (McKelvey et. al 1999)
- Canada Lynx Conservation Strategy (Ruediger et. al 2000)
- The Scientific Basis for Conserving Forest Carnivores, American American marten, Fisher, Lynx and Wolverine in the Western United States. (Ruggiero et al. 1994)
- Terrestrial peer group protocols (Samson et. al., 1997)
- Northern Rockies Lynx Management Direction, Record of Decision (Forest Service 2007)

5.1.2 *Informing the Assessment*

Per the Land Management Planning Rule (April 2012), the Forest Service is directed to provide for the diversity of plant and animal communities within Forest Service authority and consistent with the inherent capability of the plan area and maintain or restore ecosystem integrity and diversity.

This section of the assessment addresses available information regarding the ecology and distribution of federally recognized endangered, threatened, proposed, or candidate terrestrial wildlife species Because of potential changes in the status of federally listed species, this section of the Assessment is considered “draft” until the Forest Plan is signed.

5.1.2.1 Current Condition

Canada Lynx (Threatened)

Current understanding of Canada lynx ecology is based on the best available science described in the Lynx Conservation Assessment and Strategy (LCAS) Blending ecological processes and species habitat preferences is believed the best strategy to maintain lynx habitat diversity, species viability, and sustainability. Conclusions described in the LCAS (selected Alternative F, Scenario 2*)* integrate the ecological process with species-centered approaches.

Most current Canada lynx sightings on National Forests System lands occur in Montana and northern Idaho. Low population densities make effective monitoring efforts for lynx cost prohibitive and no current population estimates are available. National Lynx Detection Protocol records represent the primary source of information on lynx population numbers or trends in Idaho. Survey efforts in 2007–2009, conducted by the Rocky Mountain Research Station and local Forest Service crews, were unsuccessful in documenting Canada lynx residing on the Nez Perce National Forest[1]. Incidental harvest (trapping) records also are useful in determining

[1] As of this writing, we are attempting to locate any recent Canada lynx survey results that may have been conducted on the Clearwater National Forest (circa 2007) by the Rocky Mountain Research Station.

lynx presence and distribution. Between 1978 and 1991, 12 lynx were reported harvested in Idaho. The Idaho Department of Fish and Game does not monitor lynx populations in the state except through harvest records. Monitoring of Canada lynx translocated from Canada to Colorado indicated that one or more individuals released in Colorado have traveled in/through the Nez Perce–Clearwater National Forests (Forests)[2].

Lynx are believed to occupy habitats in Idaho at elevations above 4,000 feet elevation. They are strongly associated with sub-alpine/Engelmann spruce fir (SAF) and/or mesic lodgepole pine (LPP) habitats (i.e., "primary vegetation" is "boreal forest"[3]), containing dense horizontal cover (can include large down wood) that support productive snowshoe hare populations. The most productive snowshoe hare habitats in the SAF/LPP forest is associated with young and mixed canopy forest stands containing at least 35% horizontal cover[4]. Other predators, primarily bobcat and coyote, directly compete for snowshoe hare prey. Lynx, however, are a specialized predator with a competitive advantage over bobcat or coyotes in deep, soft snow. As a result, limited overlap typically occurs between the winter ranges of bobcats or coyotes and lynx. However, where bobcats and coyotes can expand their winter ranges (due to combinations of forest alteration and motorized winter recreation) overlap can occur. Where lynx and bobcat or coyote ranges overlap, their niches are typically only segregated by winter range conditions. Lynx are typically restricted to areas that receive deep snow cover where they are more highly adapted than bobcats or coyotes. Lynx prefer forested cover for security and hunting and usually do not cross open habitats (i.e., meadows) greater than 300 feet wide. Favored travel routes are forested areas along ridges and saddles.

Canada lynx prey almost exclusively on snowshoe hares. As presented in the Northern Rockies Lynx Management Workshop (2008) and supported by the latest science, lynx habitat is associated with spruce/fir and moist lodgepole pine habitats >35% (35%–55%) horizontal cover in the winter and >50% (50%–85% during the summer; dens typically occur in >85% horizontal cover. The most productive snowshoe hare habitats occur where winter forage (willows, birch and conifers) and thermal cover (typically provided by a closed canopy of coniferous trees) are co-mingled. Thermal and security cover are so important that snowshoe hares may select this habitat even if forage is limited. In early forest succession stages in central Idaho, snowshoe hare thermal and security cover is characterized by dense stands of sapling size or larger conifers. Hare populations are typically low in the Northern Region, but appear stable. Increased hare densities are often associated with increasing horizontal cover and are 'horizontal cover' dependent (i.e., forage and foraging habitat are not believed to limit snowshoe hare populations). Observations of snowshoe hare winter habitat use by this biologist suggest they use nearly all forest succession stages, provided cover is present, on gentle-terrain landscapes (i.e., excludes

[2] Northern Rockies Lynx Management Workshop, Missoula, MT, February 2008

[3] Per Biological Opinion, Appendix C, October 25, 2000, "***Primary vegetation*** includes those types necessary to support lynx reproduction and survival. It is recognized that other vegetation types that are intermixed with the primary vegetation will be used by lynx, but are considered to contribute to lynx habitat only where associated with the primary vegetation…. Recent, more refined mapping of lynx habitat, described earlier in this document (Biological Opinion, Appendix C, October 25, 2000), identified several specific vegetation associations (e.g. dry Douglas fir and dry lodgepole types, Pacific silver fir/mountain hemlock, and others) as not considered primary vegetation components for lynx. Initial mapping based on broad scale data is completed and will be refined at the project level." Maritime-influenced habitats (cedar/hemlock) are not considered suitable lynx habitat {likely because of heavy, wet snow and freeze/thaw conditions that allow competitors (cougar, bobcat and coyote) to travel over snow and persist}

[4] Horizontal ground cover is considered forest vegetation where drooping branches (SAF/S/dense LLP) and large dead wood provide cavities where hares are hidden from view of avian and terrestrial predators. Horizontal cover includes live vegetation that is "hare-accessible" to large, down wood (i.e., not buried too deep under the snow).

most breaklands).

Lynx denning habitat occurs in moist, mature forests, on northerly aspects. Denning sites require a high density of down trees 1 to 4 feet above the ground. Denning areas range from 1 to 5 acres, connected by mature forest travel routes accessing prey habitat.

Factors affecting lynx habitat are the alteration of forested habitats via timber harvest, prescribed fire, fire suppression, road access, urbanization, ski development, and motorized winter recreation. Loss of suitable habitat for lynx reduces the potential for population growth or recolonization of the lynx and further confines lynx to smaller, more isolated habitat units.

Forest fires historically created and maintained mosaics of early successional forest stands and mature conifer forest, forming ideal snowshoe hare and lynx habitat. In Montana, 90% of locations of studied lynx were in dense stands of lodgepole pine that burned 67 years earlier. The lack of adequate hare habitat in southern latitudes may be partially a result of fire suppression over the past 50 years. Extensive forest fires occurred in Idaho during the early 1900s, and it is possible that fire suppression has allowed many of these burns to advance to older successional stages that are not conducive to supporting the landscape mosaic necessary for snowshoe hare and lynx populations.

Human access into lynx habitat has increased significantly over the last several decades. Increased roads, coupled with and the rapidly growing popularity of snowmobiles and other off-road vehicles has facilitated human access into historic lynx habitats. Increased human access presents a significant threat to lynx because of the increased likelihood of intentional or unintentional lynx mortality. Human access concerns are particularly important when or where lynx populations are low or are concentrated in localized refugia.

Trapping and hunting overharvest of lynx during the 1970s and 1980s has reduced the potential for recovery of lynx populations. Lynx populations may have become so depleted that they cannot reach former densities even during the periods of abundant prey and maximum reproductive success. Hunting for bobcats may be a potential threat because some hunters may not be able to distinguish between bobcat and lynx. However, using hounds for hunting may reduce this threat because those hunters have a better chance of identifying the treed animal as a bobcat or a lynx. Dispersing lynx are also likely to increase their susceptibility to injury or mortality from legal trapping for other furbearers.

The U.S. Fish and Wildlife Service (USFWS) believes existing regulatory mechanisms in the contiguous United States are adequate to control over exploitation. Forest management practices can be both beneficial and detrimental to lynx. Timber management and prescribed fire can be used to achieve the early successional stages of forest preferred by snowshoe hares. Timber harvest and fire suppression can also reduce cover, create unusable forest openings, and develop undesirable monotypic stands. An appropriate mix of habitat conditions suitable for hunting, denning, and cover are essential to re-establishing viable lynx populations. Assessments of lynx habitat, per the *Canada Lynx Assessment and Conservation Strategy* guidelines (pp 7-2 to 7-4) are conducted using Lynx Analysis Units (LAUs)[5]. Typically, lynx conservation guidelines

[5] The LAU is a project analysis unit upon which direct, indirect, and cumulative effects analyses are performed. LAU boundaries should remain constant to facilitate planning and allow effective monitoring of habitat changes over time. An area of at least the size used by an individual lynx, about 25-50 mi2.

apply only to lynx habitat within LAUs, although considerations related to connectivity may be appropriate for other areas.

The USFWS lists the Canada lynx as 'threatened' on both the Nez Perce and Clearwater National Forests. Per the Northern Rockies Lynx Management Direction Record of Decision (LROD; March 2007), the Nez Perce and Clearwater National Forests are identified as "occupied secondary" Canada lynx habitat[6]. The Nez Perce National Forest, however, is identified as "unoccupied secondary" Canada lynx habitat On April 14, 2008, the USFWS identified only Boundary County, Idaho, as proposed critical lynx habitat.

The following are desired Canada lynx habitat conditions[7] in LAUs in occupied habitat and in linkage areas:

- Within the Wildland/Urban Interface fuel treatment projects shall
  - Be limited to no more than 6% (cumulatively) of lynx habitat on any given National Forest
  - Not result in more than 3 adjacent LAUs exceeding standards
- Timber management projects shall not regenerate more than 15% of lynx habitat on NFS lands within an LAU in a 10-year period
  - Regeneration harvest practices are restricted in LAUs with more than 30% of forest stands (within lynx habitat) are in 'stand initiation' that do not yet provide winter snowshoe hare habitat
  - Precommercial thinning projects that reduce snowshoe hare habitat may occur from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat only when stand initiation that does not yet provide winter snowshoe hare habitat does not exceed 30% of the LAU
- Vegetation management projects that reduce snowshoe hare habitat in multi-story mature or late successional forests may occur only when the stand initiation structural stage providing winter snowshoe hare habitat does not exceed 30% of the LAU

Wolverine (Candidate)

Wolverines typically inhabit large areas Ruggiero (1994) reported average home ranges for adult wolverine range from less than 40 square miles (mi^2) to over 350 mi^2. Males typically have larger home ranges than females. Habitat types used by wolverines include medium or scattered mature timber of sub-alpine fir, lodgepole pine, western larch, Douglas fir, and mixed conifers near rockslides, avalanche areas, cliffs, swamps, and meadows. Wolverines rarely utilize dense young timber stands, burned over areas or wet meadows (Forest Service 1998).

Wolverines are habitat generalist and typically inhabit remote mountainous areas where human disturbance is unlikely. Source habitats include all structural stages of alpine tundra and all subalpine montane forests. Within these forest types, all structural stages except the closed stem

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[6] Occupied secondary Canada lynx habitats are classified as *"…**secondary areas**" are those with historical records of lynx presence with no record of reproduction; or areas with historical records and no recent surveys that document the presence of lynx and/or reproduction. FWS hypothesizes that secondary areas may contribute to lynx persistence by providing habitat to support lynx during dispersal movements or other periods, allowing animals to then return to "core areas."*

[7] Northern Rockies Lynx Management Direction Record of Decision, March 2007.

exclusion stage provide source habitat (Wisdom et. al., volume 2, page 74). Wolverines typically winter above 4,500 feet elevation and summer at elevations exceeding 6,000 feet. They appear to favor northeastern to southwestern aspects (Forest Service1998). They are omnivorous and opportunistic scavengers, taking advantage of food sources that are easily obtained.

Wolverines typically prey on large and small mammals and forest grouse. They also feed on carrion, insects, and berries and often cache their food in trees or under snow and ice. Though known to travel long distances, they often exhibit fidelity to a certain area. Male home ranges average about 163m^2; female home ranges averaged approximately 150m^2. The best wolverine habitats on the Nez Perce–Clearwater National Forests are typically associated with conifer stands over 75 years old and northeastern–southwestern aspects above 4,500 feet elevation.

According to Copeland and Yates (2006,) a primary concern presently facing land management agencies is the potential impact of human activities, primarily winter recreation, on wolverine reproductive denning. Per Beucking (1998), "…female wolverines tend to select reproductive den sites that are remote and difficult to access." Copeland and Yates (2006) further state that the movement of kits to less suitable habitat as a result of interface with winter recreationists may result in detrimental energy expenditures, stress and susceptibility to predation, exposure, competition for den sights, or other negative impacts. Motorized winter recreation may present a threat to wolverines; studies are ongoing to determine the extent and nature.

Desired wolverine habitat conditions include remote mountainous, subalpine forest habitats, regardless of structural stages, where motorized human disturbance is unlikely, particularly during denning and nursing period (February–May).

Yellow-billed Cuckoo (Candidate in Latah and Idaho Counties)

The USFWS has identified the yellow-billed cuckoo as a Candidate Species[8]. In Idaho, the yellow-billed cuckoo is a rare visitor and local breeder in scattered drainages primarily in the southern portion of the state (Taylor 2000, Idaho CDC 2005**).** No population trend data are available for Idaho because populations of yellow-billed cuckoos are too low to make valid statistical conclusions. Major declines have been documented throughout this species' range in the western United States such that it is now extremely rare in most areas (Laymon and Halterman 1989).

The yellow-billed cuckoo is a riparian obligate species. Throughout its range, yellow-billed cuckoos are usually found in large tracts of cottonwood and willow habitats with dense sub-canopies (Hughes 1999, USFWS 2001). In Idaho, they are reported to occur most frequently and consistently in cottonwood forests with thick understory (Groves et. al. 1997a, Taylor 2000, Idaho CDC 2005). Yellow-billed cuckoos are generally absent from heavily forested areas and large urban areas (Eaton1988) and very scarce in the extensive high elevation zones of the Rocky Mountains above 6,600 feet elevation (USFWS 2001).

Yellow-billed cuckoos appear to require large blocks of riparian habitat for nesting. Per Laymon (1998)[9], two habitat models for yellow-billed cuckoos have been developed. These models

[8] Candidate species have no protection under the (Endangered Species) Act, but are included for early planning consideration. Candidate species could be proposed or listed during the project planning period. The Service advises an evaluation of potential effects on candidate species that may occur in the project area; this may expedite section 7 consultation under the Act should the species become listed.

[9] Laymon, S. A. 1998. Yellow-billed Cuckoo (Coccycus americanus). *In* The Riparian Bird Conservation Plan:a strategy for reversing the decline

indicated that willow–cottonwood habitat of any age having a habitat breadth of 325 feet was necessary for suitable yellow-billed cuckoo habitat. Additional research based on occupancy rates allowed for refinement of these requirements. Habitats >100 acres in extent and >650 feet wide were suitable; >200 acres in extent and wider than 1,950 feet were considered optimal. Optimal habitat conditions are not expected to occur, or have occurred, on the Forests in Latah or Idaho counties.

The loss and degradation of breeding habitat is believed to have caused declines in species distribution and abundance declines (Hughes 1999). The principle causes of riparian habitat losses are conversion to agriculture and other land uses, urbanization, dams and river flow management, stream channelization and bank stabilization, and livestock grazing (USFWS 2003a).

5.1.2.2 Trends and Drivers

(Under development)

The following are drivers of the trends described for the species above:

- Availability and distribution of quality snowshoe hare winter habitats
- Motorized human disturbance in remote landscapes, particularly during wolverine denning and nursing period (February thru May)

5.1.3 *Information Needs*

The following information needs have been identified:

- Verification/validation of availability and suitability of existing or potential yellow-billed cuckoo habitat
- Relationship of managed habitats on NFS lands relative to currently available habitats on adjacent lands

of riparian-associated birds in California. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/riparian_v-2.html

5.2 THREATENED, ENDANGERED, PROPOSED AND CANDIDATE SPECIES—AQUATIC WILDLIFE

5.2.1 *Existing Information*

- Interior Columbia River Basin Science Assessment Team/ICBEMP (Quigley et al. 1997)
- 1995/1998 LRMP (Forest Plan) Biological Opinions – NOAA Fisheries, USFWS
- Critical habitat designations for ESA listed fish species (Columbia River bull trout, Snake River steelhead trout, Snake River fall chinook salmon, Snake River spring/summer chinook salmon, Snake River sockeye salmon)
- 2002 Columbia River Bull Trout Draft Recovery Plan, Chapters 16 and 17
- USFWS bull trout 5-year status review (2008)
- Status Review Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest (Ford 2011)
- Updated status of federally listed ESUs of West Coast salmon and steelhead. (Good et al. 2005)
- Pacific Coastal Salmon Recovery Fund (NOAA Fisheries 2012)
- *Draft* Recovery Plan for Snake River Spring/Summer Chinook and Steelhead Populations (NOAA Fisheries 2012)
- The Interior Columbia River Strategy (2008, 2012)
- Idaho Department of Fish and Game published and unpublished fish monitoring trend data
- Isaac et al. 2012 (climate change as a stressor to fish distribution and trends)

5.2.2 *Informing the Assessment*

5.2.2.1 Current Condition

Aquatic conditions on the Nez Perce and Clearwater National Forests have been summarized in watershed analyses, landscape assessments, and various subbasin documents prepared for Endangered Species Act consultations for listed fish and designated critical habitat. These assessments occurred starting in the late 1990s and continuing through the mid-2000s (see list above under “Existing Information” section above).

No known endangered or candidate fish species occur on the Nez Perce–Clearwater National Forests (Forests). The following threatened fish species occur on the Forests:

- **Snake River Sockeye Salmon (*Oncorhynchus nerka*)—**Endangered, ESA listed in Lower Salmon and Middle Salmon–Chamberlain subbasin portions of the Nez Perce National Forest only
- **Snake River Fall Chinook Salmon (*Oncorhynchus tshawytscha*)—**Threatened, ESA listed in Lower Salmon, Middle Salmon–Chamberlain, and Lower Clearwater subbasins on the Nez Perce and Clearwater National Forests.
- **Snake River Spring/Summer Chinook Salmon (*Oncorhynchus tshawytscha*)—** Threatened, ESA listed in Lower Salmon and Middle Salmon–Chamberlain portions of the Nez Perce National Forest only
- **Snake River Steelhead Trout (*Oncorhynchus mykiss gairdneri*)—**Threatened, ESA listed in the Lower Salmon, Middle Salmon–Chamberlain, Lower Clearwater, Middle Fork

Clearwater, South Fork Clearwater, Lower Selway, Upper Selway, and Lochsa subbasins on the Nez Perce and Clearwater National Forests.

- **Columbia River Bull Trout (*Salvelinus confluentus*) —**Threatened, ESA listed in the Lower Salmon, Middle Salmon–Chamberlain, Lower Clearwater, Middle Fork Clearwater, South Fork Clearwater, North Fork Clearwater, Lower Selway, Upper Selway, and Lochsa subbasins on the Nez Perce and Clearwater National Forests.

No proposed or candidate fish species occur on the Forests. Species of special conservation concern were discussed in the aquatic ecosystem assessment.

Spring/Summer and Fall Chinook

Spring/summer and fall chinook salmon are present in the Snake and Salmon River basins, including portions of these basins on the Nez Perce and Clearwater National Forests. On the Forests, fall chinook salmon are generally located in the mainstem Clearwater River below the mouth of Lolo Creek. However, recent supplementation efforts have resulted in increasing numbers of returning adults in the Clearwater River upstream of Lolo Creek and the lower reaches of the South Fork Clearwater River and the Selway River, where an increasing number of adults and redds have been documented over the past 5 years. Fall chinook salmon also migrate, spawn, and rear in specific areas adjacent to the Nez Perce National Forest in the Lower Salmon and Main Salmon–Chamberlain subbasins. In addition, Snake River sockeye salmon use these reaches of the mainstem Salmon River for migration.

Spring chinook salmon in the Clearwater basin were not listed under the ESA because Lewiston Dam, constructed in the early 1900s, was thought to have eliminated the native run (Waples et al. 1991, Matthews and Waples 1991). Upon removal of the dam in the 1930s, chinook salmon were reintroduced and a naturalized run was established throughout most of their historic range in the Clearwater basin. Chinook salmon are no longer present in the North Fork Clearwater River, however, as this population was extirpated by construction of Dworshak Dam. It is believed that large numbers of spring and fall chinook salmon historically occupied all the main tributaries of the Clearwater and Snake rivers within the Forests (Ecovista et al. 2003).

Steelhead and Bull Trout

Steelhead and bull trout distribution on the Forests is similar to the historic distribution with the exception that anadromous steelhead trout no longer exist in the North Fork Clearwater River upstream of Dworshak Dam. Although present in much of their historic range, it is believed the abundance and resilience of these three species have been significantly reduced from historic conditions from habitat degradation, introduced species, harvest, and migration barriers (Lee et al. 1997). Connectivity between populations within the planning zone remains intact, except where road crossings or other factors have resulted in barriers that prevent upstream migration and where high order stream reaches have been degraded, preventing effective migration between disjunct populations. An example where this may have occurred is in the South Fork Clearwater basin, where high river temperatures and degraded substrate conditions may prevent or discourage migrations of fluvial bull trout.

5.2.2.2 Trends and Drivers

Fall Chinook Salmon

Redd count and adult escapement data for fall chinook salmon in the Clearwater and Snake rivers suggest substantial increases in adult escapement since the mid-1990s (Good et al. 2005; Ford 2011; Arnsberg 2012), which is strongly correlated with increased hatchery supplementation. Increases in wild origin fall chinook salmon, however, are not as dramatic, and natural production has not proportionately increased in response to the increasing trend in total spawners (Ford 2011).

Figure 1 below summarizes adult returns above Lower Granite dam 1975–2010.

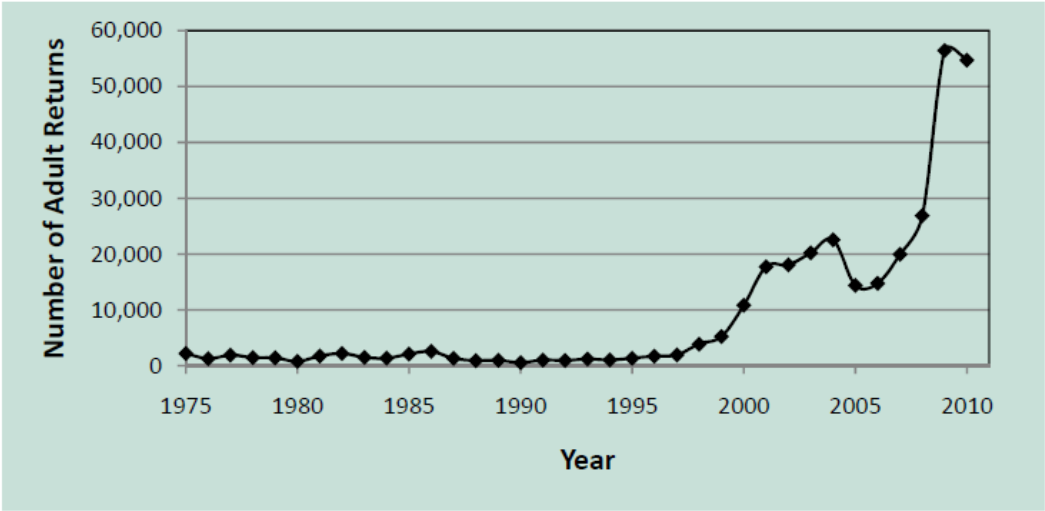

Figure 1. Fall Chinook Crossing Lower Granite Dam, 1975–2010. (Source: NMFS 2011)

Wild and hatchery fall chinook salmon are not counted separately at dams and, therefore, the proportions of wild and hatchery fish must be estimated from hatchery returns. The most recent estimates of natural production rates are generally <1 through 2004 (NMFS 2008). Recruit per spawner productivity was below 1 for all but three brood years prior to 1995 but was above 1 between 1995 and 1999 (Cooney and Ford 2007). Snake River fall chinook salmon are remnants of former populations and nearly all spatial structure has been lost; the remaining natural origin and hatchery fish generally function as a population (NMFS 2011).

Adult return data for Snake River sockeye salmon indicate an overall increasing trend, from a low of 0 for naturally returning fish in 1990 to current numbers in the hundreds or thousands. These increases are largely due to an aggressive captive broodstock and reintroduction program initiated by State and federal entities (Peterson et al. 2012). In the case of both fall chinook and sockeye salmon, increasing trends are due largely to hatchery supplementation efforts and trend of returning adults of wild origin is unknown (Ford 2011).

Spring/Summer Chinook Salmon

Spring/summer chinook salmon on the Nez Perce National Forest are part of two Major Population Groups (MPGs), which include the South Fork Salmon River and the Middle Fork Salmon River. These MPGs are broad geographic groupings that include populations outside

their named river basins. Populations with spring/summer chinook salmon spawning and rearing on the Nez Perce National Forest include the Little Salmon population and the Chamberlain population, both of which are considered intermediate populations based on historical habitat potential (ICTRT 2005). Specific streams that support spawning and rearing within these populations include White Bird Creek, Slate Creek, Rapid River, and Bargamin Creek.

Number of returning hatchery and wild origin spring/summer chinook salmon has increased from the early 1980s to the present, with peak returns occurring in 2001 (Figure 2). Since 2001, returns have been substantially less but greater than the 30-year mean. The overall viability for wild origin Snake River spring/summer chinook salmon remains at high risk, after the addition of more recent year abundance and productivity data (Ford 2011), even though natural spawning abundance for three populations in the South Fork Salmon MPG have increased.

The Little Salmon population, however, is not one of these three and lacks data to support any conclusions regarding trend of wild origin adult returns. A qualitative determination was made that the abundance/productivity risk was high, based on the current status of the ESU (threatened) and the limited abundance information for the population (NMFS 2011). No major spawning areas have been identified in the population, but three minor spawning areas were Little Salmon River, White Bird Creek, and Slate Creek. The lack of major spawning areas in the population structure has been identified as an inherent extinction risk in this population (Ford 2011).

The Chamberlain population is one of two that are closest to meeting minimum viability numbers among populations in the Middle Fork Salmon MPG. A major spawning area on lands on the Forests was identified in Bargamin Creek (Good et al. 2005, Ford 2011).

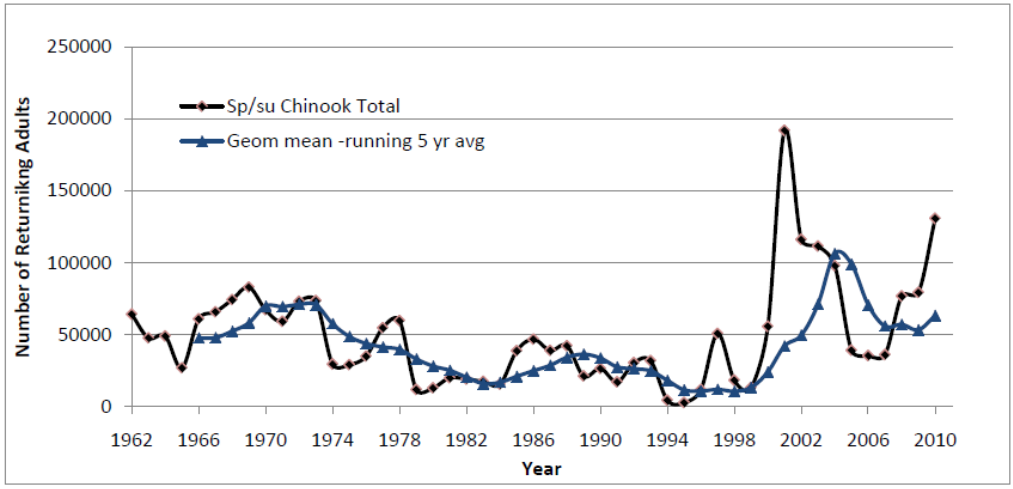

Figure 2. Number of Adult Spring/Summer Chinook Salmon Returning to Ice Harbor Dam 1960 to 2010. Data include both hatchery and wild fish.

In addition, Idaho Department of Fish and Game has been conducted a parr monitoring program in streams on the Nez Perce and Clearwater National Forests for several decades. **(Under development)**

Steelhead Trout

Steelhead trout on the Forests are part of the Snake River Distinct Population Segment (DPS), which includes all natural-origin populations of steelhead in the SRB of southeast Washington, northeast Oregon, and Idaho, and six hatchery stocks, including fish from the Dworshak National Fish Hatchery and the rearing facilities in Lolo Creek. The Snake River Basin (SRB) steelhead DPS includes all anadromous populations that spawn and rear in the mainstem Snake River from mouth to Hells Canyon Dam and all tributaries except the North Fork Clearwater River, which is blocked by the Dworshak Dam. The SRB steelhead DPS is organized in 6 MPGs that are further subdivided into 26 populations (ICTRT 2005). The MPGs are defined by the following drainage basins: (1) Grande Ronde River; (2) Imnaha River; (3) Clearwater River; (4) Salmon River; (5) Hells Canyon (Snake River); and (6) Lower Snake River. The Clearwater MPG includes 6 independent populations: North Fork Clearwater (historic only), Clearwater River lower mainstem, Lolo Creek, Lochsa River, Selway River, and South Fork Clearwater River. Portions of all of these populations are located on the Forests. The Salmon River MPG includes portions of 2 independent populations (out of a total of 12) that are found on the Forests, including the Lower Salmon River/Little Salmon River and Salmon River/Chamberlain.

In both the Clearwater and Salmon River MPGs, migration timing of steelhead has changed because of anthropogenic effects (NMFS 2012 *draft*). Water releases from Dworshak Reservoir have caused adults to hold in the mainstem Clearwater River downstream of the North Fork Clearwater River for longer periods. Construction and operation of the lower Snake River dams and reservoirs have changed temperature and flow patterns, which in turn affects both juvenile and adult migration. Upstream migration of adults in the late summer and fall is often delayed because of warm mainstem river temperatures. Smolt entry into the Columbia River estuary has been delayed relative to historic conditions because passage through reservoirs requires longer migration times.

Fisheries managers break the run over Lower Granite into A-run and B-run types based on fish length data recorded along with the counts. A-run returns are believed to primarily represent returns to lower elevation tributaries including the Grande Ronde River, the Imnaha River, and some population tributaries in the Clearwater and Salmon rivers. The larger B-run returns are believed to be produced primarily in higher elevation tributaries in the Clearwater and Salmon River basins (Ford 2011).

Adult return data at Lower Granite Dam are summarized below in Figure 3. These graphs indicate a large proportion of returning adult steelhead trout are of non-natural (hatchery) origin.

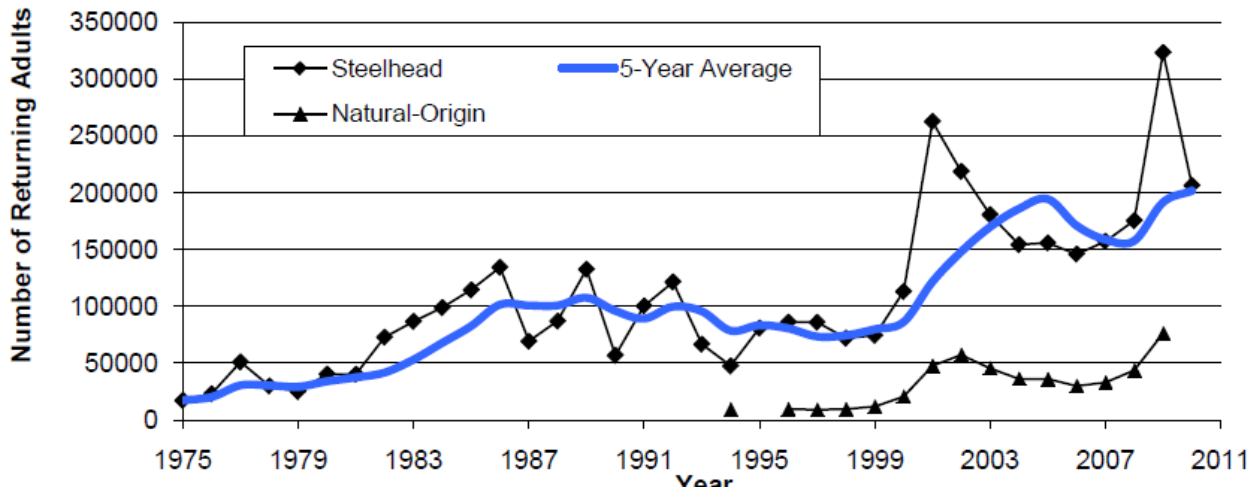

Figure 3. Snake River Steelhead DPS Abundance and 5-year Average at Lower Granite Dam (Source: NMFS 2011).

The following information is from Ford at al. (2011): Natural-origin and hatchery-origin returns of adult steelhead trout each showed increases since 1998, although hatchery fish increased at a higher rate. The aggregate A-run and B-run estimates have increased relative to the levels associated with prior assessments. A large proportion of the hatchery run over Lower Granite Dam returns is removed by hatchery selective harvest prior to reaching spawning areas. As a result, the hatchery proportions in the aggregate run over Lower Granite Dam are not indicative of the proportions in spawning escapements into most population tributaries. Monitoring the relative contribution of hatchery returns to spawning in natural areas, particularly those areas near major hatchery release sites, is a high priority for improving future assessments.

Also from Ford (2011), the Idaho Department of Fish and Game has routinely collected juvenile steelhead density estimates across a series of fixed transects distributed across tributary habitats in Idaho since the mid-1980s. The sampling design and intensity was not set up to generate total production estimates at the population or regional level, but the results are considered to be generally indicative of trends in total natural production. The Idaho Department of Fish and Game considers the set of transects in B channel type habitat as indicative of steelhead production and aggregates annual results across transects in four subcategories. Average densities in areas assigned as A-run habitats trended downward from 1985 through the mid-1990s, returning to levels similar to the earliest years in the series after 2000. Similar patterns were observed in transects in natural (areas near hatchery production release sites) versus areas classified as wild. Areas classified as B-run wild appear to follow a similar pattern. The average juvenile densities in areas classified by the Idaho Department of Fish and Game as natural fluctuated around a relatively constant level from 1985 through the most recent year in the series (2007). In general, the median densities across individual transect series were the highest for lower elevation populations or tributaries. The highest median densities were observed in the small tributaries below Hells Canyon Dam, the Lower Clearwater and Lochsa rivers.

Idaho Department of Fish and Game steelhead parr monitoring trend data are summarized in Figure 4 and Figure 5.

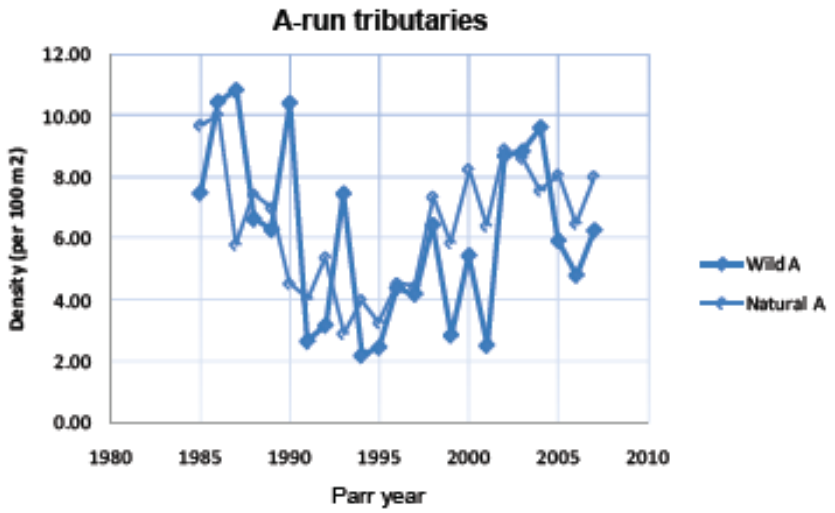

Figure 4. Density of steelhead parr in A-run tributaries

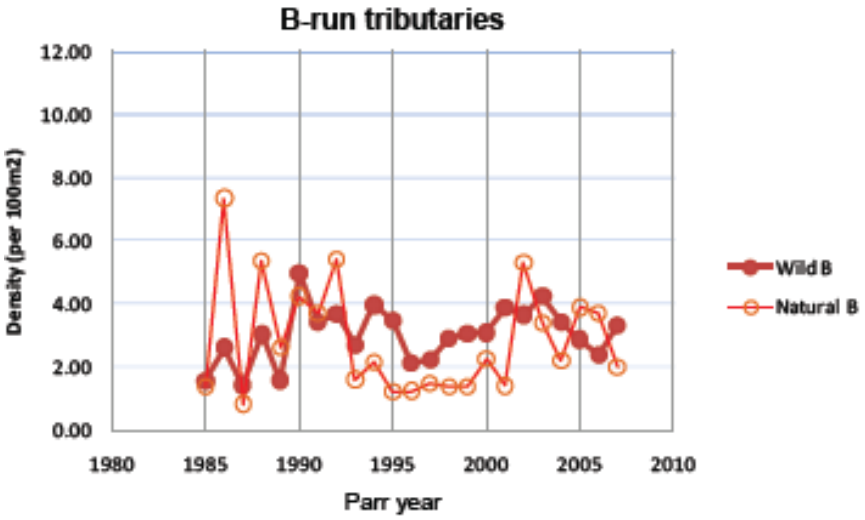

Figure 5. Density of steelhead parr in B-run tributaries

(Under development)

Bull Trout

(Under development)

Bull trout on the Forests are part of the Columbia River DPS, which was listed as Threatened in 1998. The Forests contain 2 out of 22 recovery units (Clearwater and Salmon Rivers), which are analogous to MPGs previously identified for ESA listed anadromous fish. The Clearwater recovery unit includes 7 core areas for bull trout: Middle–Lower Clearwater, North Fork Clearwater, Fish Lake (North Fork Clearwater basin), Lochsa, Fish Lake (Lochsa subbasin), Selway, and South Fork Clearwater. Portions of these core areas are located on the Forests. The Salmon recovery unit includes a total of 10 cores areas, 2 of which are partially located on the Forests: Middle Salmon River–Chamberlain and Little-Lower Salmon River.

Within each core area, local populations and potential local populations of bull trout have been identified (USFWS 2002).

Estimate range-wide bull trout abundance is not feasible due to sampling variability, differences in methods used to estimate abundance, and, in some core areas, a complete lack of data (USFWS 2008). In general, geographically smaller core areas tend to have lower population numbers, while large adult populations (1,000 adults or more) tend to occur in larger core areas where the habitat is spatially well connected and well distributed throughout the core area. The quality and quantity of the habitat and its relative degree of connectivity play a major role in determining population size (USFWS 2005a).

The USFWS provided a summary of core area rankings for population abundance, distribution, trend, threat, and final rank (USFWS 2008).

Variables that were used to determine rankings are defined in USFWS (2008). They included (1) the present or threatened destruction, modification, or curtailment of bull trout habitat or range; (2) overutilization for commercial, recreational, scientific or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or man-made factors affecting the species' continued existence.

Information for core areas on the Nez Perce/Clearwater National Forests is presented below in Table 1.

Table 1. Summary of Core Area Rankings, Columbia River Bull Trout Distinct Population Segments on the Nez Perce and Clearwater National Forests

Core Area	Population Abundance Category	Distribution Range Rank (stream length miles)	Short Term Trend Rank	Threat Rank	Final Rank
Fish Lake (Lochsa River)	1–50	2.5–25	Unknown	Widespread, low severity	At risk
Fish Lake (North Fork Clearwater	1–50	125–620	Declining	Moderate, imminent	High risk
Lochsa River	50–250	125–620	Stable	Moderate, imminent	At risk
Mid-Low Clearwater River	Unknown	125–620	Unknown	Substantial, imminent	At risk
North Fork Clearwater River	250–1000	125–620	Declining	Moderate, imminent	At risk
Selway River	Unknown	125–620	Unknown	Widespread, low severity	Potential risk
South Fork Clearwater River	1000–2500	125–620	Unknown	Substantial, imminent	At risk
Little-Lower Salmon River	50–250	125–620	Unknown	Substantial, imminent	High risk
Middle Salmon River-Chamberlain	unknown	125–620	Unknown	Widespread, low severity	Potential risk

Source: USFWS 2008

5.2.3 *Information Needs*

(Under development)

5.3 POTENTIAL SPECIES OF CONSERVATION CONCERN

5.3.1 *Existing Information*

- Coeur d'Alene Salamander Conservation Assessment (Cassier et al. 1994)
- Harlequin duck ecology in Idaho (Cassier et al. 1991)
- Fisher Biology and Management in the Western United States: A Literature Review and Adaptive Management Strategy. (Heinemeyer et al. 1994)
- Analysis of the bat species present in Idaho, with special attention to the spotted bat, *Euderma maculatum* (Keller 1987)
- Bighorn sheep management plan 2010 (IDFG 2010).
- Interim Strategy for Managing Separation Between Bighorn Sheep and Domestic Sheep (IDFG 2008)
- Living on Earth. July 18, 2003. Fire Toads (archives)
- Management of Montana's Amphibians: A Review of Risk Factors to Population Viability, Species Accounts: Identification, Distribution, Taxonomy, Habitat Use/Natural History, and Status and Conservation (Forest Service 2000)
- The Scientific Basis for Conserving Forest Carnivores, American American marten, Fisher, Lynx and Wolverine in the Western United States. (Ruggiero et al. 1994)
- Terrestrial peer group protocols. (Samson et al. 1997)
- Personal communication to NPNF Wildlife Biologist Matt Schweich, re: updates of fisher research activities in Lolo Creek watershed (IDFG 2008).
- Ecology and Movement of Fisher (*Martes pennanti*) in the Bitterroot–Selway Ecosystem Relative to Transportation Corridors (Schwartz et al. n.d.).
- A Conservation Assessment of the Northern Goshawk, Blacked-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region. (Forest Service 2005).
- Wildlife Habitat Estimate Updates for the Region 1 Conservation Assessment (Forest Service 2008)
- Bighorn Sheep Viability, Record of Decision Land and Resource Management Plan (Forest Service 2010).
- Source Habitats for Terrestrial Vertebrates of Focus in the Interior Columbia Basin: Broad-Scale Trends and Management Implications (Wisdom et al. 2000).

5.3.2 *Informing the Assessment*

Per the Land Management Planning Rule (April 2012), the Forest Service is directed, within Forest Service authority and consistent with the inherent capability of the plan area, to maintain or restore ecosystem integrity and provide for the diversity of plant and animal communities. Furthermore, the Forest Service is to recognize and manage species of conservation concern (SCC). To be considered an SCC, the species must be known to occur in the plan area and the Regional Forester must have determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long term in the plan area. Per the above, the responsible official must comply with the Forest Service Handbook (FSH 1909.12, Chapter 10, 13.52), which directs that potential SCC should not identified when a

species is secure and their continued long-term persistence in the planning area is not at risk or insufficient scientific information is available to conclude that there is a substantial concern about the species' capability to persist in the plan area over the long term.

Coordination with the Idaho Department of Fish and Game (IDFG) and other interested parties to gather additional distribution and modeling data would provide a basis for prioritizing conservation needs. Because the status of federally listed species and Nature Serve global ranks can change, this Assessment is considered "draft" until the Forest Plan revisions are signed.

The initial assessment of terrestrial wildlife vertebrate and invertebrate species occurring on the Forests was completed using criteria described in the Planning Rule and Forest Service Handbook. The Idaho "Comprehensive Wildlife Conservation Strategy" (CWCS) was the best available source of information for vertebrate and invertebrate species in Idaho. Other important sources of information are as follows: USFWS, Northwest Power and Conservation Council Clearwater Sub-basin Management Plans, Forest Service mid-scale, watershed-oriented sub-basins or watershed assessments, and Nature Serve and Birds of North America databases.

5.3.2.1 Ecosystem Integrity

Ecosystem integrity includes elements addressing biological diversity; species (population) viability; connectivity; corridors and linkages; fragmentation; neotropical birds; sink/source habitat and monitoring. These are discussed below.

Biological Diversity—Forest management practices that retain a full array of forest ecological components and species habitats (i.e., biological diversity) are expected to provide "inocula" to re-establish species into suitable habitats. Franklin et al. (1997), state the primary objective for retaining an array of forest ecological components is to provide "[E]lements of biological diversity that might otherwise be lost…" (with traditional silvicultural practices)…. "The creation and maintenance of structurally complex managed-stands is being developed as the primary approach to managing forests…." Applying ecosystem management principles to incorporate biological diversity includes adapting vegetation management practices (such as longer stand rotations and retaining downed dead and live wood features). Forest management practices, as depicted with the variable (tree) retention concept (described by Franklin et al. [1997]), serve to maintain structural (biological) diversity through all forest succession stages. Rocky Mountain Regional Forester, Estill (1996) stated that "Going beyond this [level of discussion and analysis re: biological diversity] such as discussing genetics and/or process(es) such as nutrient flows, is beyond the scope of a project level analysis and in many cases little data is available to use".

Species Viability—Species viability is influenced by total population size, habitat, and catastrophic fluctuations at the ecoregion[10] or larger scale. A viable species is defined as

[10]"…a relatively large area of land or water that contains a geographically distinct assemblage of natural communities… recurring pattern of ecosystems associated with characteristic combinations of soil and landform that characterize that region." The World Wildlife Fund's full definition: "A large area of land or water that contains a geographically distinct assemblage of natural communities that (a) share a large majority of their species and ecological dynamics; (b) share similar environmental conditions, and; (c) interact ecologically in ways that are critical for their long-term persistence."

consisting of self-sustaining populations that are well distributed throughout the species' range. Self-sustaining populations are those that are sufficiently large and have sufficient genetic diversity to display the array of life history strategies and forms that will provide for their persistence and adaptability in the planning area over time (Forest Service 1999).

Forest Service Manual 1900 directs that agency-specific criteria and the "best available information" be used. Vegetation information used to describe the ecoregion landscape is based on Forest Inventory and Analysis (FIA) data. FIA is Congressionally mandated, comprehensive, and a field-based forest inventory (Forest Service 2006). Disease transmission and interspecific competition between nonnative and native wildlife species can also threaten species viability.

Connectivity (Corridors and Linkages)—Per Samson (1997), "Connectivity…refers to both the abundance and spatial patterning of habitat and to the ability of members of a population to move from patch to patch of similar habitat. Moreover, as a concept, it relates more to habitat specialists with limited dispersal abilities with a lower range of fragmentation." An approach to provide connectivity is through a corridor. Estill (1996) stated "[P]roject analysis does not evaluate a large enough area to effectively address a corridor system…if corridors or linkages are needed, they should be addressed at scales larger than the project." Samson further states that "[L]ittle empirical evidence drawn from the northern Rocky Mountains exists to support connectivity of habitat types…Corridors can, and often do, include habitats of a quality less than required for other life history requirements." Discussion regarding this concept is in the project file.

Management activities, such as prescribed fire and timber harvest, are intended to promote a variety of forest vegetation (habitat) conditions. Patches of mid-seral to late-mature forest stands, similar to historic ranges of variability are expected to always be present somewhere on the forest landscape. These stands "connect" habitats for animals and plants by providing cover and moisture regimes to move between preferred habitats. In addition, PACFISH buffers within the Riparian Habitat Conservation Areas (RHCAs) also provide "connectivity" between preferred habitats. Planned forest management activities are expected to provide continued connectivity (i.e., forested riparian habitats, adjoining middle-aged and mature forest patches) for native wildlife and plant species within and between given project areas. For these reasons, further discussion of connectivity (corridors and linkages) is unnecessary.

Fragmentation—Samson (1997) states, "Recent experimental evidence suggest habitat fragmentation in ecosystems with a high natural disturbance has little effect on species survival rates owing to the adaptation of natural disturbance regimes." Though some less common Rocky Mountain habitats (such as coniferous old growth forest) may become isolated from one another through management (i.e., timber harvest), evaluating the amount or extent of habitat fragmentation without identifying a species or group of species affected by this fragmentation is meaningless (Samson 1997). Typical project analysis areas are located on a landscape historically and frequently modified by wildfire. Because project analysis areas are within a diverse ecosystem with high natural disturbance (i.e., fire-driven) and located in a relatively small landscape (similar to the surrounding landscape, disturbance processes and containing shared species habitats and populations), it is not practical that habitat fragmentation could occur.

Migratory/Neotropical Birds—"Within the National Forests System, conservation of migratory/neotropical birds focuses on providing a diversity of habitat conditions at multiple

spatial scales ensuring that bird conservation is addressed when planning for other land management activitives" (FS Agreement #08-MU-1113-2400-264). Neotropical birds breed and rear young in the northern hemisphere and migrate south to winter in central America. Accroding to Estill (1996),"They are widely distributed and use a variety of habitats…The changes (as the result of forest management) that occur in habitat at the project level are so small in scale compared to their total range that it is difficult to discuss effects on the(se) species as a whole. Per the 2008 *Memorandum of Understanding to Promote the Conservation of Migratory Birds,"* the National Environmental Policy Act process must "…evaluate the effects of agency actions on migratory/neotropical birds, focusing on species of management concern along with their priority habitats and key risk factors. To the extent possible, the agency must do the following:

- Evaluate and balance long-term benefits of projects against any short- or long-term adverse effects
- Pursue opportunities to restore or enhance migratory bird habitats in the project area
- Consider approaches for identifying and minimizing take that is incident to otherwise lawful activities, including the following:
  - Altering the season of activities to minimize disturbances during the breeding season
  - Retaining snags where snags are underrepresented
  - Retaining the integrity of breeding sites
  - Considering key wintering area, migration routes and stop-overs
  - Minimizing or preventing the pollutions or detrimental alteration of the environments utilized by migratory birds by assessing information or environmental contaminants and other stressors relevant to migratory bird conservation

5.3.2.2 Ecosystem Diversity

Initial assessment of ecosystem diversity within a plan area relies on a review of the broad landscape-level ecological conditions (coarse filter) and animal species diversity within their expected landforms (fine filter). The abundance and distribution of wildlife species are linked to the availability, distribution, and inherent productivity of preferred habitats. Comparing current and historical vegetative and structural diversity may indicate if available species habitat deviates from historical conditions. Deviation below historical levels can result in available habitat limiting species populations and distribution.

Habitat loss is generally recognized as the greatest impact on the sustainability of productive and diverse wildlife populations. The combination of vegetative and structural diversity defines habitat diversity for wildlife. Through an ecosystem approach, the forest plan provides the framework to maintain or restore ecosystem elements of function, connectivity, security and quality conditions necessary to conserve most species. Conditions or features continually shift in response to ecosystem processes, forest disturbances, or invasive species. These factors characterize the biological potential of the habitat to support an overall or local population of a given species. This strategy addresses the availability of both short- and long-term habitat conditions (i.e., structure, function and ecologic processes) and assumes the following:

- Natural processes influence local, native populations (including species viability) on varying landscape scales (mountain ranges, ecological provinces[11], species range)
- Species adapted with historic disturbance regimes and habitat conditions
- Native animal and plant populations are the product of the quality and availability of their respective habitats
- Forest succession (from early seral shrubs/forbs/grasses to old coniferous forest) is essential for both habitat and native wildlife species diversity
- Managing forest vegetation and road/trail access can degrade/benefit terrestrial species, depending on the species and its specific habitat sensitivity/preference (e.g., managing to provide dense conifer stands reduces some types of big game forage but increases woodpecker habitat; constructing roads to improve elk winter browse production increases reduces security habitat for big game and large predators by increasing hunter access)
- The continued local availability of suitable[12] and potential[13] habitats (similar to pre-European settlement conditions in vegetative structure and function, processes, and scale) is necessary to maintain species populations throughout their respective ranges

5.3.2.3 Identifying Potential Species of Conservation Concern

The following information was used to identify species which merit consideration as potential species of conservation concern. The identification of terrestrial wildlife vertebrate and invertebrate species that occur on the National Forests was completed using data collected from a number of sources:

- NatureServe (natureserve.org/explorer)
- Idaho Comprehensive Wildlife Conservation Strategy (Idaho Batholith, Bitterroot Mountains, Palouse Prairie) (https://fishandgame.idaho.gov/cms/tech/CDC/cwcs_table_of_contents.cfm)

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[11] An ecological unit in the ecoregion planning and analysis scale of the National Hierarchical Framework corresponding to subdivisions of a Division that conform to climatic subzones controlled mainly by continental weather patterns (ECOMAP 1993). Ecological Subregions of the United States, USDA Forest Service July 1994.

[12] Habitat that is currently useable for reproduction, foraging or security. Habitat need not be occupied to be considered suitable.

[13] Habitat that can become suitable for reproduction, foraging or security, provided desired habitat conditions (i.e., available food, water, shelter/cover, and space) evolve or are created.

- https://fishandgame.idaho.gov/content/page/zoology-publications-idaho-natural-heritage-program
- U.S. Fish and Wildlife Service: Birds of Conservation Concern 2008. Northern Rockies U.S. portion only) (http://www.fws.gov/migratorybirds)
- http://www.nwcouncil.org/fw/subbasinplanning/clearwater/plan/a06_wildlife.pdf
- http://www.fws.gov/idaho/species/IdahoSpeciesList.pdf.
- http://www.fs.fed.us/r1/planning/lynx/documents.htm
- http://www.nwcouncil.org/fw/subbasinplanning/clearwater/plan/managementplan.pdf
- http://www.nwcouncil.org/fw/subbasinplanning/salmon/plan/MgmtPlan_screen.pdf
- http://fishandgame.idaho.gov/public/wildlife/wildlife plans (elk, mule deer, white-tailed deer, bighorn sheep, bighorn/domestic sheep, predator management)
- Terrestrial Resources, Clearwater National Forest (http://www.fs.fed.us/r1/clearwater/terra_org/terra.htm)
- 2011 Sensitive Species List, Wildlife (http://www.fs.usda.gov/detail/r1/plants-animals)

5.3.3 *Current Conditions*

5.3.3.1 Potential Wildlife Species of Conservation Concern

Using the best available scientific information available, species known to occur in the plan area for which there is substantial concern about the species' capability to persist over the long term in the plan area, include bighorn sheep, pygmy nuthatch, and white-headed woodpecker. A brief description of the ecology and distribution for these three potential terrestrial wildlife SCC for the Forests follows.

Bighorn Sheep[14]

Reports by early explorers, trappers, and settlers suggest that bighorn sheep (*Ovis canadensis canadensis*) were one of the most abundant large animals in Idaho. Lewis and Clark noted that the local Indians told them that bighorns were present in large numbers in the Clearwater Mountains (Buechner 1960).

Bighorn sheep are an ecologically fragile species adapted to limited and increasingly fragmented habitats (Valdez and Krausman 1999). Gregarious and extremely loyal to their home range, bighorns typically inhabit river canyons, talus slopes, cliffs, open meadows, and clearcut or burned forests. The use of each habitat type varies seasonally and with their requirements, such as breeding, lambing, and thermal cover (Valdez and Krausman 1999). According to GAP 2 data, the potential breeding habitat for bighorn sheep comprises of approximately 1,794 square kilometers in the Clearwater Basin.

Elevational migrations are common, and bighorns will follow the wave of new vegetation upward in the spring. Preferred climate is relatively warm and arid with cold, dry winters. Low annual snowfall is important for lamb survival. Bighorn sheep require 4%–5% of their body

[14] Text derived from Idaho Department of Fish and Game (IDFG). 2010. Bighorn sheep management plan 2010. Idaho Department of Fish and Game, Boise, USA.

weight in water each day. Bighorn sheep may be able to get sufficient water from succulent plants in the spring and snow in the winter and may not be limited by standing water sources (Valdez and Krausman 1999). Bighorns mainly eat grasses and forbs though they will switch to shrubs depending on availability. Valdez and Krausman (1999) describe their diet as "cosmopolitan." Bighorn sheep tend to avoid tall or overhanging vegetation that blocks their view of predators.

Threats to the bighorn include disease transfer from domestic sheep, predation, noxious weed invasion/domination of preferred forage habitats, and uncontrolled hunting. Bighorns are particularly susceptible to death during their first year of life due to predation, disease, poor maternal nutrition, or human disturbance. Late summer mortality is usually due to starvation. Mountain lions commonly prey upon adult bighorns and coyotes are the major predator of bighorn lambs. Proximity to escape cover is important, and bighorns will usually remain within 800 meters of escape cover in all seasons.

Habitats with poor escape cover have higher rates of lamb mortality (Valdez and Krausman 1999). Rugged mountain terrain with southern exposure and minimal snow pack is considered an important habitat feature. Critical snow depth is 12–18 inches for lambs, and bighorns in general tend to avoid snow deeper than 12 inches. Salt and mineral licks are an important factor for Rocky Mountain bighorn sheep because their habitats are generally found on granitic soils that have a low mineral content.

Major declines in some bighorn populations have been attributed to mineral deficiencies (Valdez and Krausman 1999). Disease is an infrequent but a major limiting factor. Die offs of greater than 50% are common and seem to result from a combination of stress and viral or bacterial infection (Valdez and Krausman 1999). Domestic sheep, goats, and exotic relatives of bighorn sheep are responsible for several recent catastrophic die offs. They also compete for range resources and cause genetic pollution of bighorn sheep by hybridizing (Smith et al. 1991). Inbreeding is a limiting factor that can be significant for the small isolated herds with a low rate of dispersal (Valdez and Krausman 1999). If a herd is to survive, it needs to have a minimum of 125 members to remain genetically sound. This number can be reduced if there are migration corridors between herds to allow rams access to multiple populations (Smith et al. 1991). Natural barriers to bighorn migration can be swift water, dense vegetation, nontraversable cliffs, or sparsely vegetated valleys or plateaus. Travel and migration barriers include canals, fences, highways, and urban areas (Smith et. al.1991).

Leading bighorn sheep disease experts recommend separating bighorn sheep from domestic sheep, either spatially or temporally or both (Schommer and Woolever 2001, Singer et al. 2001, Garde 2005). Experts also recommend developing site-specific solutions for each bighorn sheep population and domestic sheep allotment and developing a management strategy appropriate for the complexity of the management situation (Schommer and Woolever 2001).

Pygmy Nuthatch

This species is irregularly distributed throughout the Rocky Mountains. In Idaho, the pygmy nuthatch is a relatively common species, but is limited in its distribution to the southern slopes of mountains at elevations of 2,000–3,500 feet (607–1,067 meters) where it occupies suitable year-round habitat (Burleigh 1972). They typically inhabit ponderosa pine where they forage. Pygmy nuthatch may also inhabit other dry forest habitat types, such as Douglas-fir (Kingery and Ghalambor 2001). Since the nuthatch nests in dead pines and live trees with dead sections, it

prefers old growth, mature, undisturbed forests (Szaro and Balda 1982). Studies suggest that this species needs heterogeneous stands with a mixture of well-spaced old pines and vigorous trees of intermediate age (Balda et al. 1983).

Pygmy nuthatch excavate a small circular hole and cavity, usually near the top of a dead pine or upright post anywhere from 8 to 60 feet above the forerst floor. They may build the cavity on the underside of a branch or use a woodpecker hole. Though favoring natural cavities, there have been reports of pygmy nuthatches using bird boxes. The availability of ponderosa pine snags (dead trees or tops) are believed essential for the long-term availability of pygmy nuthatch habitat. Primary issues of relevance to the pygmy nuthatch would be those related to the degradation of ponderosa pine forests. Loss of historical open, park-like stands of pine during the 1900s may be responsible for recent population declines experienced by this species in the westcentral region of Idaho.

White-headed Woodpecker

The white-headed woodpecker (*Picoides albolarvatus*) is a ponderosa pine-loving species most commonly associated with mature ponderosa pine and fir forests. The most important habitats are late-seral forests with large-diameter ponderosa pine snags (Wisdom et al. 2000). This species was listed as sensitive due to the rate at which stands of these trees were being harvested (Engle and Harris 2001). During the breeding season, white-headed woodpeckers can be found between 4,000 to 9,000 feet, dropping to lower elevations in the winter. They forage on trunks and branches of coniferous trees, looking for bark-burrowing insects and their eggs. Common insectivorous food sources are ants, spiders, grubs, and boring beetles. They also feed extensively on the seeds of pines. Early spring is the most critical time for foraging as pine seeds are largely depleted and it is still fairly cold for insect activity (Ligon 1973). In Nez Perce County, white-headed woodpeckers were observed consuming pine seeds during the winter, and then switching to various insect species in the summer (Ligon 1973).

White-headed woodpeckers do not hammer at the bark like most woodpeckers but instead use their beaks to pry flake layers of bark (Bent 1992). It is a primary cavity nester of soft, well decayed snags (due to their poor excavating abilities) with an average diameter at breast height (dbh) of 30 inches (Marshall et al 1996). Nests are often built in ponderosa pine snags. Preferred habitat is in open canopy forests of mature trees or along the edge of wet meadows (Milne and Hejl 1989). Large diameter ponderosa pine trees are a habitat requirement for white-headed woodpeckers (Marshall et al. 1996). Bull et al. (1986) found that white-headed woodpeckers only used larger diameter (>25 centimeters dbh) ponderosa pine trees in ponderosa pine forest types for foraging. According to GAP 2 data, the potential breeding habitat for the white-headed woodpecker comprises approximately 2,735 square kilometers in the Clearwater Basin.

The white-headed woodpecker strongly depends on large-diameter, live ponderosa pines as a source of seeds for overwinter survival. It has very specific nesting preferences for snags with moderate decay (Engle and Harris 2001). Habitat degradation due to the loss of large ponderosa pine is the major threat to white-headed woodpeckers (Engle and Harris 2001).

The IDFG CDC contains 8 recorded sightings in the Clearwater Basin. Most of these sightings are 10–20 years old and could represent extirpated populations (Engle and Harris 2001). Current source habitats cover approximately the same geographic area as they did historically, but many patches are now disjunct (Wisdom et al. 2000).

Westslope Cutthroat Trout

Westslope cutthroat trout (*Oncorhynchus clarki lewisi)* are widely distributed across the Upper North Fork Clearwater, Middle Fork Clearwater, Lochsa, Upper and Lower Selway, and South Fork Clearwater subbasins and in isolated, discrete patches in the Lower Salmon and Middle Salmon–Chamberlain subbasins. A subpopulation in Lolo Creek has also been identified, as has a population in the upper reaches of the Potlatch River. In the Upper North Fork Clearwater, Lochsa, Selway, and South Fork Clearwater rivers, metapopulations are comprised of geographically distinct subpopulations with both fluvial and resident components; some resident subpopulations area isolated by physical barriers. In the North Fork Clearwater River subbasin below Aquarius, this group was highly altered from the construction of Dworshak Dam, which isolated the Little North Fork Clearwater River subpopulation. The remainder of the Little North Fork Clearwater River watershed and its isolated population are within the Idaho Panhandle National Forest. Elk Creek in the downstream end of this subbasin has a natural falls near the reservoir and is a fish migration barrier.

In the case of the North Fork Clearwater River, there may also be an adfluvial component associated with Dworshak Reservoir although this component would not have existed historically. Nationally renowned “blue ribbon” sport fisheries are associated with subpopulations westslope cutthroat trout in Kelly Creek and Cayuse creeks and the Lochsa and Selway rivers.

The current distribution of westslope cutthroat trout on the Nez Perce National Forest is probably similar to the historic distribution, with some loss of the fluvial component in the South Fork Clearwater River from habitat degradation. Genetic data taken from fish in the North Fork Clearwater suggest widespread hybridization may have occurred from introduced rainbow trout (Weigel et al. 1999). Genetic data collected from fish in the Selway River suggest a complex genetic population structure, possibly the result of a relatively long and stable geologic history, with subpopulations that are highly differentiated (Dunning et al. 2012). Subpopulations of westslope cutthroat trout isolated as discrete patches in tributaries to the Salmon River may be structured similarly.

Interior Redband Trout

Interior redband trout (*Oncorhynchus mykiss gairdneri)* are the resident form of *Oncrhynchus mykiss*, the anadromous form of which is listed under the ESA. The resident form is included as a sensitive species in Region 1. Resident redband trout and anadromous steelhead trout are considered the same rainbow trout subspecies in Idaho and may occur sympatrically in streams accessible to anadromous fish with allopatric resident redband trout upstream of migration barriers in some cases. Genetic analysis of an isolated population on the Forests was conducted in the 1990s in the upper reaches of North Fork White Bird Creek. This population was confirmed a native resident redband population. Information related to other possible isolated populations is limited, but they are suspected to occur in the headwaters of many streams, including Little Slate, Crooked, and Meadow creeks (Selway) and low order tributaries to the Salmon River that are not readily accessible by steelhead trout.

The previous anadromous life form in the North Fork Clearwater River was extirpated by the construction of Dworshak Dam, but it is believed a residual resident population continued following construction. However, the genetic integrity of this population has been confounded by the stocking of hatchery rainbow trout.

Pacific Lamprey

Pacific lamprey *(Entosphenus tridentatus)* are an anadromous parasitic lamprey native to the Pacific Northwest and are found in the Salmon and Clearwater basins, including many areas on the Nez Perce–Clearwater National Forests. They are included as a sensitive species in Region 1 and are a State of Idaho endangered species, as they are considered at high risk of extinction across their range in Idaho.

Recent inventory (2002–2004) by the IDFG has documented the absence of Pacific lamprey in locations were they were known to occur as recently as 1980s. These streams where Pacific lamprey are no longer found include Potlach River, Musselshell Creek, and Lawyer Creek. Extensive IDFG sampling in Lolo Creek did not find lamprey ammocoetes; however, Nez Perce Tribe biologists have documented few adults captured in fish traps. IDFG 1958 reports lamprey distributed throughout the North Fork Clearwater River.

Pacific lamprey are now considered extirpated from the North Fork Clearwater River above Dworshak Reservoir.

In the South Fork Clearwater River, inventories conducted by IDFG documented the presence of ammocoetes in Red River and the mainstem river but failed to find them in tributaries. Adult lampreys were introduced into the lower reaches of Newsome Creek in the late 2000s, and ammocoetes may now be present.

In the Selway River, ammocoetes have been documented upriver of Moose Creek, indicating that adult lampreys are able to pass Selway Falls on their upstream migration. Ammocoetes were relatively abundant in specific sites downriver of Moose Creek in 2012, although only one or two age classes may have been present, based on the uniform size of all specimens observed. Observations of ammocoetes have been made on the mainstem Lochsa River, but more comprehensive surveys are needed. IDFG personnel have also documented lampreys in the Lochsa River and the mainstem Salmon River.

Western Pearlshell Mussel

Western pearlshell mussels (*Margaritifera falcate*) are native to the Nez Perce–Clearwater National Forests and appear to be widely distributed. They are included as a sensitive species in Region 1 because of declining populations across their range. Known populations occur in all the mainstem rivers and in Lolo Creek, American River, Red River, and many others. Comprehensive distribution data and population data are needed.

Maps XX–XX[15] display population status of focal species across the planning area, showing areas where populations are present and strong, present and depressed, of unknown status, and assumed extirpated. These maps display the distribution and abundance of these species and indicate areas where strong populations are known to occur near other strong populations and depressed populations. Therefore, they provide a comprehensive assessment of population distribution and status and indicate areas of high conservation importance.

[15] Under development

Other Species

Columbia spotted frogs, long-toed salamanders, and western toads are widely distributed across the Forests. Spotted frogs and long-toed salamanders have been locally affected by fish stocking in some mountain lakes that were historically fishless (Forest Service 2001). Coho salmon were presumed historically present in the Clearwater River but have been extirpated. Kokanee salmon have been introduced into Dworshak Reservior and provide a significant sport fishery.

5.3.4 *Trends and Drivers*

The following trends are occurring and affecting terrestrial and aquatic wildlife:

- Reduction of large ponderosa pine and Douglas-fir below desired conditions for the respective habitats (flammulated owl, pygmy nuthatch, white-headed woodpecker)
- Noxious weed introduction/expansion, particularly in dry forest/grassland and riparian habitats (bighorn sheep, mountain quail)
- Disease transfer from domestic animals to susceptible wildlife species (bighorn sheep)
- Forest age classes occurring in patches outside of limits of desired conditions for patch size (big game security, breeding/rearing habitats for forest birds)
- Human disturbance in sensitive breeding and rearing habitats (bighorn lambing/elk calving habitats, mountain quail)
- Climate change as a driver of fish distribution and abundance (Isaac 2012)

5.3.5 *Information Needs*

The following information needs have been identified:

- Availability of current habitats and distribution relative to historic and/or desired conditions on National Forests managed habitats.
- Relationship of National Forests managed habitats relative to currently available habitats on adjacent lands

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Status Rankings of Threatened, Endangered, Proposed or Candidate Wildlife Species

Status Rankings of Threatened, Endangered, Proposed or Candidate Wildlife Species (ver. 10/24/12)

Common Name	Scientific Name	Nature Serve Conservation Status		BLM	Federal Listing	1909.12; 13.52	
		Global	Idaho			Known to Occur	Concern
Status Rank of G/T 1 and 2							
Northern Idaho Ground Squirrel	*Spermophilus brunneus brunneus*	G2T2	S1	T1	No status in Region 1 {Threatened in Adams, Valley and Washington Counties (R4)}	N	N
Status Rank of S-1 and S-2							
Yellow-billed cuckoo	Coccyzus americanus	G5	S2B	T1	Candidate	N	N
Canada Lynx	*Lynx canadensis*	G5	S1 T1		Threatened, Designated Critical Habitat	Y	N
North American Wolverine	*Gulo gulo luscus*	G4T4	S2	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4) Candidate	Y	N
Species Petition for Federal Listing with a Positive 90-day Finding							
Yellow-billed cuckoo	Coccyzus americanus	G5	S2B	T1	Candidate	N	N
North American Wolverine	*Gulo gulo luscus*	G4T4	S2	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4) Candidate	Y	N
Federally Delisted within Past 5 Years							
Bald eagle	*Haliaeetus leucocephalus*	G4	S3B S4N		S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Gray Wolf	*Canis lupus*	G4	S3	T1	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Listed as Threatened or Endangered by State or Tribe							
Canada Lynx	*Lynx canadensis*	G5	S1 T1		Threatened, Designated Critical Habitat (Clearwater NF only)	Y	N
Identified as Species of Greatest Conservation Need by *Idaho Comprehensive Wildlife Conservation Strategy*							
Yellow-billed cuckoo	Coccyzus americanus	G5	S2B	T1	Candidate	N	N
Canada Lynx	*Lynx canadensis*	G5	S1 T1		Threatened, Designated Critical Habitat	Y	N
Northern Idaho Ground Squirrel	*Spermophilus brunneus brunneus*	G2T2	S1	T1	Threatened in Adams, Valley and Washington Counties (R4)	N	N
North American Wolverine	*Gulo gulo luscus*	G4T4	S2	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4) Candidate	Y	N
Listed on U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority List							
Yellow-billed cuckoo	Coccyzus americanus	G5	S2B	T1	Candidate	N	N
Identified as Species of Conservation Concern in Neighboring National Forest System Plan Areas							

Canada Lynx	*Lynx canadensis*	G5	S1 T1		Threatened, Designated Critical Habitat	Y	N
North American Wolverine	*Gulo gulo luscus*	G4T4	S2	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4) Candidate	Y	N
Species of Local Conservation Concern with Significant Threats to Populations or Habitat from Stressors on and off the Plan Area							
Yellow-billed cuckoo	Coccyzus americanus	G5	S2B	T1	Candidate		
Species of Local Conservation Concern with Declining Trends in Populations or Habitat							
Species of Local Conservation Concern that are Subject to Some Imminent Threat from a Stressor that May Compromise the Species' Ability to Persist over the Long Term within the Plan Area							

Status Rankings of Potential Wildlife Species of Conservation Concern (ver. 10/24/12)

Common Name	Scientific Name	Nature Serve Conservation Status		BLM	Federal Listing	1909.12; 13.52	
		Global	Idaho			Known to Occur	Concern
Status Rank of G/T 1 and 2							
Birds							
No currently recognized bird species with these rankings							
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3 (sensitive)	S (Nez, Brt, Lolo)	Y	Y
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Coeur d'Alene Salamander	Plethodon idahoensis	G2	S2	T3 (sensitive)	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Gastropods (Slugs and Snails)							
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
Status Rank of S-1 and S-2							
Birds							
Merlin	Falco columbarius	G5	S2B S2N			?	N
Mountain Quail	Oreortyx pictus	G5	S1	T3	S (Nez, R4)	Y	Y
Pygmy Nuthatch	Sitta pygmaea	G5	S1	T5	S (Nez/Clw)	Y	Y
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y

Fisher	Martes pennanti	G5	S1	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Fringed Myotis	Myotis thysanodes	G4G5	S2	T3	S (Nez)	Y	N
Mountain Goat	Oreamnos americanus	G5	S2			Y	N
Pygmy Shrew	Sorex hoyi	G5	S1			Y	N
Townsend's Big-Eared Bat	Corynorhinus townsendii	G4T3T4	S2?		S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Coeur d'Alene Salamander	Plethodon idahoensis	G2	S2	T3 (sensitive)	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Northern Alligator Lizard	Elgaria coerulea	G5	S2	T4/5		Y	N
Ring–necked Snake	Diadophis punctatus	G5	S2	T5	S	Y	N
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?

Terrestrial Insects							
A Grasshopper	Barracris petraea	G3	S2				
A Grasshopper	Melanoplus digitifer	G2G3	S2				
Identified as Species of Greatest Conservation Need by *Idaho Comprehensive Wildlife Conservation Strategy*							
Birds							
American Peregrine Falcon	Falco peregrinus	G4T4	S2B	T3	S (Nez, Brt, IPNF, Lolo)	Y	N
American Three–toed Woodpecker	Picoides dorsalis	G5	S2		S (R4)	Y	N
Bald eagle	*Haliaeetus leucocephalus*	G4	S3B S4N		S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Black Swift	Cypseloides niger	G4	S1B	T4	S (Nez, IPNF)	Y	N
Black-backed Woodpecker	Picoides arcticus	G5	S3	T5	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Boreal Owl	Aegolius funereus	G5	S2	T5		Y	N
California Gull	Larus californicus	G5	S2B S3N			?	N
Common Loon	Gravia immer	G5	S1B S2N		S (Nez, IPNF, Lolo, R4)	Y	N
Flammulated Owl	Otus flammeolus	G4	S3B	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Harlequin Duck	Histrionicus histrionicus	G4	S1B	T4	S (Nez/Clw, IPNF, Lolo, R4)	Y	N
Hooded Merganser	Lophodytes cucullatus	G5	S2B S3N			?	N
Lewis's Woodpecker	Melanerpes lewis	G4	S3B	T3		Y	N
Long–billed Curlew	Numenius americanus	G5	S2B	T5	S (Nez)	?	N
Merlin	Falco columbarius	G5	S2B S2N			?	N
Mountain Quail	Oreortyx pictus	G5	S1	T3	S (Nez, R4)	Y	Y
Northern Goshawk	Accipiter gentilis	G5	S3	T3	S (R4)	Y	N
Northern Pintail	Anas acuta	G5	S5B S2N			Y	N
Pileated Woodpecker	Dryocopus pileatus	G5	S4			Y	N
Pygmy Nuthatch	Sitta pygmaea	G5	S1	T5	S (Nez/Clw)	Y	Y
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	Y

Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Elk	Cervus canadensis	G5	S5			Y	N
Fisher	Martes pennanti	G5	S1	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Fringed Myotis	Myotis thysanodes	G4G5	S2	T3	S (Nez)	Y	N
Long-eared Myotis	*Myotis evotis*	G5	S3	T5	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Long-legged Myotis	Myotis volans	G5	S3	T5	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Moose	Alces alces	G5	S5			Y	N
Mountain Goat	Oreamnos americanus	G5	S2				
Pygmy Shrew	Sorex hoyi	G5	S1			Y	N
Red–tailed Chipmunk	Neotamias ruficaudus	G5	S3			Y	N
Townsend's Big-Eared Bat	Corynorhinus townsendii	G4T3T4	S2?		S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Coeur d'Alene Salamander	Plethodon idahoensis	G2	S2	T3	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Idaho Giant Salamander	Dicamptodon aterrimus	G3	S3	T3		Y	N
Northern Alligator Lizard	Elgaria coerulea	G5	S2	T45		Y	N
Ring–necked Snake	Diadophis punctatus	G5	S2	T5	S	Y	N
Western (Boreal) Toad	Bufo boreas boreas	G4	S3	T2/3 (sensitive)	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?

Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
						N	N
Terrestrial Insects							
A Grasshopper	Barracris petraea	G3	S2				
A Grasshopper	Melanoplus digitifer	G2G3	S2				
Listed on U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority List							
Bald eagle	*Haliaeetus leucocephalus*	G4	S3B S4N		S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Black Swift	Cypseloides niger	G4	S1B	T4	S (Nez, IPNF)	Y	N
Flammulated Owl	Otus flammeolus	G4	S3B	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Lewis's Woodpecker	Melanerpes lewis	G4	S3B	T3		Y	N
Long–billed Curlew	Numenius americanus	G5	S2B	T5	S (Nez)	?	
Swainson's Hawk	Buteo swainsoni	G5	S3B	T5		Y	N
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Identified as Species of Conservation Concern in Neighboring National Forest System Plan Areas							
Birds							
American Peregrine Falcon	Falco peregrinus	G4T4	S2B	T3	S (Nez, Brt, IPNF, Lolo)	Y	N

American Three–toed Woodpecker	Picoides dorsalis	G5	S2		S (R4)	Y	N
Bald eagle	*Haliaeetus leucocephalus*	G4	S3B S4N		S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Black Swift	Cypseloides niger	G4	S1B	T4	S (Nez, IPNF)	Y	N
Black-backed Woodpecker	Picoides arcticus	G5	S3	T5	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Common Loon	Gravia immer	G5	S1B S2N		S (Nez, IPNF, Lolo, R4)		
Flammulated Owl	Otus flammeolus	G4	S3B	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Harlequin Duck	Histrionicus histrionicus	G4	S1B	T4	S (Nez/Clw, IPNF, Lolo, R4)	Y	N
Mountain Quail	Oreortyx pictus	G5	S1	T3	S (Nez, R4)	Y	Y
Northern Goshawk	Accipiter gentilis	G5	S3	T3	S (R4)	Y	N
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Fisher	Martes pennanti	G5	S1	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Long-eared Myotis	*Myotis evotis*	G5	S3	T5	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Long-legged Myotis	Myotis volans	G5	S3	T5	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Townsend's Big-Eared Bat	Corynorhinus townsendii	G4T3T4	S2?		S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Coeur d'Alene Salamander	Plethodon idahoensis	G2	S2	T3	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Western (Boreal) Toad	Bufo boreas boreas	G4	S3	T2/3 (sensitive)	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Gastropods (Slugs and Snails)							
No gastropods in this ranking category							
Terrestrial Insects							
No terrestrial insects in this ranking category							
Species of Local Conservation Concern with Significant Threats to Populations or Habitat from Stressors on and off the Plan Area							
Birds							

Flammulated Owl	Otus flammeolus	G4	S3B	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Mountain Quail	Oreortyx pictus	G5	S1	T3	S (Nez, R4)	Y	Y
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Elk	Cervus canadensis	G5	S5			Y	N
Moose	Alces alces	G5	S5			Y	N
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
Terrestrial Insects							
No gastropods in this ranking category							

Species of Local Conservation Concern with Declining Trends in Populations or Habitat							
Birds							
Flammulated Owl	Otus flammeolus	G4	S3B	T3	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Mountain Quail	Oreortyx pictus	G5	S1	T3	S (Nez, R4)	Y	Y
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Elk	Cervus canadensis	G5	S5			Y	N
Moose	Alces alces	G5	S5			Y	N
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?

Terrestrial Insects							
No gastropods in this ranking category							
Species of Local Conservation Concern with Restricted Ranges							
Birds							
Mountain Quail	Oreortyx pictus	G5	S1	T3	S (Nez, R4)	Y	N
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Pygmy Shrew	Sorex hoyi	G5	S1			Y	N
Red–tailed Chipmunk	Neotamias ruficaudus	G5	S3			Y	N
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?

Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
Terrestrial Insects							
A Grasshopper	Barracris petraea	G3	S2			?	?
A Grasshopper	Melanoplus digitifer	G2G3	S2			?	?
Species of Local Conservation Concern Whose Population Numbers are Low in the Plan Area							
Birds							
American Peregrine Falcon	Falco peregrinus	G4T4	S2B	T3	S (Nez, Brt, IPNF, Lolo)	Y	N
Black Swift	Cypseloides niger	G4	S1B	T4	S (Nez, IPNF)	Y	N
Flammulated Owl	Otus flammeolus	G4	S3B	T3 (sensitive)	S (Nez/Clw, Brt, IPNF, Lolo, R4)	Y	N
Harlequin Duck	Histrionicus histrionicus	G4	S1B	T4 (sensitive)	S (Nez/Clw, IPNF, Lolo, R4)	Y	N
Mountain Quail	Oreortyx pictus	G5	S1	T3 (sensitive)	S (Nez, R4)	Y	Y
Pygmy Nuthatch	Sitta pygmaea	G5	S1	T5	S (Nez/Clw)	Y	Y
White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Elk	Cervus canadensis	G5	S5				
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Western (Boreal) Toad	Bufo boreas boreas	G4	S3	T2/3	S (Nez/Clw, Brt, IPNF, Lolo)	Y	N
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3 (sensitive)		?	?

Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
Terrestrial Insects							
A Grasshopper	Barracris petraea	G3	S2			?	?
A Grasshopper	Melanoplus digitifer	G2G3	S2			?	?
Species of Local Conservation Concern Whose Connectivity Between Populations has been Lost or is Threatened							
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
Species of Local Conservation Concern that are Subject to Some Imminent Threat from a Stressor that May Compromise the Species' Ability to Persist over the Long Term within the Plan Area							
Birds							
Mountain Quail	Oreortyx pictus	G5	S1	T3 (sensitive)	S (Nez, R4)	Y	Y
Pygmy Nuthatch	Sitta pygmaea	G5	S1	T5	S (Nez/Clw)	Y	Y

White-Headed Woodpecker	Picoides albolarvatus	G4	S2	T4 (sensitive)	S (Nez, R4)	Y	N
Mammals							
Bighorn Sheep	*Ovis canadensis*	G4T1	S3	T3	S (Nez, Brt, Lolo)	Y	Y
Cold-blooded Vertebrates (Frogs, Toads, Salamanders, Lizards and Snakes)							
Gastropods (Slugs and Snails)							
An Oregonian (Lower Clearwater River)	Cryptomastix mullani tuckeri	G3G4T1	SNR			N	N
An Oregonian (Hells Canyon)	Cryptomastix populi	G2	S1			N	?
An Oregonian (Lower Salmon River)	Cryptomastix mullani latilabris	G3G4T1	SNR			?	?
Boulder Pile Mountainsnail	Oreohelix jugalis	G1	S1	T3		?	?
Fir Pinwheel	Radiodiscus abietum	G3	S2			?	?
Humped Coin	Polygyrella polygyrella	G2G3	S2			Y	N
Nimapuna Tigersnail	Anguispira nimapuna	G1	S1			Y	N
Pale Jumping–slug	Hemphillia camelus	G3G4	S2			?	?
Selway Forestsnail	Allogona lombardii	G1	S1			?	?
Sheathed Slug	Zacoleus idahoensis	G3G4	S2			?	?
Thinlip Tightcoil	Pristiloma idahoense	G2	S1			?	?
Terrestrial Insects							