

3.2.5.5 Imnaha Satellite Facility

Under the No Action Alternative, instream structures that currently cause adverse impacts to migrating and spawning salmonids at the Imnaha Satellite facility would not be improved. Better collection of spawners and an anticipated increase in downstream passage ability past the structures would not be attained. An increased fish ladder attraction, and collection of adults across a larger hydrograph would not take place. The inefficient collection, migrational delay, and forced downstream spawning would continue to occur. Additionally, if no action were taken, the existing intake screen would remain out of compliance with NMFS (1996) juvenile fish screening criteria.

3.3 Wildlife

3.3.1 Affected Environment

3.3.1.1 Grande Ronde Subbasin

General Wildlife Overview — Numerous wildlife species reside or are seasonally present in the Grande Ronde subbasin. These species are found in association with the area’s primary habitat types, including riparian areas; wetlands, seeps and springs; shrub and early seral habitats; shrub/deciduous forest types; and conifer forests. Project sites within the subbasins include all of these habitat types, and therefore, wildlife species that occur throughout the subbasin could occur at any of the project sites. The riparian habitats found at each of the proposed project sites most likely provide travel, dispersal, cover, resting and foraging corridors for many of these species.

Twenty-one species of ducks, four species of geese, and two species of swans occur in the Grande Ronde subbasin during migration and nesting seasons (Nowak and Eddy 2001). In addition, a number of wading and shorebirds, including sandhill cranes, are found in the subbasin. Upland birds found in the basin include chukar and Hungarian partridge; blue, ruffed, sage and Columbian sharp-tailed grouse; mountain and California valley quail; wild turkey, and ring-necked pheasant. Chukar, Hungarian partridge, ring-necked pheasant, and wild turkey are not native to the Grande Ronde subbasin (Nowak and Eddy 2001), but are introductions. Many raptor species reside in the subbasin including golden eagle, American kestrel, peregrine falcon and northern goshawk. Bald eagle and Swainson’s hawk are seasonal migrants to the subbasin (Nowak and Eddy 2001). The subbasin is also home to many migratory and resident species of songbird, woodpecker, and other non-game bird species.

Game species common in the subbasin include Rocky Mountain bighorn sheep, mountain goats, Rocky Mountain elk, Rocky Mountain mule deer, white-tailed deer, black bear and cougar. Rocky Mountain bighorn sheep disappeared from Oregon in the mid-1940s, but have been reintroduced since 1971. Within the Grande Ronde subbasin, bighorns have been released in the Lostine, Minam and Wenaha drainages (Nowak and Eddy 2001). Mountain goats, once indigenous to northeast Oregon, disappeared before or at the time of European settlement (Nowak and Eddy 2001). Present populations resulted from reintroductions and occur in the Wallow Mountains, Hells Canyon and Elkhorn Mountains. A band of 20 to 25 mountain goats is known to occur in the Lostine subbasin (U.S. Forest Service 2002b), although their presence in the immediate project vicinity is not anticipated.

Furbearing species common in and near the mainstem rivers, tributaries and wetlands of the Grande Ronde River subbasin include beaver, river otter, mink, muskrat, and raccoon. American martens are known to occur in the subbasin, but between 1991 and 1994, surveys conducted by the Forest Service in the Lostine River area detected no martens (U.S. Forest Service 2002b). Surveys conducted by the Forest Service

between 1992 and 1995 indicate that several species of bats occur within the Grande Ronde subbasin (U.S. Forest Service 2002b), including: Townsend’s big-eared bat, silver haired bat, small-footed myotis, long-eared myotis, long-legged myotis, fringed myotis, Yuma myotis, big brown bat, hoary bat, California bat, little brown bat and Western pipistrelle.

Threatened and Endangered Wildlife Species — Numerous species having federal or state protection are found in the Grande Ronde subbasin. Table 3.3-1 identifies listed wildlife species known or expected to occur in the subbasin. Like other wildlife expected to occur in the subbasin, these species may use project sites even though their presence at sites has not been documented.

State and federal regulatory and management agencies classify species differently as shown on Table 3.3-1. Under its endangered and sensitive species rules, the State of Oregon (ODFW) ranks species as threatened, endangered or sensitive. Within the sensitive ranking, the state classifies species as critical, vulnerable, peripheral or naturally rare, or undetermined. Federal agencies (NOAA Fisheries and USFWS) characterize species as threatened, endangered, species of concern or candidate. For lands under its management control, the Forest Service classifies species occurring on its lands as sensitive and as management indicator species (MIS). General definitions for these terms are as follows:

- Critical – species for which listing as threatened or endangered is pending.
- Vulnerable – species for which listing as threatened or endangered is not believed to be imminent.
- Peripheral – species whose Oregon populations are on the edge of their range.
- Undetermined – species for which status is unclear.
- Endangered – a species in danger of extinction throughout all or a significant portion of its range.
- Threatened – a species likely to become endangered within the foreseeable future.
- Species of concern – an informal term for a species that a USFWS region or the NOAA Fisheries considers in decline or in need of concentrated conservation actions to prevent decline.
- Candidate – a species for which USFWS or NOAA Fisheries has enough information to warrant proposing them for listing as endangered or threatened, but these species have not yet been proposed for listing.
- Sensitive – species identified by a Regional Forester for which **population viability** is a concern.
- MIS – designation for species or habitat components selected to monitor the effects of planned Forest Service management activities.

Table 3.3-1. Federally or State Listed Species Known or Suspected of Occurring in the Grande Ronde Subbasin^{1/}.

Common Name	Scientific Name	State Status ^{2/}	Forest Service Status ^{2/}	Federal Status ^{2/}
Mammals				
Pygmy rabbit	<i>Brachylagus idahoensis</i>	SV	--	SOC
Gray wolf ^{3/}	<i>Canis lupus</i>	E	S	T
Pale western big-eared bat	<i>Corynorhinus townsendii pallescens</i>	SC	S	SOC
Spotted bat	<i>Euderma maculatum</i>	--	S	SOC
California wolverine ^{3/}	<i>Gulo gulo luteus</i>	T	S	SOC
Silver-haired bat	<i>Lasionycteris noctivagans</i>	SU	--	SOC
Canada lynx	<i>Lynx canadensis</i>	--	S	T
Pacific fisher ^{3/}	<i>Martes pennanti pacifica</i>	SC	S	SOC
Western small-footed myotis	<i>Myotis ciliolabrum</i>	SU	--	SOC
Long-eared myotis	<i>Myotis evotis</i>	SU	S	SOC
Fringed myotis	<i>Myotis thysanodes</i>	SV	--	SOC
Long-legged myotis	<i>Myotis volans</i>	SU	--	SOC
Yuma myotis	<i>Myotis yumanensis</i>	--	--	SOC
Preble's shrew	<i>Sorex preblei</i>	--	--	SOC
Birds				
Northern goshawk	<i>Accipiter gentilis</i>	SC	MIS	SOC
Western burrowing owl	<i>Athene cunicularia</i>	SC	--	SOC
Upland sandpiper	<i>Bartramia longicauda</i>	SC	S	SOC
Ferruginous hawk	<i>Buteo regalis</i>	SC	--	SOC
Western greater sage-grouse	<i>Centrocercus urophasianus</i>	SC	--	SOC
Black tern	<i>Chlidonias niger</i>	--	--	SOC
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	SC	--	C
Olive-sided flycatcher	<i>Contopus cooperi</i>	SV	--	SOC
Eastern Or. Willow flycatcher	<i>Empidonax trailii adastus</i>	SU	--	SOC
Peregrine falcon	<i>Falco peregrinus</i>	E	S	--
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	S	T
Harlequin duck	<i>Histrionicus histrionicus</i>	SU	--	SOC
Yellow-breasted chat	<i>Icteria virens</i>	SC	--	SOC
Lewis's woodpecker	<i>Melanerpes lewis</i>	SC	MIS	SOC
Mountain quail	<i>Oreortyx pictus</i>	SU	--	SOC
White-headed woodpecker	<i>Picoides albolarvatus</i>	SC	MIS	SOC
Columbian sharp-tail grouse	<i>Tympanuchus phasianellus</i>	--	S	SOC
Reptiles & Amphibians				
Northern sagebrush lizard	<i>Sceloporus graciosus</i>	SV	--	SOC
Columbia spotted frog	<i>Rana luteiventris</i>	SU	S	C
Tailed frog	<i>Ascaphus truei</i>	SV	--	SOC

1/ Sources USFWS (2002); (Nowak and Eddy 2001); ONHP (2002, 2001); U.S. Forest Service (2002a and 2002b).

2/ E = Endangered, T = Threatened, C = Candidate, SOC = Species of Concern, SC = State Sensitive (critical), SU = State Sensitive (unknown), SV = State Sensitive (vulnerable), S = USFS Sensitive, MIS = USFS Management Indicator Species.

3/ Denotes species extirpated from the area or whose population status is unknown.

No state or federally listed species are known to occur at the project sites in the Grande Ronde subbasin. Bald eagle nests have been documented in Union and Wallow Counties (Nowak and Eddy 2001), but Oregon Natural Heritage Program (**ONHP**) surveys show none at project sites (ONHP 2002). No regularly occupied breeding locations have been documented for the yellow-billed cuckoo within Oregon (Csuti, et al. 2001), although project sites have riparian vegetation (black cottonwood and willows) where these birds have been documented along the rivers of eastern Oregon (Csuti et al. 2001). The ONHP reports a single, historic lynx trapping within one mile of the proposed Lostine River Hatchery, although surveys for lynx conducted in the subbasin in 1999 and 2000 failed to detect lynx in this area (Nowak and Eddy 2001). Forest Service surveys in the Lostine watershed also failed to document lynx use in the watershed (U.S. Forest Service 2002b). Extensive surveys conducted throughout eastern Oregon since 1996 have documented a number of Columbia spotted frog sites, including about 12 low-elevation locations in Wallowa County, but none on project sites (USFWS 2001; U.S. Forest Service 2002b). Project sites do provide some of the wetland plant communities (dominated by sedges, rushes and grasses) where these frogs are generally found (Leonard et al. 1993). Another listed species that is known to occur along the Lostine River is the northern goshawk. The ONHP (2002) reports a 1976 observation of a northern goshawk nest within one mile of the proposed Lostine River Hatchery intake. More current surveys show six or more nesting records and ten different goshawk territories overlapping within the Lostine River area (U.S. Forest Service 2002b). Gray wolves are thought to be extirpated from Oregon. California wolverine are typically distributed at elevations around 5000 feet (Marshall 1989). Wolverine sightings are occasionally reported in the Wallowa Mountains, but their abundance and distribution is unknown (Nowak and Eddy 2001). Peregrine falcons occupy cliff faces or inaccessible ledges for nesting. They are often found in open habitat near water sources as their preferred prey are other bird species. The peregrine falcon is reported to nest on cliffs within the Grande Ronde River valley (ODOT 2002).

Lookingglass Hatchery — The Lookingglass Hatchery is situated on a small terrace within a relatively steep valley at approximately 2,565 feet in elevation (Figures 2-2 and 3.9-1). Surrounding, steeply sloping hills are locally dominated by grassy vegetation with scattered shrub thickets and intermittent tree cover. Remaining areas are forested with mixed conifer stands of Douglas-fir and ponderosa pine. Small areas of cliffs and talus slopes are present in the vicinity. Elk, deer, cougar, bear, eagles, osprey, bats and frogs have all been noted in the immediate project vicinity (Lund 2002, personal communication). No bald eagle nest sites are known to occur in the vicinity of this site or any of the proposed project sites in the Lostine subbasin (ONHP 2002; Weatherford, 2002, personal communication). This site is well below the elevation generally thought of as providing suitable lynx and wolverine habitat. Gray wolves are not expected to occur at the project site. Suitable habitat for peregrine falcons may occur in the vicinity of the hatchery. Peregrine falcons may fly over the project site though no sightings have been reported.

Lostine River Adult Collection Facility — The proposed Lostine River Adult Collection Facility is located about one mile south of the town of Lostine, on private property currently operated as a trout farm (Figures 2-3 and 3.9-2). Elevation at the site is about 3,470 feet. This section of the Lostine River is relatively narrow and constricted. The riparian zone in this river reach is primarily characterized by deciduous species, although conifers are dominant in localized areas. The riparian plant communities at this site have been previously impacted through past and current site use and contain a mix of unvegetated river rock or riprap and native vegetation. Numerous small channels, seeps, springs and ponds occur on the subject property.

No bald eagle nest sites are known to occur in the vicinity of any of the proposed project sites in the Lostine subbasin (ONHP 2002; Weatherford 2002, personal communication). However, bald eagles are likely to forage or roost along the entire Lostine River corridor, and may use the small trout holding ponds at the site as a foraging area. Canada Lynx habitat, characterized as large tracts of densely stocked, mixed conifer forest with large numbers of downed logs for den sites, is not present at this site. This site is also well below the elevation for lynx and wolverine. The small side channels, springs, wetlands and ponds that are found on-site likely provide suitable habitat for the Columbia spotted frog, although no frogs have been documented at the

site. Gray wolves are not expected to occur at the project site. Suitable habitat for peregrine falcons may occur in the vicinity. Sightings have been reported on the Willowa River, and as peregrines are known to travel at least 10 miles to hunt they fly over but are not known to occur in the immediate vicinity.

Lostine River Hatchery — The Lostine River Hatchery is proposed on an approximately five-acre site in the low density Lostine River Acres residential community (Figures 2-4 and 3.9-3). The site is situated in the Lostine subbasin at about 3,700 feet in elevation with the Lostine River forming the western boundary of the property. The braided channels present in this river reach provide conditions conducive to wide bands of riparian vegetation dispersed throughout the exposed cobble areas of the riverbed and banks. Woody debris from high flow events is scattered throughout the riverbed and side banks.

The ONHP notes the presence of a bald eagle winter roost on the Lostine River, within one mile of the proposed Lostine River Hatchery (ONHP 2002). Up to nine eagles were observed at this site in 1990. No bald eagle nest sites are known to occur in the vicinity of the site (ONHP 2002), although nests have been documented in both Union and Willowa Counties (Nowak and Eddy 2001).

Reports of Canada lynx trapping have been noted within about one mile of the proposed Lostine River Hatchery intake site in 1970 and 1971 (ONHP 2002), but surveys conducted between 1991 and 2001 failed to document the presence of lynx in the Grande Ronde subbasin (Nowak and Eddy 2001; U.S. Forest Service 2001 and 2002b). The Lostine River Hatchery site may provide lynx habitat components, as this site is nearer to the 4,500 foot minimum elevation and is within close proximity to core lynx habitat identified within the Eagle Cap Wilderness Area. However, lynx are unlikely to use the project site for denning based on the existing level of disturbance resulting from roads, surrounding residential development, and agricultural uses in the vicinity. Gray wolves are not expected to occur at the project site. The site is below the 5,000 foot elevation, and does not contain the preferred sub-alpine forest habitat for wolverine. Suitable habitat for peregrine falcons may occur in the vicinity. Sightings have been reported on the Willowa River, and as peregrines are known to travel at least 10 miles to hunt they fly over but are not known to occur in the immediate vicinity.

3.3.1.2 Imnaha Subbasin

General Wildlife Overview — A list of wildlife species present in the Imnaha River subbasin developed by the Forest Service and others indicates that the Imnaha subbasin is inhabited by about 12 amphibian species, 19 reptile species, 239 bird species, and 69 mammal species (Bryson et al. 2001; U.S. Forest Service 1998c). Some of these species, including many of the birds, only reside in the area for short periods of the year during their migration. Although there are exceptions, most of the wildlife species of the Imnaha subbasin are thought to have healthy and stable populations (Bryson et al. 2001). The overall rugged nature of the watershed results in fairly limited and defined travel corridors for many wildlife species (U.S. Forest Service 1998c). Benches, plateaus and major drainages provide the primary travel corridors. Project sites within the subbasin provide potential habitat for most any of the species found in the subbasin, although the Imnaha Satellite Facility provides the best habitat in terms of the least amount of development and human disturbance.

Game animals in the Imnaha subbasin include mule and white-tailed deer, Rocky Mountain elk, black bear, cougar, turkey, pheasant, California quail, chukar partridge, Hungarian partridge, forest grouse, snipe and mourning dove (Bryson et al. 2001). Furbearers include beaver, coyote, mink, muskrat, otter, skunk, raccoon and weasel. Raptors include bald and golden eagles, prairie and peregrine falcons, American kestrel, merlin and a variety of hawks.

The Yuma myotis, long-eared myotis, fringed myotis, long-legged myotis, Townsend’s big-eared bat, western small-footed myotis, spotted bat and pallid bat occur in the forest, sagebrush and montane shrub habitats of the Imnaha basin (Bryson et al. 2001). Townsend’s big-eared bats are year-round residents (U.S. Forest Service 1998c), although populations are thought to be decreasing across the western United States.

Threatened and Endangered Wildlife Species —Table 3.3-2 lists species having federal or state status that can be found in the Imnaha subbasin. Threatened or endangered species may occur on or use the Imnaha project sites, though not formally documented. Habitat for bald eagle, yellow-billed cuckoo and Columbia spotted frog exist at or near project sites. On the fringe of Canada lynx range, only two occurrences of lynx have been reported to the ONHP in the Imnaha subbasin (Bryson et al. 2001), although no lynx reports have been confirmed for many years and winter track counts and surveys conducted by the Forest Service found no evidence of lynx in the subbasin (U.S. Forest Service 1998c). There are no known bald eagle nest sites within the Imnaha subbasin (U.S. Forest Service 1998c). There are, however, documented bald eagle winter roosts or nest sites along the Snake River (U.S. Forest Service 2002c). Surveys completed on the Wallowa-Whitman National Forest since 1979 have shown an increasing trend for wintering bald eagles in the area (U.S. Forest Service 1998c), primarily from November through March. No regularly occupied breeding locations have been documented for the yellow-billed cuckoo in the Imnaha subbasin (Csuti et al. 2001). However, because parts of the Imnaha subbasin contain relatively undisturbed riparian areas, the subbasin does have potentially suitable breeding habitat. Columbia spotted frogs are generally found in or near permanent bodies of water, including lakes, ponds, slow streams and marshes. The species is most often associated with non-woody wetland plant communities. Recent surveys found 12 spotted frog locations within the Wallowa County, all of which are at lower elevations than project sites (U.S. Forest Service 2002b). California wolverines are typically found at elevations around 5000 feet (Marshall 1989) in association with sub-alpine forests. Peregrine falcon captive breed birds have been re-introduced into the Seven Devils area of the Hells Canyon, and the Wallowa-Whitman National Forest reports at least one active nest in 2001. Preferred habitat is open areas near a water source with available cliff faces and inaccessible ledges for nesting (Csuti et al. 1997).

Table 3.3-2. Federally or State Listed Species Known or Suspected of Occurring in the Imnaha Subbasin^{1/}.

Common Name	Scientific Name	State Status ^{2/}	Forest Service Status ^{2/}	Federal Status ^{2/}
Mammals				
Pallid bat	<i>Antrozous pallidus</i>	SV		--
Pale western big-eared bat	<i>Corynorhinus townsendii pallescens</i>	SC	S	SOC
Spotted bat	<i>Euderma maculatum</i>	--	S	SOC
California wolverine ^{3/}	<i>Gulo gulo luteus</i>	T	S	SOC
Silver-haired bat	<i>Lasionycteris noctivagans</i>	SU	--	SOC
White-tailed jackrabbit	<i>Lepus townsendii</i>	SU	--	--
Canada lynx	<i>Lynx canadensis</i>	--	S	T
American marten	<i>Martes americana</i>	SV	MIS	--
Pacific fisher ^{3/}	<i>Martes pennanti pacifica</i>	SV	S	SOC
Western small-footed myotis	<i>Myotis ciliolabrum</i>	SU	--	SOC
Long-eared myotis	<i>Myotis evotis</i>	SU	S	SOC
Fringed myotis	<i>Myotis thysanodes</i>	SV	--	SOC
Long-legged myotis	<i>Myotis volans</i>	SU	--	SOC
Yuma myotis	<i>Myotis yumanensis</i>	--	--	SOC
Preble’s shrew	<i>Sorex preblei</i>	--	--	SOC

Birds				
Northern goshawk	<i>Accipiter gentilis</i>	SC	MIS	SOC
Boreal owl	<i>Aegolius funereus</i>	SU	--	--
Western burrowing owl	<i>Athene cunicularia</i>	SC	--	SOC
Upland sandpiper	<i>Bartramia longicauda</i>	SC	S	SOC
Bufflehead	<i>Bucephala albeola</i>	SU	S	--
Barrow's goldeneye	<i>Bucephala islandica</i>	SU	--	--
Ferruginous hawk	<i>Buteo regalis</i>	SC	--	SOC
Swainson's hawk	<i>Buteo swainsonii</i>	SV	--	--
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	SC	--	C
Olive-sided flycatcher	<i>Contopus cooperi</i>	SV	--	SOC
Spruce grouse	<i>Dendragapus canadensis</i>	SU	--	--
Bobolink	<i>Dolichonyx oryzivorus</i>	SV	S	--
Pileated woodpecker	<i>Dryocopus pileatus</i>	SV	MIS	--
Eastern Or. Willow flycatcher	<i>Empidonax trailii adastus</i>	SU	--	SOC
Peregrine falcon	<i>Falco peregrinus</i>	E	S	--
Northern pygmy owl	<i>Glaucidium gnoma</i>	SC	--	--
Greater sandhill crane	<i>Grus canadensis tabida</i>	SV	--	--
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	S	T
Harlequin duck	<i>Histrionicus histrionicus</i>	SU	--	SOC
Yellow-breasted chat	<i>Icteria virens</i>	SC	--	SOC
Lewis's woodpecker	<i>Melanerpes lewis</i>	SC	MIS	SOC
Mountain quail	<i>Oreortyx pictus</i>	SU	--	SOC
Flammulated owl	<i>Otus flammeolus</i>	SC	--	--
American white pelican	<i>Pelecanus erythrorhynchos</i>	SV	--	--
White-headed woodpecker	<i>Picoides albolarvatus</i>	SC	MIS	SOC
Black-backed woodpecker	<i>Picoides arcticus</i>	SC	MIS	--
Three-toed woodpecker	<i>Picoides tridactylus</i>	SC	MIS	--
Red-necked grebe	<i>Podiceps grisegena</i>	SC	--	--
Bank swallow	<i>Riparia riparia</i>	SU	--	--
Pygmy nuthatch	<i>Sitta pygmaea</i>	SC/SV	MIS	--
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	SU	MIS	--
Great gray owl	<i>Strix nebulosa</i>	SV	--	--
Columbian sharp-tail grouse	<i>Tympanuchus phasianellus</i>	--	S	SOC
Reptiles & Amphibians				
Tailed frog	<i>Ascaphus truei</i>	SV	--	SOC
Western toad	<i>Bufo boreas</i>	SC	--	--
Painted turtle	<i>Chrysemys picta</i>	SU	S	--
Columbia spotted frog	<i>Rana luteiventris</i>	SV	S	C

1/ Sources USFWS (2002); ONHP (2002, 2001); U.S. Forest Service (2002a); (Bryson et al. 2001)

2/ E = Endangered, T = Threatened, C = Candidate, SOC = Species of Concern, SC = State Sensitive (critical), SU = State Sensitive (unknown), SV = State Sensitive (vulnerable), S = USFS Sensitive, MIS = USFS Management Indicator Species.

3/ Denotes species extirpated from the area or whose population status is unknown.

Imnaha Final Rearing Facility — The proposed Imnaha Final Rearing Facility is located within the lower Imnaha subbasin, at an elevation of about 1,995 feet (Figures 2-6 and 3.9-4). Site topography is relatively flat and the river channel at this location is well defined. Currently the site is used for cattle grazing, and the central portion of the site is devoid of woody vegetation and is dominated by introduced pasture grasses and weedy forbs. A narrow fringe of riparian vegetation, dominated by water birch, black cottonwood, willows, hawthorn and mountain alder remains along the river corridor. Ponderosa pine and black cottonwood are the

primary overstory species found on the Imnaha River Road (east) side of the river. No significant springs, seeps or wetland areas were noted in the project area, except for a very narrow fringe along the river channel.

Upland game birds are expected to occasionally use the riparian habitat at the site. Riparian vegetation provides nesting cover and winter food sources for many game birds. Bats, which use a variety of habitat for day roosts, are also expected to occur in the project area, as appropriate habitat features exist throughout the vicinity. Elk and deer are expected to use habitat in the vicinity of the site during the late fall and winter. Elk herds travel along primary migration corridors, including Summit, Puderbaugh and Neiman ridges, in late October or November as they return to wintering grounds in Hells Canyon (U.S. Forest Service 1998c). Mule deer migrate to the lower elevation areas of the subbasin in winter, to escape deep snow levels. Lynx habitat, characterized as large tracts of densely stocked, mixed conifer forest with large numbers of downed logs for den sites, is absent from the site. There are no known bald eagle nest sites or communal winter roost sites within the Imnaha subbasin (ONHP 2002; Weatherford 2002, personal communication; U.S. Forest Service 1998c). Some habitat may be favorable for Columbia spotted frog and yellow-billed cuckoo, although neither species has been documented at the site. The site is well below 5,000 foot elevation and does not contain the preferred sub-alpine forest habitat for California wolverine. Suitable habitat for peregrine falcons may occur in the surrounding vicinity. Re-introduced populations occur within the Seven Devils mountains, and as peregrines are known to travel at least 10 miles to hunt they may fly over the project site but are not known to occur in the immediate vicinity.

Imnaha Satellite Facility — The Imnaha Satellite Facility occupies about six acres of Forest Service land in the upper Imnaha subbasin at an elevation of about 3,760 feet (Figures 2-8 and 3.9-5). The entire site is located on Forest Service land, within a Forest Service-designated Riparian Habitat Conservation Area (RHCA). All areas within 300 feet of the river are included in the RHCA. The site contains the existing hatchery facility, maintained lawns, and small areas of native, riparian vegetation in a mixed conifer forest. The only area on-site having wetland characteristics is the narrow fringe at the river's edge. No significant springs, seeps or other wetland types were noted within the project boundaries.

No bald eagle winter roosting sites or nesting territories have been documented in the vicinity of the Imnaha Satellite Facility (ONHP 2002). Any use of the area by bald eagles would most likely consist of transient foraging individuals during the wintering period and is expected to be infrequent. Of the project locations within the Imnaha subbasin, the Imnaha Satellite facility is the most likely to provide lynx habitat components due to its elevation and proximity to relatively undisturbed, large forested stands. The Imnaha Satellite Facility is near an identified lynx travel corridor, and mapped lynx core habitat is located within approximately two air miles of the site. However, denning is not likely to occur in the immediate vicinity of the facility due to the developed nature of the site and lack of suitable habitat. The Imnaha Satellite Facility is located in a portion of the subbasin in which riparian communities are dominated by mixed coniferous forest typical in mid- to low elevations of the basin, rather than the deciduous forested riparian communities preferred by the cuckoo. As such, this site is unlikely to provide suitable yellow-billed cuckoo habitat. The lack of wetland habitat at the site also limits the probability of Columbia spotted frog occurrence.

The site is well below the 5,000 foot elevation, and does not contain the preferred sub-alpine forest habitat for California wolverine. And, the established presence of human activity at this site is likely to preclude use of the site by wolverines. Suitable habitat for peregrine falcons may occur in the vicinity of the hatchery. Re-introduced populations occur within the Seven Devils Mountains, and as peregrines are known to travel at least 10 miles to hunt they may fly but are not known to occur in the immediate vicinity.

The Imnaha Satellite Facility is the only project site that is located on lands managed by the Forest Service. Species known or likely to occur on the site of particular interest to the Forest Service include Forest Service listed sensitive and management indicator species. Such species documented in the subbasin include American marten, northern goshawk, pileated woodpecker, and a variety of cavity-nesting birds.

3.3.2 Evaluation Criteria

The following criteria were used to evaluate potential impacts to wildlife, at the proposed sites:

- Substantial changes to state or federally listed species, big game or their habitats.
- Elimination, disturbance or enhancement of designated critical habitat or primary travel routes.

3.3.3 Consequences of the Proposed Action

Each of the proposed project sites occupies a somewhat similar ecological setting. Each of the sites occurs within the context of rural or forestland development, and is characterized by impacts resulting from agriculture and aquaculture, low-density rural residential developments, and timber harvest and livestock grazing activities. Although they do not occur in pristine habitat, they are all located in generally lightly developed portions of the respective subbasins within riparian corridors. The riparian habitats at the sites provide wildlife travel and dispersal corridors, and cover, resting, and foraging habitats. In addition, each of the sites is within proximity to large blocks of available habitat of varying types. Open rangeland, private and federal forest lands, and protected wilderness areas and wildlife preserves occur near the project sites.

Because of their similar settings, wildlife expected to occur at the sites are likely to be the same. Species commonly found throughout the Grande Ronde and Imnaha subbasins, including ducks and geese, raptors, upland game birds, song birds, mule and white-tailed deer and elk, black bear, cougar, coyote, raccoon, mink, river otter, skunk and weasel, and bats, would be expected to occur at all of the sites at least seasonally. Species more typically associated with higher elevations or old growth habitat, such as lynx, wolverine and martens, would not be likely to occur within the project vicinities. However, their potential use of the sites for periodic foraging, migration, or dispersal habitat cannot be precluded.

Expected wildlife impacts include temporary, small-scale habitat damage or loss and temporary, although relatively constant, disturbance during construction; and some long-term, although small-scale, habitat loss and periodic disturbance during facility operation and maintenance. Direct loss of habitat resulting from clearing, grading and filling in upland habitats and the small portion of related riparian habitats would potentially result in the most impact to wildlife. Current densities of snags, downed logs and other habitat attributes would be affected in localized areas only.

Beneficial effects for species relying on salmon for forage may be realized over the long-term if program goals for salmon supplementation are successful.

3.3.3.1 Lookingglass Hatchery

Proposed modifications to the existing hatchery would occur within the existing, developed area. Construction would result in minor new ground disturbance and would increase the amount of impervious surface area currently present at the site (less than ¼ acre). Temporary erosion and sedimentation impacts to riparian habitat would be minimal based on the limited amount of new construction, distance of excavation from Lookingglass Creek, amount and location of existing pavement and associated slopes, and implementation of best management construction practices.

The overall quality of habitat at this site would remain essentially unchanged from existing conditions. Construction activities, which would last about eight months (April to November), could result in disturbance to normal activity patterns of wildlife present in the vicinity and potential displacement of some individuals. However, disturbances would be temporary and limited in spatial extent, and are not anticipated to negatively impact individuals or populations over time. Construction would occur outside of the bald eagle wintering

period, so disturbance impacts to any wintering eagles would be avoided. No bald eagle nesting territories have been documented in the vicinity of the site (ONHP 2002).

3.3.3.2 Lostine Adult Collection Facility

Installation of the flow velocity barrier would require construction of concrete abutment walls and the removal of up to 20 feet of the riverbank, including associated riparian vegetation. Placement of fill and riprap for construction of the flood-proofing levee would displace existing riparian habitat along another 300 feet of the river channel. Construction of the proposed levee would also isolate small side channels and associated wetlands that occur on the west bank of the river. Although Columbia spotted frogs have not been documented at the site, impacts to potential habitat would occur as a result of site clearing, grading and filling and from potential changes to the existing hydrologic regime subsequent to construction of the west bank levee. Use of the riparian zone at the site for travel, dispersal, cover, foraging, resting and nesting by all local species would be temporarily impaired during construction.

Jackhammer use and other construction noise would produce noise levels that are likely to temporarily disturb wildlife occurring within a mile of the site. Temporary displacement of some individuals may occur. The high noise level activities would occur in July, during the instream work window. Noise impacts to wintering bald eagles that may use the area would be avoided by this construction timing. Removal of several large, dominant trees (black cottonwood and ponderosa pine) may limit long-term opportunities for bald eagle roosting in the immediate vicinity. Removal of potential perch trees would occur on both sides of the river; including from about 300 feet of the west bank and from about 20 to 50 feet of the east bank. However, the majority of canopy trees would remain in place on the east bank.

The site is currently used as a private trout farm and is adjacent to the Lostine River Road. The long-term level of human disturbance (human presence, vehicles, noise, light glare, etc.) resulting from the Proposed Action would not be greatly increased over existing levels.

3.3.3.3 Lostine River Hatchery

Construction of the proposed facilities would result in about three acres of new impervious surface at the site. Numerous large trees, primarily grand fir, Englemann spruce, and black cottonwood, would be removed, as would a small number of diseased trees, snags and downed wood. Two small aspen stands occur at this site, and although impacts to these stands would be avoided to the extent possible and new aspen would be planted, some trees would be removed. Installation of the intake, screens, fish ladder and conveyance pipeline would result in the removal of about 100 feet of the riverbank and associated riparian habitat. Localized impacts would result from construction and stabilization of the outfall structure, which would require excavation of about 150 cubic yards of riverbank material and placement of about 35 cubic yards of cobbles for stabilization of the structure.

Temporary displacement of wildlife is expected during construction. Equipment noise is likely to disturb bald eagles wintering in this section of the river. Although construction of buildings would occur within the bald eagle wintering period, foundation and exterior work would occur early on, and quieter, interior work would be completed later in the wintering period to minimize disturbance. Removal of trees at this site is not anticipated to adversely affect bald eagle roosting, as the majority of tree removal would be conducted away from the mainstem river channel where perching is most likely to occur. Construction activities may also temporarily disrupt movement of big game, especially elk, mule deer and white-tailed deer, from upland areas to the river corridor. These effects would be minimal and short-lived as animals within the project vicinity are somewhat accustomed to human presence and disturbances.

Some temporary impacts to wildlife use of and movement through the site may be unavoidable. Over the long-term, a well-vegetated area would be maintained between the proposed hatchery facility and the main river channel. Adequate cover to provide for travel, dispersal, cover, resting, and foraging corridors is expected to remain at this site. The hatchery site would not be fenced so that big game may continue to access the river after construction.

Long-term wildlife habitat loss would result from project construction and activity at specific site locations. Aspen stands are reportedly used by 188 vertebrate species for reproduction and feeding in the Blue Mountains (Thomas et al. 1979) and some indirect impact to wildlife through removal of this habitat would result from site activities. Some of the forested riparian community in the project area, including the outfall access road corridor that provides potentially suitable breeding and feeding habitat for the yellow-billed cuckoo, would be removed. However, no regularly occupied breeding locations have been documented within Oregon (Csuti, et al. 2001), and other suitable habitat is available in the vicinity. Suitable habitat for Columbia spotted frog may be present in portions of the meander side channel within the project area, including in proximity to the proposed outfall location would also be removed (although no spotted frogs have been documented at the project site). However, adequate suitable habitat is available in the vicinity and any individuals present are likely to disperse to adjacent habitat.

3.3.3.4 Imnaha Final Rearing Facility

The proposed Imnaha Final Rearing Facility would be staffed year-round, and operated from September through March. Proposed facilities include a residence, shop and bunkhouse; raceways, intake and outfall structures; well, pipelines and septic system; access road and power; and relocation of an existing bridge. Prior to construction, up to three feet of rock fill would be placed on the lower end of the site. The vegetated riparian zone would be largely avoided. Construction of facilities would result in about three and one-half acres of new impervious surface at the six-acre facility.

The existing bridge would be relocated about 200 feet upstream of its current location, to a stable rock bar. A small number of trees and at least one snag would be removed due to placement of the bridge abutments. Additional snags occur in close proximity to the proposed bridge location, however, and it is possible that one or more additional snags would be affected either directly by placement of the structure, or indirectly if adjacent snags (overhanging canopy) interfere with equipment operation for safe placement of the panel bridge. Removal of large, dominant trees (black cottonwood and ponderosa pine) may limit opportunities for bald eagle roosting in the immediate vicinity. However, removal of snags and potential perch trees would be restricted to this location, and many others are available off-site.

Rock fracturing, drilling and excavation for installation of the intake structure and concrete cutting to dismantle the old bridge abutments would produce high, periodic noise levels that are likely to disturb wildlife within a mile or more of the site and alter normal behavior patterns. Temporary displacement of some individuals may occur. The highest noise level activities would primarily occur between July 15 and August 15, during the instream work window. Noise impacts to wintering bald eagles that may use the area would be avoided by this timing. No nesting territories are documented near the site (ONHP 2002). Disturbance levels resulting from remaining construction activities would likely be reduced, due to the lower noise levels generated, but may also cause temporary displacement of local wildlife.

The ability of many Imnaha subbasin riparian zones to support wildlife and provide aquatic habitat has been reduced by roads and livestock grazing. Exclusion of cattle from the riparian zone and supplemental planting of native species at the proposed Imnaha Final Rearing Facility would, in the long-term, improve the functioning condition of the riparian habitat along this stream segment. Some long-term adverse wildlife impact is expected at this site from the loss of a small amount of riparian habitat where structures would be

placed, increased human access and human-related disturbances, and disturbance to potential bald eagle roosting habitat outside of the critical wintering period.

3.3.3.5 Imnaha Satellite Facility

The improved Imnaha Satellite Facility would operate from March through November with one full-time operator on-site during that period. Construction of all new structures would be within the area of existing development. The construction work window would extend from late April to early November due to the remote location and high snowfall at the site. The new acclimation pond, settling basin, modifications to the adult holding, and other miscellaneous site improvements would be constructed from June through November. All instream work would occur from July 15 to August 15.

Proposed site improvements would disturb ground and add a small amount (one-quarter acre) of new impervious surface to the site. Construction noise and activity disturbances may alter the behavior and individual distribution of certain wildlife within the area, but these impacts are short-lived and are not expected to affect long-term use, abundance and distribution of wildlife in the area. Construction would not occur in the bald eagle wintering period and no nesting territories have been documented in the vicinity.

The site is currently developed as a hatchery and proposed improvements would not expand the developed area or greatly increase the long-term level of human disturbance or activity over existing conditions. No snags or mature trees would be removed and the overall quality of wildlife habitat at this location would remain essentially unchanged from existing conditions.

3.3.4 Cumulative Impacts

As described in EIS Section 3.2.4 and Table 1-1, other projects in the vicinity of the Proposed Action sites include renovation of existing and construction of new private residences, rehabilitation of Wallowa Lake Dam, numerous habitat restoration projects, salmon recovery projects, watershed management activities, and the Nez Perce Tribal Hatchery Program. During construction, some of these projects may have temporary minor impacts to wildlife (e.g. noise, displacement). However, several habitat and salmon recovery projects on federal, state and private lands would likely result in long-term beneficial effects to wildlife. Considering all ongoing and future activities together with the Proposed Action, adverse long-term cumulative impacts to wildlife populations are not expected.

3.3.5 Consequences of Taking No Action

Current land use and land management would remain the same at all sites under the No Action Alternative. There would be no additional construction of fish trapping and hatchery facilities within the subbasins. Supplementation and recovery activities for salmon stocks would continue as they are currently programmed. Wildlife resources and population trends within the basin would remain relatively unchanged. However, riparian-associated and scavenger species could be potentially impacted by a continued reduction in the salmon population (i.e. reduced food source and nutrient loading as salmonid stocks decline).

3.4 Plants and Wetlands

3.4.1 Affected Environment

3.4.1.1 Grande Ronde Subbasin

At one time native grasslands occupied an extensive area in eastern Oregon, but over time, many native grass communities in the Grande Ronde subbasin have been lost due to burning, over-grazing, mowing, plowing

and irrigation (Nowak and Eddy 2001). As elevation increases in the subbasin, grasslands intermingle with shrub/scrub plants, eventually grading into coniferous forests in the Blue and Wallowa Mountains (Nowak and Eddy 2001). Forest associations also change with increasing elevation, with low elevation ponderosa pine associations grading into Douglas-fir, grand fir, subalpine fir and mountain hemlock associations where conditions are appropriate (Nowak and Eddy 2001).

The ONHP has identified numerous state or federally listed plant species and species of concern in the Oregon portion of the subbasin (shown in Table 3.4-1). No known occurrences of listed or candidate plant species, or those identified as species of concern by the USFWS or by the ONHP (2002), were identified within the immediate vicinity of project sites in the Grande Ronde subbasin.

Table 3.4-1. Federally Listed Plant Species and Species of Concern in the Grande Ronde and Imnaha Subbasins, Wallowa and Union Counties, Oregon^{1/}.

Common Name	Scientific Name	County	Federal Status ^{2/}
Wallowa ricegrass	<i>Acnatherum wallowaensis</i>	Wallowa	SOC
Hells Canyon rock cress	<i>Arabis hastatula</i>	Wallowa	SOC
Upward-lobed moonwort	<i>Botrychium ascendens</i>	Wallowa	SOC
Crenulate moonwort	<i>Botrychium crenulatum</i>	Union, Wallowa	SOC
Skinny moonwort	<i>Botrychium lineare</i>	Wallowa	C
Twin-spike moonwort	<i>Botrychium paradoxum</i>	Union, Wallowa	SOC
Stalked moonwort	<i>Botrychium pedunculosum</i>	Union, Wallowa	SOC
Fraternal paintbrush	<i>Castilleja fraterna</i>	Union, Wallowa	SOC
Purple alpine paintbrush	<i>Castilleja rubida</i>	Wallowa	SOC
Hazel's prickly-phlox	<i>Leptodactylon pungens</i>	Wallowa	SOC
Greenman's lomatium	<i>Lomatium greenmanii</i>	Wallowa	SOC
Membrane-leaved monkeyflower	<i>Mimulus hymenophyllus</i>	Wallowa	SOC
Macfarlane's four-o'clock	<i>Mirabilis macfarlanei</i>	Wallowa	T
Howell's spectacular thelypody	<i>Thelypodium howellii</i> ssp. <i>spectabilis</i>	Union	T
Douglas clover	<i>Trifolium douglasii</i>	Union	SOC
Spalding's campion (catchfly)	<i>Silene spaldingii</i>	Wallowa	T

1/ Sources USFWS (2002); Nowak and Eddy (2001); ONHP (2002, 2001)

2/ E = Endangered, T = Threatened, P = Proposed, C = Candidate, SOC = Species of Concern

Several weed species were documented on and near project sites. In Oregon, noxious weeds pose a serious economic and environmental threat (Nowak and Eddy 2001). Forty-two noxious weeds have been listed by the weed boards of Union and Wallowa counties (Nowak and Eddy 2001). These invasive, mostly non-native, plants choke out crops, destroy range and pasture lands, clog waterways, affect human and animal health and threaten native plant communities (Nowak and Eddy 2001). The spread of noxious weeds reduces forage production for wildlife and replaces wildlife forage on range and pasture, thereby reducing habitat suitability (Bryson et al. 2001).

Lookingglass Hatchery — Lookingglass Hatchery sits on a small terrace within a relatively steep valley. Surrounding slopes are locally dominated by grasses, scattered shrub thickets and intermittent tree cover

(Figures 2-2 and 3.9-1). Remaining areas are forested with mixed conifer stands of Douglas-fir and ponderosa pine. Cliffs and talus slopes are present in the vicinity, creating a mosaic of subbasin habitat types.

Wetlands at the site are limited to a narrow fringe at the ordinary high water mark of Lookingglass Creek. This riparian wetland fringe is dominated by willows, red-osier dogwood, reed canarygrass, horsetail, small-fruited bulrush and spikerush. Further upslope the riparian zone is characterized by a somewhat drier vegetation community, dominated by mock orange, Rocky Mountain maple, mountain alder, oceanspray and mallow ninebark.

Other prevalent plant species found on-site are ponderosa pine, Douglas-fir, grand fir and western larch in the overstory. Blue elderberry, serviceberry, snowberry, black hawthorn and thimbleberry are common in the shrub understory, while buckwheat, bracken fern, yarrow and various native and introduced grasses and forbs characterize the herbaceous layer.

Weedy, non-native species noted at the Lookingglass Hatchery site include diffuse knapweed, common mullein, sulfur cinquefoil, prickly lettuce, St. John's-wort and Canada thistle, among others. The hatchery maintains a contract for noxious weed control services, including the use of a broad-spectrum herbicide for spot applications (Lund 2002, personal communication).

Lostine Adult Collection Facility — The proposed Lostine Adult Collection Facility is located in the lower Lostine River subbasin where the river occupies a relatively level valley bottom (Figures 2-3 and 3.9-2). The riparian zone in this river reach is primarily characterized by deciduous species with conifers dominant in some areas. The riparian plant communities throughout this area have been affected by agriculture, irrigation withdrawals, livestock grazing, residential development, road construction and bank stabilization. The riverbanks and immediate upland areas contain a mix of open river rock and native vegetation. Dominant trees along the river margin include ponderosa pine, black cottonwood and quaking aspen.

Numerous small channels, seeps, springs and ponds occur at the site. Some of the ponds are used as holding ponds for the private trout farm that is operated on-site. Although a formal wetland delineation has not been conducted, observations of plant community dominants and standing and flowing water indicate the presence of a wetland area on the west side of the river at this location (Figure 3.4-1). The wetland area contains willows and a diverse herbaceous understory. Dominant plant species within the wetland area include small-fruited bulrush, several sedges including sawbeak sedge, rushes including dagger-leaf rush, forget-me-not, monkey-flower, western jacob's-ladder and grasses such as meadow foxtail and manna-grass.

Additional plants species dominant in the drier portions of the site, or along the river banks, include mountain alder, chokecherry, water birch, red-osier dogwood, virgin's-bower, wild rose, snowberry, blue elderberry and spreading dogbane. Common herbaceous species include star-flowered false solomon's seal, stinging nettle, orchard grass, reed canarygrass, timothy, fescue and numerous other native and introduced grasses and forbs.

The Nez Perce Biocontrol Center conducted a survey for invasive and non-native plant species at the Lostine River sites. Weedy, non-native species noted on the proposed adult collection facility site include Canada thistle, white campion, teasel, cheatgrass, hairy vetch and western salsify. Diffuse knapweed was noted adjacent to the site in low densities and common mullein was found throughout the area (Nez Perce Biocontrol Center 2001).

Lostine River Hatchery — The Lostine River Hatchery site is on about six acres of undeveloped land adjacent to the Lostine River (Figures 2-4 and 3.9-3). Plant communities differ slightly at the proposed intake site, primary hatchery facility location, outfall access road and structure, and production wells.

The intake site is a mixed conifer community that includes ponderosa pine, Douglas-fir, and grand fir. The understory is fairly open and is vegetated by oceanspray, Rocky Mountain maple, western juniper, creeping Oregon grape, serviceberry, mock orange and huckleberry. Characteristic forbs and grasses include nodding onion, meadowrue, star-flowered false solomon's seal, heartleaf arnica, yarrow, pine grass and orchard grass. Weedy, invasive species include salsify, dandelion, diffuse knapweed, prickly lettuce and cheatgrass.

The primary components of the proposed hatchery would be built within an area that has been intensively grazed by horses, however, scattered groups of trees still exist including grand fir, Englemann spruce, black cottonwood, and quaking aspen. Other species commonly occurring in this area include snowberry, mock orange, yarrow, common mullein, salsify, prickly lettuce, dandelion, white campion, phacelia, timothy, bromes and other introduced grasses. Additional weed species noted at the proposed Lostine River Hatchery site include diffuse knapweed, cheatgrass, teasel and Canada thistle (Nez Perce Biocontrol Center 2001).

The outfall structure and associated access road are proposed in the least disturbed plant community found at this project location. This area is dominated by Englemann spruce, grand fir and black cottonwood in the overstory with mountain alder, Rocky Mountain maple, snowberry, gooseberry and currant, red-osier dogwood, blue elderberry, wild rose, blackcap, cow parsnip, stinging nettle, large-leaved avens, bedstraw and lady fern in the understory.

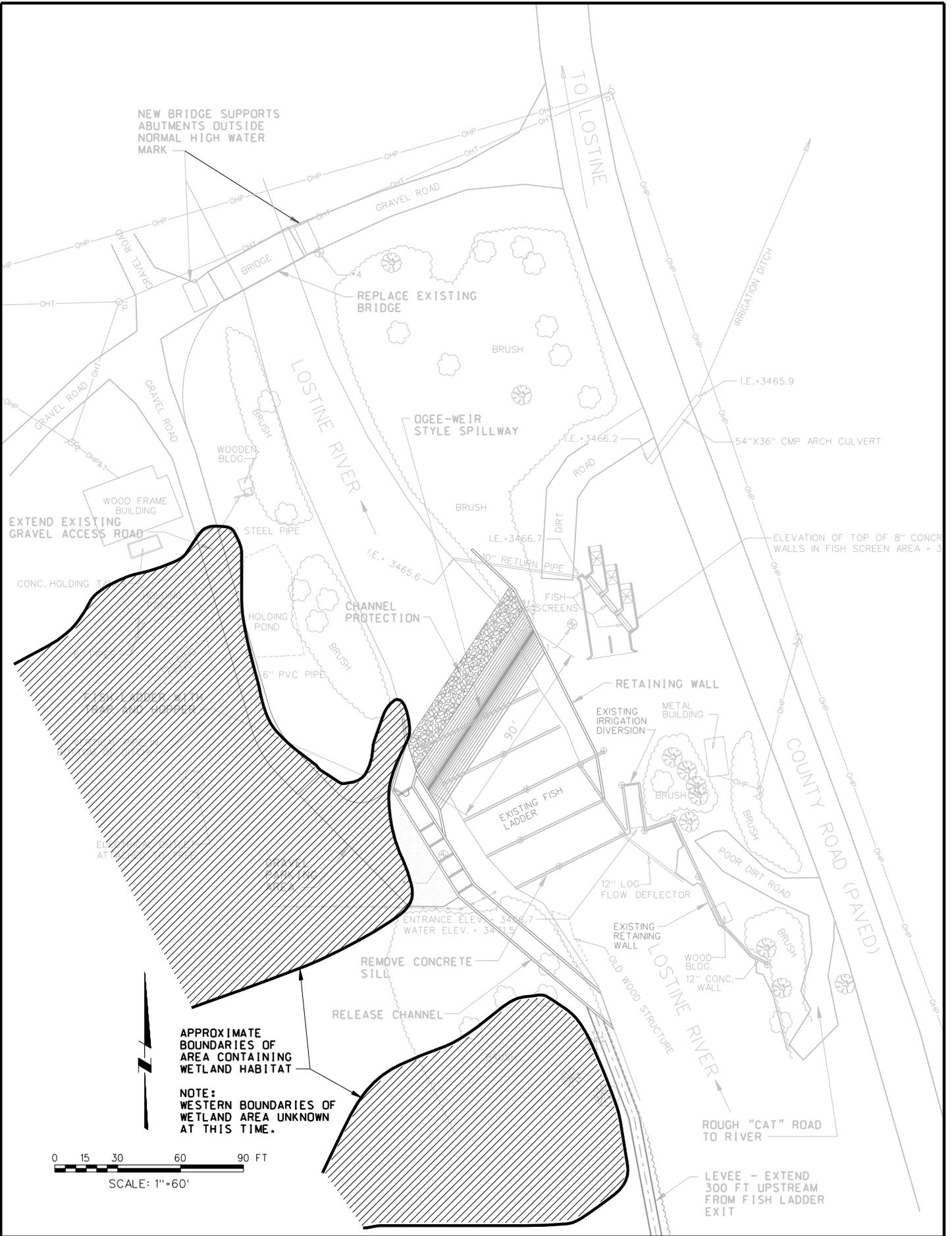
Wetland habitat at this site occurs in association with meanders and side channels of the Lostine River, and small ephemeral and perennial streams feeding the mainstem river. A wet plant community dominates at the proposed outfall side channel location (Figure 3.4-2). Dominant species are mountain alder, water birch, and red-osier dogwoods in the overstory, and manna-grass, sawbeak sedge, monkey flower, lady fern, horsetail, forget-me-not, and white bog orchid in the understory.

The production wells also occur in generally wet plant communities due to their close proximity to the river. A small feeder stream occurs at the primary production well location. The plant community here is by grand fir, Englemann spruce, mountain alder, hawthorn and water birch in the overstory, with lady fern, horsetail, and cow parsnip in the understory. The plant communities at the other two well sites have a larger weedy component, especially the north well location where some bank stabilization activities are apparent.

3.4.1.2 Imnaha Subbasin

Forested communities cover about 42 percent of the subbasin (Bryson et al. 2001). At high elevations, subalpine fir, lodgepole pine, and Engelmann spruce dominate forested stands (Bryson et al. 2001; U.S. Forest Service 1998c). These high elevation forest communities are found in the headwater areas at the southern end of the subbasin and along parts of the eastern boundary of the subbasin. Grand fir, Douglas-fir, and ponderosa pine dominate low elevation forest communities such as that found at the Imnaha Satellite Facility (U.S. Forest Service 1998c). Ponderosa pine communities in the subbasin are most common on warm, low elevation sites where they often grade into grassland communities such as that found at the Imnaha Final Rearing Facility (Bryson et al. 2001).

Grasslands cover about 43 percent of the subbasin (Bryson et al. 2001). Most high elevation grasslands in the subbasin belong to the green fescue-Hood's sedge association. These grassland communities occur in the headwaters region of the subbasin (Bryson et al. 2001). Grasslands at lower elevations belong to a variety of bunchgrass associations with dominants including bluebunch wheatgrass, Idaho fescue, Sandberg's bluegrass, and Kentucky bluegrass (Bryson et al. 2001). These grasslands belong to the northeastern Oregon canyon grasslands vegetation type. They are found along the steep canyons of the subbasin and generally throughout the northern and western sections of the subbasin (Bryson et al. 2001).



APPROXIMATE
BOUNDARIES OF
AREA CONTAINING
WETLAND HABITAT

NOTE:
WESTERN BOUNDARIES OF
WETLAND AREA UNKNOWN
AT THIS TIME.

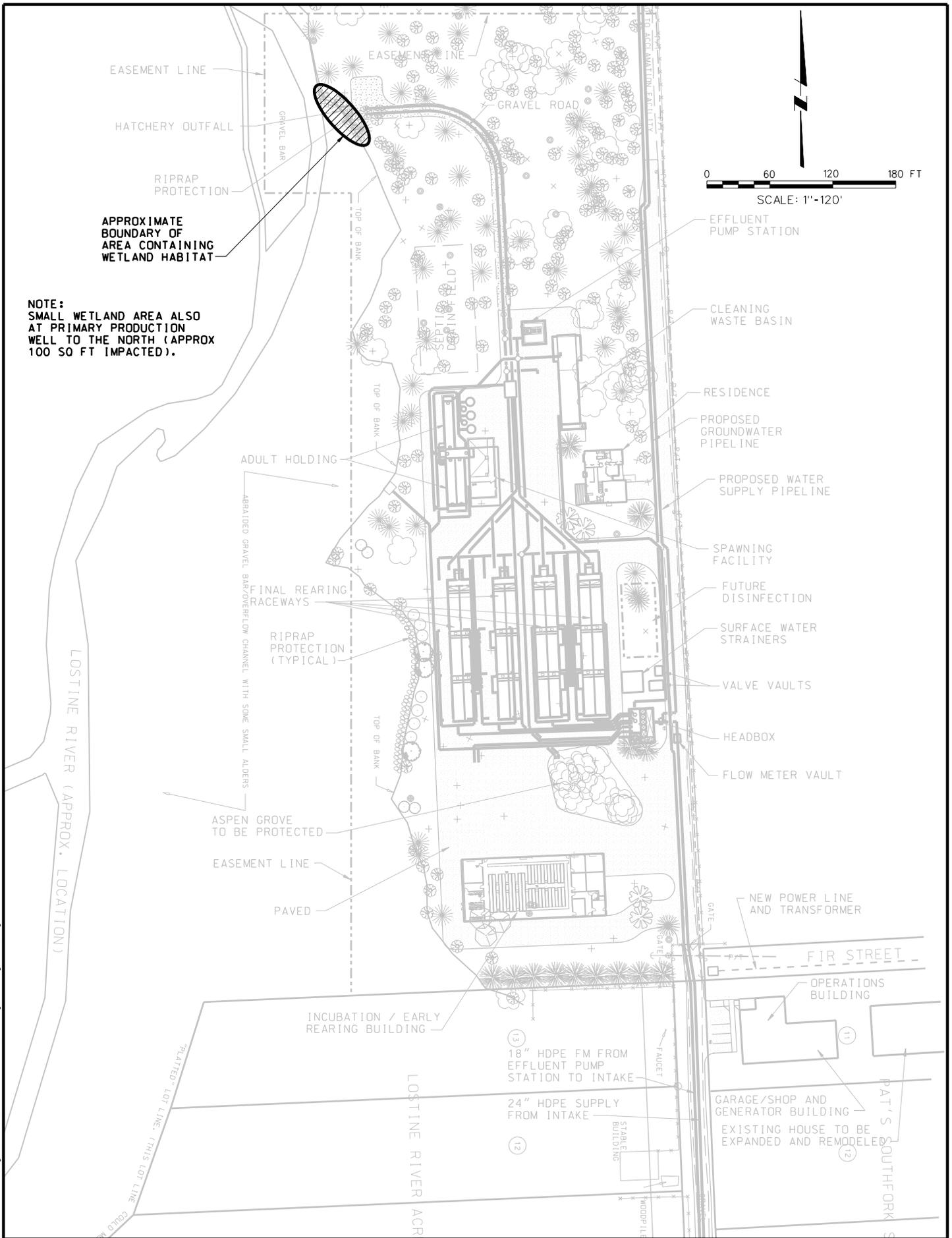
0 15 30 60 90 FT
SCALE: 1"=60'



NORTHEAST OREGON
HATCHERY PROGRAM
GRANDE RONDE IMNAHA
SPRING CHINOOK
PROJECT

LOSTINE RIVER ADULT COLLECTION FACILITY
WETLAND AREA (APPROX)

FIGURE
3.4-1



NOTE:
 SMALL WETLAND AREA ALSO
 AT PRIMARY PRODUCTION
 WELL TO THE NORTH (APPROX
 100 SO FT IMPACTED).

**APPROXIMATE
 BOUNDARY OF
 AREA CONTAINING
 WETLAND HABITAT**



**NORTHEAST OREGON
 HATCHERY PROGRAM**
**GRANDE RONDE IMNAHA
 SPRING CHINOOK
 PROJECT**

**LOSTINE RIVER HATCHERY
 WETLAND AREA (APPROX)**

**FIGURE
 3.4-2**

Table 3.4-1 identifies listed plant species that are present in Wallowa and Union Counties. Two federally listed threatened species, Macfarlane’s four o’clock and Spalding’s catchfly, have been documented in the Imnaha subbasin (Bryson et al. 2001). Over 50 other rare or sensitive plant species have also been documented on the Wallowa-Whitman National Forest (Bryson et al. 2001). However, no known occurrences of listed or candidate plants species, or those identified as species of concern by the USFWS, were identified by the ONHP (2002) within the project areas.

Thirty-two introduced plant species are recognized as noxious weeds in Wallowa County. Many of these species exist in the Imnaha subbasin (Bryson et al. 2001) and many have been found at project sites (Nez Perce Biocontrol Center 2001). Some of the successful invaders of riparian communities are diffuse knapweed, yellow star thistle, and leafy spurge. Cheatgrass, leafy spurge, and knapweeds are problematic invaders of grasslands throughout the subbasin (Bryson et al. 2001). Disturbed areas and roadways in the subbasin host a variety of the introduced species listed above and additional species such as Canada thistle.

Imnaha Final Rearing Facility — The Imnaha Final Rearing Facility is proposed on about ten acres of private land within the lower Imnaha subbasin, where ponderosa pine communities grade into grassland communities (Figures 2-6 and 3.9-4). The site and surrounding areas are characterized by open, dry grassland communities, while riparian areas are dominated by shrub and forest communities. The site has long been used for grazing livestock. Evidence of an old homestead is apparent at the southeast end of the cleared pasture, where remnants of an orchard are found. The central portion of the site has no woody vegetation and is dominated by introduced pasture grasses and weedy forbs. Species include tall fescue, cheatgrass, orchard grass, timothy, meadow foxtail, ryegrass, clover, dandelion, English plantain, prickly lettuce, and yarrow. The Nez Perce Biocontrol Center survey identified the following invasive non-natives: common bugloss, Canada thistle, cheatgrass, bull thistle, common mullein, white horehound, and white campion (Nez Perce Biocontrol Center 2001). Species that were noted, but less common, include teasel and black medic.

A narrow fringe of wetland and riparian vegetation exists along the river corridor at the site. Common species include water birch, black cottonwood, willows, hawthorn, mountain alder, wild rose, snowberry, common mullein, horsetail and white campion. Ponderosa pine and black cottonwood are the primary overstory species found. Vegetation along the abandoned irrigation ditch (proposed pipeline location) is similar in nature to the riparian vegetation common throughout the area – dominant woody species include water birch, hawthorn, red-osier dogwood, mock orange, mallow ninebark, rose, chokecherry and plum.

Where the steep, rocky canyon walls and the river meet at the southern (upstream) portion of the site (proposed intake location), riparian vegetation is less disturbed and has greater diversity. Species found in this area include Rocky Mountain maple, chokecherry, blue elderberry, mock orange, currant, poison ivy, blackcap, mountain sweet-cicely, stinging nettle, buttercup and horsemint.

Imnaha Satellite Facility — The existing Imnaha Satellite Facility is located in the upper subbasin, and is characterized by mixed conifer forest (Figures 2-8 and 3.9-5). Dominant overstory species in undisturbed portions of the site include grand fir and Douglas-fir, which commonly dominate low elevation forest communities in the subbasin. The entire site is located within a Forest Service-designated Riparian Habitat Conservation Area. The site contains the existing hatchery facilities, maintained lawns, ornamental plantings and small areas of native, riparian vegetation. The area north of the fish ladder is a community of Douglas-fir, grand fir, mountain maple, snowberry, thimbleberry, serviceberry, blackcap, currant, horsetail, trillium, star-flowered false solomon’s seal, twisted stalk, queen’s cup, mountain sweet-cicely, heartleaf arnica and violet. The only wetland is the narrow fringe at the river’s edge. No significant springs, seeps or other wetland types were noted within the site.

The area to the south of the existing intake structure is a mixed conifer forest and riparian zone. Dominant species include grand fir, black hawthorn, mountain alder, red-osier dogwood, snowberry, serviceberry,

creeping Oregon grape, horsetail, redstem ceanothus, pine grass and pinedrops. Vegetation surrounding the existing intake is non-native weedy species, including black medic, prickly lettuce, common bugloss, and clovers.

Non-native weeds growing at the Imnaha Satellite Facility include sulfur cinquefoil, common bugloss, prickly lettuce, common mullein and white campion (Nez Perce Biocontrol Center 2001). St. John's-wort and bull thistle are also found in areas adjacent to the facility. Weed control methods being implemented at the hatchery include hand-pulling and mowing to keep weed seed production to a minimum (Nez Perce Biocontrol Center 2001).

3.4.2 Evaluation Criteria

The following criteria were used to evaluate the potential impacts to plant life and wetland areas at the proposed sites:

- A change in the number or amount of threatened, endangered or rare native species.
- A change in the number or amount of non-native or weed species.
- A change to wetland characteristics.

3.4.3 Consequences of the Proposed Action

Construction activities would result in both short-term and long-term impacts on plant communities and species at all sites. Short-term adverse impacts would include disturbance (removal, sedimentation, etc.) of species that would regenerate in one season (damage to vegetation that could be overcome). Long-term adverse impacts would include permanent loss of native species or reduction in diversity of species through soil removal, soil erosion, soil compaction, burial, or displacement by noxious weeds or other invasive species. Long-term beneficial impacts would include control of noxious weed, preservation of and use of native vegetation in landscaping and elimination of livestock grazing at sites.

3.4.3.1 Lookingglass Hatchery

The site is an existing fish production facility. All proposed improvements would occur within the existing, developed area. The raceways and storage building are proposed where native vegetation has been largely replaced with ornamental or invasive plant species. No direct impacts to the riparian zone, or other native habitats, are expected. Few, if any, trees would be removed.

No changes to native plant communities at this location are expected as a result of proposed activities and on-site programs for control of weed species would continue.

3.4.3.2 Lostine Adult Collection Facility

Construction of a flood-proofing levee would result in the removal of about 300 feet of riparian vegetation on the west bank of the Lostine River. Adjacent plant communities would be disturbed by equipment staging, the temporary access road and operation of equipment during construction of the levee. Construction of a concrete wall and the removal of about 20 to 50 feet of the riverbank (to install the flow velocity barrier) would result in the removal of associated riparian vegetation.

Direct and indirect wetland impacts would occur as a result of proposed clearing, grading and filling for construction of the fish ladder, access and loading driveway. A net loss of about 12,000 to 15,000 square feet of wetland area would result from installation of proposed project components, primarily in the vicinity of the parking area and the levee. Long-term, indirect impacts may also occur as a result of potential changes to the

hydrologic regime of the site due to levee construction and proposed french drains. These impacts are not quantifiable at this time, but could involve changes to site plant composition (resulting from changes to the wetland water situation) and associated impacts to site wildlife (particularly amphibians). The Proposed Action includes a commitment to conduct a formal wetland delineation and to implement any compensatory wetland mitigation based on the outcome of the delineation and applicable regulations.

Long-term preservation of site plant diversity and health would be accomplished through revegetation of disturbed areas with native species and active control of noxious weeds.

3.4.3.3 Lostine River Hatchery

Numerous mature trees, primarily grand fir, Englemann spruce and black cottonwood, would be removed from the central portion of the site during construction of hatchery facilities. Localized impacts to forested riparian communities are anticipated at the intake, outfall structure, and production wells. A portion of relatively diverse riparian forest with dense understory vegetation would be removed in the outfall access road corridor.

Two small aspen stands at the proposed Lostine River hatchery site would be avoided if possible. However, some trees may be removed and indirect impacts may occur over time as a result of construction disturbance and on-going operation and management activities at the hatchery facility. Aspen planting is proposed as a part of project improvements.

An adverse impact to vegetation is likely from proposed activities at this site due to the loss of some aspen trees and the disturbance of a relatively unaltered forested riparian community near the outfall. About 3,000 to 5,000 square feet of wetland area would be lost at the outfall and primary production well locations. The Proposed Action includes a commitment to conduct a formal wetland delineation and to implement any compensatory mitigation based on the outcome of the delineation and applicable regulations.

3.4.3.4 Imnaha Final Rearing Facility

Most of the project activity is proposed in the center of the site, which currently lacks woody vegetation and is dominated by introduced pasture shrubs, grasses and weedy forbs. Removal of native vegetation is primarily limited to the intake structure and intake pipeline corridor (about 1000 feet, most of which is along an existing road), outfall structure (less than 20 feet) new bridge abutments (about 40 feet on each side of the river) and in the corridor for a new power line (about 300 feet). However, a small number of mature trees and at least one snag would be removed from the proposed bridge relocation site. Additional snags occur in close proximity to the proposed bridge location, however, and it is possible that more than one snag would be removed for the structure or to allow for safe equipment operation during structure placement. Where possible, the riparian zone would be replanted with native vegetation.

Exclusion of cattle from the riparian area and planting disturbed areas with native species would encourage more diverse riparian vegetation along the riverbank. Weed control at the project site would also encourage reestablishment of native vegetation.

3.4.3.5 Imnaha Satellite Facility

Most construction activities at this existing facility would occur in areas devoid of native vegetation or in areas that are maintained as lawn and landscaping. For example, no vegetation would be removed to install a new power line in the existing roadbed. About seven young trees planted as ornamental landscaping would be removed. The new intake structure may result in minor incidental impacts to riparian vegetation as a result of brush clearing, excavation, and placement of structures and associated riprap. A minor amount of woody

riparian vegetation may be removed or disturbed where the new fish ladder would be installed adjacent to the existing ladder. Riprap would be used at this location to stabilize the ladder at the river entrance.

Only very minor impacts to native vegetation is expected at this location as the site is already operated and maintained as a hatchery facility, and proposed improvements would be confined to the existing facility area. Native plants would be encouraged through revegetation and continuing weed control efforts.

3.4.4 Cumulative Impacts

As described in EIS Section 3.2.4 and Table 1-1, other projects in the vicinity of the Proposed Action sites include renovation of existing and construction of new private residences, rehabilitation of Wallowa Lake Dam, numerous habitat restoration projects, salmon recovery projects, watershed management activities and the Nez Perce Tribal Hatchery Program. During construction, some of these projects may have temporary minor adverse effects to plants and wetlands until sites are revegetated or other standard best management practices and mitigation measures are applied. However, several habitat improvement and salmon recovery projects would result in long-term beneficial effects to plants and wetlands, as would ongoing weed control, erosion control, fire management, and other activities. These projects, when considered together with the Proposed Action are not expected to result in broadscale depletion or other adverse long-term cumulative impacts to plants or wetlands in general.

3.4.5 Consequences of Taking No Action

No direct changes to plant communities are expected as a result of the No Action Alternative. Native and non-native species would probably not be removed or disturbed at any of the project sites and existing land uses, such as grazing, would continue.

3.5 Geology, Geologic Hazards and Soils

3.5.1 Affected Environment

3.5.1.1 Grande Ronde Subbasin

Located within the Grande Ronde subbasin, the Lostine River watershed is part of the Wallowa Mountain Terrane, which includes remnants of ancient volcanic islands including granite rock intrusions (called the Wallowa Batholith); fine-grained sedimentary rocks of Jurassic-age (about 150-million years old); and younger Grande Ronde Basalt and Columbia River Basalt (Walker 1991). The basalt underlying this area formed from lava that began to flow over eastern Oregon about 17 million years ago and continued for about 5 million years. In the upper and middle portions of the Lostine River watershed, a series of ancient glaciers and faulting (11,000 to 500,000 years ago) created U-shaped and hanging valleys and other glacial features such as cirques (steep, semi-circular peaks formed by glaciers) and cirque lakes (found at the base of many cirques), moraines (ridges of unsorted material deposited by glaciers) and other glacial deposits, and very steep valley walls. The lower portion of the Lostine River watershed is characterized by sediment deposited by glacial melt waters and an ancient glacial lake. Geology in the Grande Ronde River valley near Lookingglass Creek consists of thick sections of Grande Ronde Basalt incised by the river to form narrow river canyons flanked by steep walls.

Common soils within the Lostine River basin resulted from residual volcanic ash and glacial and **alluvial** deposits. Alluvial deposits are those laid down by water and can include a mix of clay, silt, sand and gravel. Historically, streams deposited material where the gradient flattened and formed a floodplain. Lacustrine