5.13 Wildlife, Fish, and Vegetation

5.13.1 Methodology

Vegetation

Vegetation mapping was completed as part of the formal wetland delineation undertaken for this DEIS. Direct impacts of the Proposed Action on vegetation types were measured within the disturbance footprint, which was 300 feet wide for all of the study area, except within the Boise River floodway, where it was 220 feet wide. The narrower footprint within the floodway is because this area would be spanned with a bridge and abutments rather than filled, as would occur on the floodplain. The bridge would require less width for construction and would cover less area than required for placement of fill. The Project footprint was superimposed on vegetation type and wetland maps and the impact area defined and evaluated.

Wildlife

Existing data from various USFWS publications, IDFG, Conservation Data Center, and other literature were obtained and evaluated to establish baseline conditions for wildlife. Habitat requirements of sensitive species that may occur in the study area were summarized and reviewed before going to the field for the habitat mapping exercise.

Field surveys included observations and counts of avian species nesting in the study area. The condition and quality of vegetation communities relative to wildlife habitat value were assessed qualitatively, and ongoing land use practices that are affecting wildlife habitat quality were noted. Potential impacts on sensitive species were analyzed based on the extent of impacts to various plant communities. Impacts also were assessed qualitatively by considering factors such as the regional significance of the resource, wildlife habitat value (such as a site's role as a wildlife movement corridor), the degree of fragmentation and loss of the habitat following implementation of the Proposed Action, overall habitat quality, and the potential for enhancing or restoring unique plant communities, wildlife habitat, or ecological connectivity.

Fish/Aquatic Resources

Baseline data on aquatic resources were obtained from maps, the Conservation Data Center database, IDFG, and the USFWS and included use of the study area by resident fish and other aquatic invertebrates of concern, habitat types within the corridor, and existing factors limiting fish production. Field surveys were conducted to collect data on channel type and confinement; habitat type; gradient; estimate of percent cover; estimate of substrate composition; large woody debris; bank stability and riparian characteristics; availability of off-channel habitat; fish passage barriers; and a photographic log. Use of habitat was recorded as migratory, spawning, or rearing, and defined using R1/R4 Fish and Fish Habitat Standard Inventory Procedures along with specific stream parameters (Overton et al., 1997). A photographic record and log of each stream crossing and unique features supplemented written documentation of fish habitat characteristics. An overall evaluation of existing data and results of the reconnaissance survey assisted in the determination of potentially affected stream areas.

The impact analysis estimated the effect of habitat changes on existing resources, with a focus on resident trout and warm water game species and aquatic invertebrate communities that makeup a component of the fishery prey base. Potential impacts to spawning, rearing, and migration habitat were analyzed with regard to changes in riparian vegetation and water quality during construction (short term) and after completion (long term) of the Proposed Action.

5.13.2 Regulatory Framework

Relevant regulations and statutes and key guidance documents include the following:

- ESA, 16 USC Sections 1531-1544
- National Forest Management Act, 16 USC Sections 1600-1614
- Fish and Wildlife Coordination Act, 16 USC Sections 661-667e
- Migratory Bird Treaty Act, 16 USC Sections 703-712
- EO 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," January 10, 2001, 66 FR 3853
- Bald Eagle Protection Act, 16 USC Sections 668-668d
- Fishery Conservation and Management Act (1976), 16 USC Sections 1801-1882. Major amendments, known as the Magnuson-Stevens Fishery Conservation and Management Act (P.L. 104-297), or more popularly as the Sustainable Fisheries Act, were enacted on October 11, 1996.
- Idaho 1974 Forest Practices Act (IDAPA 20.02.01)

5.13.3 Impacts

No Action Alternative

Native vegetation, farmlands, and wildlife habitat and are being lost currently through residential and commercial development in the general vicinity of the study area and this trend is expected to continue. The rate of loss is likely to increase as development accelerates over time in this rapidly growing part of the Treasure Valley. Losses would include remnant areas of native vegetation and non-tilled agricultural plant communities and riparian habitat that provide habitat for some species.

Limited streamside habitat also will continue to be lost through development, particularly within the desirable riparian habitats. The rate of habitat loss is likely to increase, accompanied by increased point and non-point source pollution into the Lower Boise River and increasing demands for water. These and other factors associated with continued residential and commercial development would further degrade the environmental parameters fundamental in supporting a healthy cold-water fishery.

Since no vegetation, habitat, or species loss is attributable to the No Action Alternative, there would be no indirect, cumulative, or construction effects.

Build Alternatives

Direct Impacts

Vegetation. Most of the study area consists of low density residential areas and farmed lands with virtually no native vegetation. Vegetation communities of particular interest—and the focus of most of the efforts for this analysis—include wetland and riparian communities and pasture lands located within the Boise River floodplain.

Forested wetland and riparian areas primarily are associated with former river meanders and backwater areas of the Boise River. Grasslands with inclusions of PEM wetlands were concentrated in irrigated pasturelands associated with the lower bench areas within the Boise River floodplain. Several species of noxious weeds occur in the study area. Shining flatsedge, the only sensitive plant that may occur in the study area, was not found during field surveys.

Implementation of any Build alternative would directly result in the loss of between 33 and 36 acres of native habitats and irrigated pasture within the Boise River floodplain, primarily due to fill being placed in wetland areas (Table 5-35). Of this total, between 24 and 25.5 acres are irrigated, grazed pasture and the remainder consists of wetland and riparian communities. Those areas of forested and scrub-shrub habitats along the Boise River that meet the requirements of jurisdictional wetlands are listed as jurisdictional wetland habitats in Table 5-35. Other forested and scrub-shrub habitats along the river that do meet all of the requirements are listed as riparian habitats. Shining flatsedge was not found and is not expected to occur because potential habitats are currently dominated by reed canarygrass. None of the Build alternatives is expected to result in impacts to this sensitive species.

TABLE 5-35
Impacts to Vegetation/Habitat Types on the Boise River Floodplain[a]

	Jurisdictional Wetland Habitats[b]			Non-wetland Riparian Habitats[b]			
Alt	Palustrine Forested Wetland[b] (Acres)	Palustrine Scrub/Shrub Wetland[b] (Acres)	Emergent Wetland (Marsh) (Acres)	Riparian Forest[b] (Acres)	Riparian Scrub/Shrub[b] (Acres)	Irrigated Pastureland (Acres)	Total (Acres)
1	2.1	0.1	4.0	2.9	0.3	24.0	33.4
1B	2.1	0.1	4.0	2.9	0.3	24.0	33.4
2	2.1	0.1	4.7	2.9	0.3	25.5	35.6
2D	2.1	0.1	4.0	2.9	0.3	24.0	33.4
3A	2.1	0.1	4.0	2.9	0.3	24.0	33.4
3C	2.1	0.1	4.0	2.9	0.3	24.0	33.4

[a] These impacts result primarily from fill being placed in wetland areas along the Boise River floodplain

[b] Jurisdictional status refers to Section 404 of the CWA. Forest and scrub/shrub habitats on the Boise River floodplain support virtually the same plant species and have the same values for wildlife regardless of their classification as either jurisdictional wetlands under Section 404 or as non-wetland riparian habitats.
Source: CH2M HILL, 2008m.

Wildlife. Impacts to wildlife vary north and south of the Phyllis Canal. Very few direct or indirect impacts to wildlife and wildlife habitat would result from construction or operation of any of the Build alternatives south of the Boise River floodplain (from the Phyllis Canal to

I-84) because habitat values are so low in this area. These farmlands do not include any flooded corners or unfarmed areas that support permanent wildlife cover. These irrigated farmlands outside of the floodplain, ornamental trees near houses, and canal fringe wetlands provide only very marginal habitat for wildlife. Fringe wetland vegetation along small canals and ditches that would be impacted is also limited in extent and is of little value for wildlife. The few species that are present include those that a re tolerant of human activities and don't require large areas of habitat, such as striped skunks, raccoons, foxes, and a few raptors and ducks. These species would be subject to increased roadkill because of the presence of the roadway, multiple lanes, and increased traffic volumes.

The vast majority of the impacts to wildlife and wildlife habitat would occur within the Boise River floodplain. Each of the Build alternatives would follow essentially the same route across the Boise River, the floodway, and most of the floodplain. Therefore, direct, indirect, and cumulative impacts on wildlife and wildlife habitat are essentially the same for each alternative.

The study area is located in a sparsely populated rural area. Based on an extensive body of published literature, field study, and observation, the best wildlife habitat and the highest levels of wildlife use in the study area are located on the Boise River floodplain. The highest value habitats include the forested, scrub/shrub, and emergent wetland and riparian areas associated with the Boise River.

Despite extensive livestock grazing for decades, avian diversity within the study area is relatively high because of the diverse riparian community and very low levels of human activity and development on the floodplain south of the Boise River. This lack of development contributes to a high degree of ecological connectivity to adjacent wetland and riparian habitats located both upstream and downstream along the river. Many species of raptors and neotropical migrant songbirds use the study area for foraging or nesting. Mammal diversity and abundance appear to be relatively low; however, habitats along the Boise River are an important movement corridor for mule deer. Sensitive species observed using the study area included the bald eagle, merlin, great egret, double-crested cormorant, and Woodhouse's toad.

A small great blue heron rookery including five nests is located on private land about 250 to 350 feet from the west edge of the bridge footprint. Great blue herons are very sensitive to human disturbance and tend to desert nests and entire colonies if disturbed during the nesting period. Given the current generally very low level of human activity on the south side of the Boise River where the rookery is located, these herons are not acclimated to human disturbance. Construction of the road and bridge across the Boise River within 250 to 350 feet of these five heron nests likely would result in abandonment of the colony during construction. These distances are based on human activity buffer distances recommended by the Washington Department of Fish and Wildlife on projects affecting priority species within the State of Washington which are adopted here (WDFW, 2004). Suitable nest sites exist both upstream and downstream of the study area. However, most of these sites are also on private lands where the long-term future of nest site suitability is uncertain.

The Woodhouse's toad (a sensitive species) appears to use much of the irrigated portion of the Boise river floodplain in the study area. Fill placed in this area would destroy some individuals and eliminate about 24 to 25 acres of occupied irrigated pasture habitat

(Table 5-35). Woodhouse's toads are among the amphibian species whose annual life cycles require seasonal migration between habitats with different ecological properties and the road would block east-west movement within the Boise River valley at the Proposed Action location.

An unknown number of reptiles, amphibians, and mammals would attempt to cross the new road, be struck by vehicles, and killed. Mule deer migrate up and down the Boise River corridor. Many deer likely would pass under the bridge within the floodway. However, an unknown number of deer would also attempt to cross the road within the floodplain. A portion of these would be hit by vehicles and killed. These collisions also may result in human injury.

Gray Wolf. On May 4, 2009, the Northern Rocky Mountain population of the gray wolf was officially delisted from protection under the ESA. Because they are no longer listed under the ESA, gray wolves were discussed in this section rather than in Section 5.14, "Threatened and Endangered Species." The conditions required by gray wolves (low human population, low road density, and high prey density) do not exist anywhere in or near the Idaho 16 study area, and there are no documented sightings of individual wolves within at least 20 miles of the study area; therefore, gray wolves do not occur within or near the study area and the Project would not impact this species or its habitat.

Bald Eagle. The USFWS developed the National Bald Eagle Management Guidelines to help avoid and minimize impacts on bald eagles after their de-listing in July 2007. The guidelines are intended to advise landowners, land managers, and others who share public and private lands with bald eagles about when and under what circumstances the protective provisions of the Bald Eagle Protection Act may apply to their activities. The guidelines include general recommendations for land management practices that will benefit bald eagles; however, the document is intended primarily as a tool for landowners and planners who seek information and recommendations regarding how to avoid disturbing nesting bald eagles. The guidelines themselves are not law, rather, they are recommendations based on several decades of behavioral observations, science, and conservation measures to avoid or minimize adverse impacts to bald eagles.

The guidelines state: "In general, activities should be kept as far away from nest trees as possible; loud and disruptive activities should be conducted when eagles are not nesting; and activity between the nest and the nearest foraging area should be minimized." There are no bald eagle nests or communal roosts within 2 miles of the study area. Therefore, neither construction nor operation of the Proposed Action would affect any bald eagle nests or nearby foraging areas. Very minor disturbance of winter foraging eagles would occur in the vicinity of active construction, resulting in birds being displaced several hundred feet or more from the active construction area, depending on the nature of the activity and direct lines-of-sight. Substantial areas of other suitable foraging habitat exist along the Boise River, both upstream and downstream of the study area. There would be no effects on bald eagle over-winter survival. Impacts during operation would be negligible, resulting from removal of a small area of the river at the bridge crossing as available foraging habitat (USFWS, 2007b).

Yellow-billed Cuckoo. No direct impacts on cuckoos or cuckoo habitat are expected to occur within the study area for any of the Build alternatives because of the current absence

of the species and poor quality habitat. However, there is suitable cuckoo habitat immediately adjacent to the study area and there is a low potential for indirect effects as a result of construction and operation of the Proposed Action on cuckoos in the adjacent area. Cuckoo use of adjacent suitable habitat could be adversely affected by construction and operation noise, habitat fragmentation, and secondary changes in land-use patterns and human activity.

Both noise and human activity have been demonstrated to displace wildlife from occupied habitats, and interfere with the ability to hear territorial songs and alarm calls in birds and other wildlife species (Fyfe and Olendorff, 1976; Van der Zande et al., 1980; Madsen, 1985; Foppen and Reijnen, 1994; Forman et al., 2002; and Gutzwiller and Barrow, 2003). These and other similar studies considered the effects of new construction or facilities and human activities in areas where none or few of these facilities or human activities previously existed, as is the case in the Idaho 16 study area on the Boise River floodplain.

Existing noise levels measured in the study area varied from 44 to 69 dBA. The existing noise level measured on the Boise River floodplain at site M7 was 44 dBA. Site M7 is located on a residential road just west of the study corridor. Noise levels within the floodplain corridor, where there are no roads, would be no greater, and likely lower, than those measured at Site M7. Biological field surveys confirm that noise levels on the floodplain area are low enough to detect amphibian calls and bird songs at distances of up to 200 feet.

Construction and operation of the Idaho 16 Project would generate two different types of noise, each with its own attenuation characteristics. Most construction noise is considered to eminate from a point source with an average rate of sound attenuation of 6 dBA for each doubling of distance from the source. Highway noise from vehicles is considered to be a linear source with an average rate of sound attenuation of 3 dBA for each doubling of distance from the source.

Activities involved in construction of the Proposed Action would generate noise levels ranging from 82 to 94 dBA at a distance of 100 feet from the source. Construction noise levels within and near the Boise River floodway would increase as much as 50 dBA at a distance of 100 feet during pile driving. Other construction noise levels on the rest of the Boise River floodplain, where piles would not be driven, would increase by 38 to 42 dBA at a distance of 100 feet during construction. Noise also would be generated by increased truck traffic on area roadways associated with transportation of construction materials and equipment.

If peak sound production from small songbirds ranges from 80 to 90 dBA at the source, pile driving could disrupt breeding bird singing activity to a distance of 1,600 to 3,200 feet or more, based on an average rate of sound attenuation of 6 dBA for each doubling of distance from a point source. General highway construction noise levels of about 84 dBA could disrupt breeding bird singing activity to a distance of 800 to 1,600 feet. Yellow-billed cuckoo mating and territorial calls are relatively quiet compared to many other songbirds, so similar or greater disruption would occur if cuckoos are present. Construction of elevated sections likely would have greater impacts because noise would travel farther than from comparable activities conducted on the ground and line-of-sight distances would be greater.

Habitat fragmentation is the process whereby habitats that were once continuous become divided into separate fragments. Much of the study area already has been substantially impacted by conversion from native plant communities to intensive agriculture. This is not the case on the floodplain where more natural plant communities remain, but even these have been impacted by human activities. Construction of a road across the Boise River floodplain would further fragment and disrupt connectivity within the remaining native plant communities with potential adverse impacts on cuckoos if they use riparian forest stands adjacent to the study area.

If new human activity along the road is confined to vehicle traffic, additional potential direct impacts of human activity on cuckoos and other wildlife would be as described above and mostly related to noise. Because of the lower rate of noise attenuation from linear sources, traffic noise could disrupt cuckoo and other bird songs to a distance of 800 to 3,200 feet, depending on the species. Traffic noise during the morning commute would be most disruptive because it would occur at the time of peak territorial bird song activity. If operation of the Proposed Action results in greater levels of human activity on the Boise River floodplain, or if secondary development occurs on the floodplain, potential cuckoo use of suitable habitat in the forest stand located immediately to the west of the study area would be adversely affected.

The high noise levels expected during construction and operation of the Proposed Action, the habitat fragmentation effect of a road and bridge across an undeveloped section of the Boise River, and possible secondary development could adversely affect potential cuckoo use of the area in the vicinity of the Proposed Action. The reproductive success of any cuckoos that occur in the immediate vicinity of the Proposed Action would be adversely affected by these noise levels. The same conclusion applies to all of the Build alternatives.

A Biological Assessment (BA) was not prepared to address the cuckoo because the effects determinations for the two listed species (bull trout and slickspot peppergrass) were both "no effect." The USFWS indicated that formal consultation and preparation of a BA was not required to address the yellow-billed cuckoo, a candidate for listing, if the effects determination for listed species is "no effect," which is the case for Idaho 16 (ITD, 2008a).

The mitigation measures proposed in Chapter 9, "Mitigation," to compensate for impacts on forested and scrub/shrub wetland and riparian communities may benefit cuckoos by improving and protecting potential habitat along the Boise River. Implementing this mitigation at the proposed site would enlarge the size of contiguous blocks of forested and scrub/shrub wetland and riparian habitat, improve habitat connectivity, and enhance the value of the existing habitat, thereby providing functional benefits for wildlife, and possibly cuckoos, that could not be achieved if the mitigation was implemented immediately adjacent to the road. Mitigating these losses at the proposed location may benefit cuckoos by:

- Increasing the total area and the amount of interior forested and scrub/shrub habitat
- Possibly combining several small habitat patches into one or more larger ones, thereby increasing the average size of each patch of habitat in the general mitigation area

- Providing valuable wildlife habitat far enough from the proposed road and bridge that impacts from noise and human activity associated with the road would not adversely affect wildlife use of the mitigation area

If mitigation measures to compensate for impacts on forested and scrub/shrub wetland and riparian communities are implemented at some other location along the Boise River, these same benefits may or may not result. This would depend on the specific characteristics of both the mitigation area and adjacent areas, the actions proposed to mitigate for the impacts, and the level and type of human activity surrounding the mitigation area.

Fish/Aquatic Resources. Boise River aquatic habitat types within the study area vary relative to the season and flow, and consist primarily of slow runs, glides, and intermittent low gradient riffles. Historically, the river migrated freely with an unconfined channel; today, it is confined by levees and riprap to convey water for irrigation and control flooding at all but the highest flows.

The abundance of native fish species in the Boise River drainage has been limited in part by channelization, poor water quality in lower reaches, temperature change, removal of riparian vegetation, invasion and introduction of nonnative species, and other factors associated with historic land use practices.

Implementation of any Build alternative would directly impact approximately 2.0 acres of aquatic habitat through construction of the roadway and bridge over the Boise River. Habitat recognized as aquatic or Waters of the U.S. is identified as either lacustrine, riverine type 1, or riverine type 2 in Section 5.12, "Wetlands." Approximate acres of impact (of the total 2.0 acres identified) relative to these aquatic habitat types are quantified in Table 5-33.

Permanent impacts to benthic habitat in the Boise River would result from construction of bridge abutments and piers below the OHM. The area of permanent aquatic impacts to benthic habitat would vary dependant on the number of piers and abutments in the final bridge design and alternative selected.

Additional permanent impacts anticipated to result from each of the alternatives include:

- Localized increases in temperature, reduced cover and reduced prey recruitment associated with removal of riparian vegetation necessary for construction of the bridge and roadway
- Permanent filling of lacustrine habitat from construction of the roadway
- Shading of the aquatic environment created by the bridge structure, which is likely to result in localized decreases in water temperature and potential increases in fish cover.

Temporary impacts are anticipated to result from each of the alternatives. These would include the following:

- Localized increases in temperature, reduced cover and reduced prey recruitment associated with removal of riparian vegetation
- Transport of sediment and pollutants associated with construction activities
- Disturbance of fish and invertebrates during construction

Temporary impacts to the Lower Boise River (assuming an area 150 feet upstream and 300 feet downstream of the bridge footprint) were quantified at 4.1 acres for each of the Build alternatives.

Overall, permanent and temporary impacts are expected to include the following:

- Decrease in the riparian buffer
- Disturbances to the benthic substrate layer in the footprint of the bridge (abutments and piers)
- Increase in the risk of heightened temperatures and sediment and pollutant transport into the Lower Boise River

Sediment loading, pollutants, and increased temperatures are recognized to have deleterious effects on cold water fisheries and aquatic invertebrate communities like those that currently occur in the Lower Boise River.

Indirect Impacts. Indirect impacts on wildlife and habitat would result from implementation of any of the Build alternatives, and would correlate closely with direct habitat loss and indirect impacts to wetland and riparian functions and values, particularly those related to habitat. Habitat of state sensitive wetland-dependant species (Woodhouse's toad and non-designated species) may be indirectly affected through wetland fragmentation and adjacent disturbance associated by highway construction and operation. Wildlife and wildlife habitat on the Boise River floodplain would be impacted by all of the Build alternatives from the following (Table 5-35):

- Permanent loss of wildlife habitat
- Increased weed infestations
- Habitat fragmentation and connectivity breaks
- Disruption of wildlife movement corridors
- Changes in human activity and increased noise during construction and operation
- Permanent loss of displaced wildlife
- Secondary changes in land use patterns as a result of the proposed roadway

Long-term impacts would result from the permanent conversion of plant communities and wildlife habitat to roads and associated facilities, and the presence and use of those features. Functional impacts to wetland and riparian forests would persist for at least 30 years or more because of the mature condition of affected wetland and riparian forests and because this much time is required for pre-project functions such as wildlife habitat to be replaced at mitigation areas. This is roughly the timeframe required for cottonwood trees to achieve a relatively mature stature and replace lost wildlife habitat values. Additional indirect long-term impacts are as follows:

- **Habitat Loss.** Wildlife would lose breeding, foraging, and roosting or denning habitat. The overall capacity of lands in the study area to support wildlife would be decreased proportionally because of habitat loss.
- **Noxious Weeds and Invasive Plants.** Noxious weeds and other invasive plants rapidly colonize disturbed sites such as construction areas. Certain BMPs are intended to avoid, reduce, and control new infestations; however, it is likely that some especially

aggressive weeds—such as false indigo, thistles, rush skeleton weed, and whitetop—would become established in some areas disturbed during construction and spread from these locations, resulting in long-term loss and degradation of wildlife habitat values.

- **Habitat Fragmentation.** Habitat fragmentation is the process whereby habitats that were once continuous become divided into separate fragments. The two components of habitat fragmentation are 1) the reduction of the total amount of a habitat type in a landscape; and 2) the reapportionment of the remaining habitat into smaller, more isolated patches of habitat. The effects of habitat fragmentation on wildlife include:
  - Reduction in the total area of the habitat
  - Increase in the amount of edge, which allows predators to exploit more area and favors habitat generalists rather than more rare habitat specialists
  - Decrease in the amount of interior habitat, which affects species requiring relatively larger breeding areas
  - Decrease in the average size of each patch of habitat, which also affects species requiring relatively larger breeding areas

  No fragmentation-related impacts threaten regional populations but incremental loss of habitat is a continuing issue for many species and this Proposed Action would contribute to that loss. If implemented as proposed, mitigation measures intended to compensate for habitat losses would result in increased habitat patch size in the mitigation area, thereby benefiting wildlife in that area. See Chapter 9, "Mitigation" for a detail discussion of mitigation measures.

- **Movement Barriers and Disruption of Ecological Connectivity.** Ecological connectivity is the movement of organisms and the occurrence of ecological processes across an ecosystem over time. The Boise River corridor and floodplain to the south of the river provide a relatively intact corridor of undeveloped lands and native habitats for a 4-mile reach of river from Linder Road to Star Road, which allows for relatively unrestricted wildlife movement along the river corridor. Construction of the road on-grade across the floodplain would act as an east-west movement barrier for many species and generally disrupt ecological connectivity processes on the floodplain. Mitigation measures are proposed to address this problem, but some movements will be altered or blocked.

- **Increased Human Activity and Noise.** Based on projected noise levels and the average rate of sound attenuation from linear sources, breeding bird singing activity could be disrupted out to a distance of 800 to 3,200 feet from the proposed roadway during the peak morning use period because it would occur at the time of maximum territorial bird song activity. In addition, increased roadway noise near the Boise River could affect how certain species approach and use the Boise River area. Louder noises during construction would be even more disruptive.

- **Permanent Loss of Displaced Wildlife.** Wildlife displaced from within or near the corridor would move to nearby suitable habitat if it exists or be permanently lost from the local population. Those that move to suitable habitat may or may not survive depending on competition with animals already using the area and the availability of

resources such as unoccupied nest sites, excess food, and suitable cover. If any of these are not adequate to support additional animals, the displaced individuals would not likely survive, also resulting in a smaller local population.

- **Secondary Changes in Land Use Patterns.** Construction of a new road may facilitate unrelated commercial or residential development within the Boise River floodplain. Any such development would also result in all of the direct and indirect impacts on wildlife and habitat discussed above.

Cumulative Impacts. Past and reasonably foreseeable future development within and adjacent to the study area would contribute to the loss of wetland and riparian habitats, potentially in the range of 45 to 130 acres. Perhaps the most significant cumulative impact of future development is the continuing loss of wetland and riparian habitats in the Boise River valley, resulting in continued habitat fragmentation and blockages to relatively unrestricted wildlife movements.

When a habitat is destroyed, the plants, animals, and other organisms that occupied the habitat have a reduced carrying capacity, so populations decline. Lowland wetland and riparian areas are particularly vulnerable because of past agricultural conversion and human population pressures. Loss of wetland and riparian communities is especially problematic because of their disproportionally high value for wildlife. Both bald eagles and yellow-billed cuckoos have a relatively high potential of being adversely affected by these cumulative losses of habitat. Other unforeseen development in the Project vicinity may result in similar adverse effects.

Construction Impacts. The Proposed Action's potential construction impacts are described above.

Additional details can be found in the "Wildlife, Fish, and Vegetation" Discipline Report available on the CD-ROM that accompanies this document (CH2M HILL, 2008m).

5.14 Threatened and Endangered Species

5.14.1 Methodology

Species on the USFWS semi-annual ESA list for Ada and Canyon Counties in Idaho (File # 912.0000 14420-2008-SL-0359) as well as two other species later identified by the USFWS were evaluated to assess the occurrence of the species or suitable habitat in the vicinity of the Proposed Action and the potential effects of the Proposed Action. The Conservation Data Center database was queried to obtain all available site-specific information regarding ESA species occurrences within 2 miles of the study area. Habitat preferences for each species that might occur in the study area vicinity were compared to habitats known to occur within 2 miles of the study area, to eliminate from further evaluation species with no possibility of occurring. Field surveys were conducted to search for and evaluate habitat suitability for ESA species that might occur in the area.

5.14.2 Regulatory Framework

Relevant regulations and statutes and key guidance documents include the following:

- ESA, 16 USC Sections 1531-1544