

**Supplement Analysis**  
for the  
**Columbia River Basin Tributary Habitat Restoration Programmatic  
Environmental Assessment (DOE/2126/SA-60)**

**Antoine Creek Enhancement Project**  
**BPA project number 2023-001-00**

Bonneville Power Administration  
Department of Energy



**Introduction**

In December 2020, Bonneville Power Administration (BPA) completed the Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment (DOE/EA 2126) (Programmatic EA). The Programmatic EA analyzed the potential environmental impacts of implementing habitat restoration actions in the Columbia River Basin and its tributaries. Consistent with the Programmatic EA, this Supplement Analysis (SA) analyzes the effects of the Antoine Creek Enhancement Project (Project), which would implement some of the specific restoration actions assessed in the Programmatic EA in Antoine Creek in Okanogan County, Washington, to improve habitat for the benefit of Endangered Species Act (ESA)-listed steelhead trout.

This SA analyzes the site-specific impacts of the Project to determine if the Project is within the scope of the analysis considered in the Programmatic EA. It also evaluates where there are substantial new circumstances or information about the significance of the adverse effects that bear on the analysis presented in the Programmatic EA. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed pursuant to 40 Code of Federal Regulations (CFR) § 1502.9(d) and 10 CFR § 1021 *et seq.*

**Proposed Activities**

BPA is proposing to fund the Confederated Tribes of the Colville Reservation (CTCR) to implement the Antoine Creek Enhancement Project. The Project would add large and small wood into Antoine Creek, fill an unnaturally incised channel and restore two miles of stream channel to its historic alignment. The addition of large and small wood structures would work to improve fish habitat, promote continued channel aggradation and increase lateral connectivity between the stream and its floodplain. As part of the Project, one existing culvert would be replaced, one culvert would be removed and not replaced, and several existing farm structures onsite would be removed.

These actions would support conservation of ESA-listed species considered in the 2020 ESA consultations with National Marine Fisheries Service on the operation and maintenance of the Columbia River System and BPA's commitments to CTCR under the 2020 Columbia River Fish Accord Extension agreement, while also supporting ongoing efforts to mitigate for effects of the Federal Columbia River Power System on fish and wildlife in the mainstem Columbia River and its tributaries pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980, 16 U.S.C. 839 *et seq.*

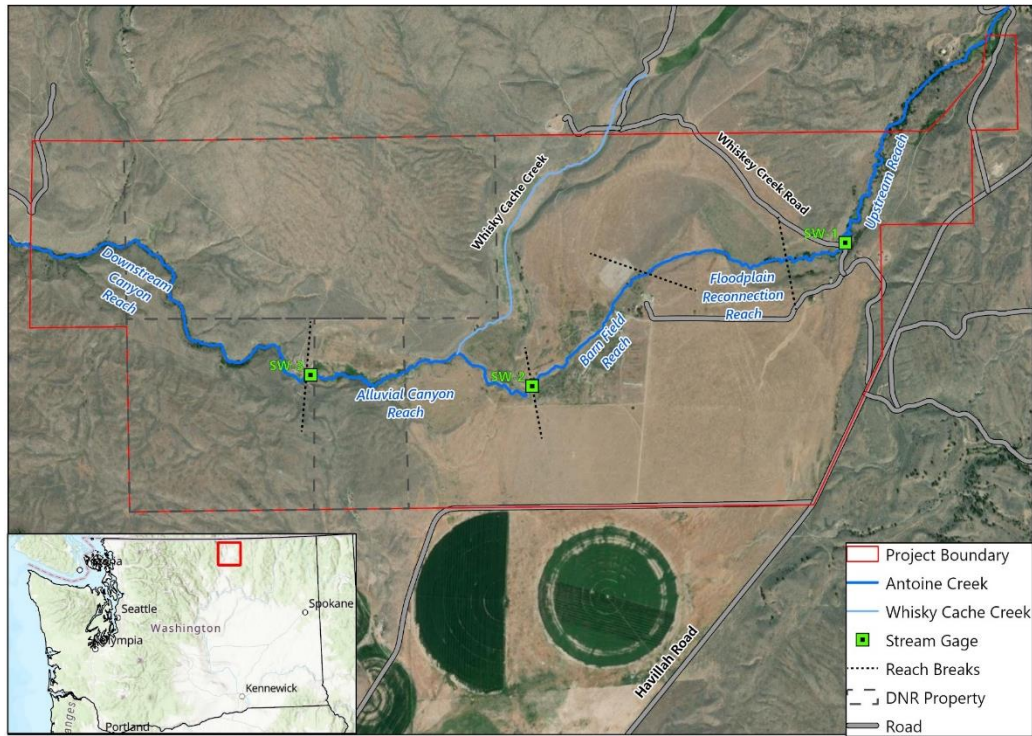


Figure 1. Map of Antoine Creek Project Area



Figure 2. Photos of the Project area showing Antoine Creek and existing cottonwoods, (top left), existing pasture where excavation of new alignment would occur, (top right), culvert underneath Whiskey Creek Road (bottom right), and inactive infrastructure in the creek and adjacent floodplain (bottom left).

The property where the Project would occur is primarily owned by the CTCR, with a small state-owned portion managed by the Washington Department of Natural Resources (DNR) (Figure 1). For at least 80 years the entire Project area has been subject to unrestricted cattle grazing leaving it largely devoid of vegetation beyond the non-native grasses cultivated for cattle grazing. These past actions, coupled with the disconnection between the creek and the floodplain, have led to a lack of a healthy riparian corridor and severe bank erosion. (Figure 2).

Implementation would occur in Fall 2024 and Summer 2025. The project would enhance two river miles of Antoine Creek by returning a section of the creek to its historical channel and adding large wood to the channel. The primary work elements include large wood structure construction, reconnection of the historical channel alignment, culvert removal and replacement, and native revegetation of all disturbed surfaces. The total disturbance area would be approximately 30 acres with 150 large and small wood structures being installed.

The project is broken into three distinct sub-reaches: Upstream Reach, Floodplain Reach, and Barn Field Reach (Figure 1).

The Upstream Reach restoration actions would include floodplain grading and channel fill to increase the duration and extents of floodplain connectivity. Habitat complexity treatments (e.g., small wood, large wood, habitat boulders) would be placed throughout to add channel roughness. Intermittent rock or wood grade control elements (or a combination of both) would be installed to maintain a consistent gradient and slow channel incision. At the downstream end of the Upstream Reach, a four-foot-wide culvert under Whiskey Creek Road would be replaced (Figure 2) with an enlarged, fish-passable open-bottom arch culvert (Figure 3). A temporary bridge would be installed to allow for vehicle passage during construction.

The Floodplain Reach restoration actions would include filling the existing channel and realigning Antoine Creek through its historic floodplain, which is currently served as pastureland (Figure 2). This would be accomplished by creating a shallow, meandering channel within a shallow and wide inset floodplain. Channel and floodplain habitat features (large/small wood structures) would be constructed throughout the new channel and floodplain corridor. Intermittent rock or wood grade control elements (or a combination of both) within the new channel would be installed to maintain grade, create local backwater effects, expand connectivity extents and prevent channel incision. The existing channel corridor would be abandoned, filled with excavated material, and revegetated.

The Barn Field reach restoration actions would include realigning Antoine Creek through its current floodplain that is occupied by farming infrastructure (barns, fences, etc.). The infrastructure would be removed and building debris would be disposed of at an offsite landfill. After infrastructure removal, the existing channel would be filled to floodplain level with excavated material (Figure 2). As part of the channel fill process, the existing culvert at the downstream end of the Barn Field Reach would be removed and not replaced (Figure 5). Channel and floodplain habitat treatments would be installed to maintain grade, create local backwater effects, increase floodplain activation, expand connectivity and prevent channel incision.

All areas disturbed during construction would be revegetated. This would include soil preparation and replanting with a diverse and site appropriate selection of native riparian species. Upland and riparian trees and shrubs would be a mix of live stakes and container plantings. Areas identified for revegetation would first be decompacted to a minimum depth of six inches. Immediately following construction activities, these areas would be broadcast seeded with a temporary erosion control seed and covered with sterile straw.

In-water construction would take place during the permitted in-water work window, which is July 1 to March 31. Site preparation and out-of-water grading would begin Fall 2024, and construction would be expected to occur during Fall 2024 and summer 2025 and may last up to a total of four months. Access to the project would be via existing roads. Off-road access within the construction site would be via temporary access routes developed during Project mobilization.



Figure 3. Photo of the inlet to the existing pipe culvert at Whiskey Creek Road in the Upstream sub-reach.



Figure 4 Photo of an example open bottom arch culvert that would replace the undersized culvert at the Whiskey Creek Road crossing.



Figure 5. Photo of the outlet of the existing pipe culvert to be abandoned at the downstream end of the Barn Field reach.

### **Environmental Effects**

The typical environmental impacts associated with the Columbia River Basin Tributary Habitat Restoration Project are described in Chapter 3 of the EA and are summarized in this document. Implementation of this Project would require the use of heavy equipment for staging, hauling, and excavation, and placement of large wood structures. Restoration actions during construction would disturb and displace soil, damage vegetation, create noise and vehicle emissions, stress fish, and temporarily increase vehicle traffic and human activity in the Project area.

Below is a description of the potential site-specific effects of the Project, and an assessment of whether these effects are consistent with those described in the Programmatic EA. Because the Project is designed to improve both aquatic and riparian habitats for the long term, adverse effects from soil and vegetation disturbance and human and mechanical activity would be short-term effects only.

### **Fish and Aquatic Species**

The effects of using mechanized equipment and manually working along and in Antoine Creek are consistent with the analysis in Section 3.3.1 of the Programmatic EA (“Fish and Aquatic Species”). Section 3.3.1.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Fish and Aquatic Species”) describes overall low impacts to fish and aquatic species after considering moderate short-term adverse effects and beneficial long-term effects.

Steelhead trout are the only ESA-listed species present within the Project area. Consultation on the Project’s effects on steelhead was completed under BPA’s Programmatic Fish and Wildlife Habitat Improvement Program consultation, and it was concluded that the Project would likely adversely affect these species and their designated critical habitat in the short term but would not likely result in jeopardy to the species or destruction or adverse modification of their designated critical habitat. No other aquatic species listed under the ESA, or other state-listed or sensitive aquatic species are present within the Project area.

In the short term, the Project would expose, displace, reconfigure, or compact earth through the use of mechanized equipment along Antoine Creek and likely create conditions where sediment would be released for a short period of time following construction activities. A moderate amount of sediment is anticipated to be released by the Project from the reintroduction of flows over newly exposed soils and

gravels. However, mitigation measures detailed in Appendix B of the Programmatic EA for work area isolation and fish salvage would be applied, minimizing these impacts. The sediment inputs would be consistent with the amounts evaluated in Section 3.3.1.2.1 of the Programmatic EA (“Short-Term Effects to Fish and Aquatic Species from Construction Activities”).

The work area isolation, fish salvage, dewatering, and instream construction activities would displace fish from the work area until it is re-watered. Small aquatic organisms that could not be practically salvaged would likely be fatal. The anticipated amount of activity and the level of aquatic species disturbance, however, is consistent with the analysis in Sections 3.1.3.1 and 3.3.1.2.1 of the Programmatic EA (“Dewatering for Instream Work” and “Short-Term Effects to Fish and Aquatic Species from Construction Activities,” respectively). Specifically, those sections of the Programmatic EA disclosed direct, harmful, and sometimes fatal impacts to aquatic species, including displacement of fish from their preferred habitat during periods of movement, sounds, and vibrations from human and mechanical activity.

The Project’s long-term beneficial effects include creation of more complex habitats through the addition of large and small wood and woody vegetation to the stream and adjacent riparian areas, the enhancement of in-stream habitat complexity over time by providing large wood structures and native riparian vegetation, and the removal/replacement of existing culverts that would improve fish passage. These beneficial effects are consistent with the analysis in Section 3.3.1.2.2.2 of the Programmatic EA (“River, Stream, Floodplain, and Wetland Restoration and Channel Reconstruction (Category 2) Effects on Aquatic Species”).

#### **Water Resources**

The effects of using mechanized equipment and manually working along Antoine Creek are consistent with the analysis in Section 3.3.2 of the Programmatic EA (“Water Resources”). Section 3.3.2.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Water Resources”) describes overall low impacts to water quality after considering moderate short-term adverse effects and beneficial long-term effects. Section 3.3.2.2.1 of the Programmatic EA analyzes effects on water quantity and describes no impact to water quantity after considering effects.

Overall, the Project would create localized short-term sediment inputs from reintroducing stream flows onto exposed gravels. This would be a temporary impact that may last a few hours. As described in the Programmatic EA, this impact would be lessened by the application of mitigation measures such as slow or metered placement of materials and monitoring. One long-term effect of the Project, however, would be increased floodplain connectivity associated with improved water quality and habitat for steelhead. The short-term adverse effects and long-term beneficial effects are consistent with those described in the Programmatic EA, and the overall effects on water quality would be low. There would be no effect on water quantity, as this project would make no water withdrawals. There would, however, be the potential for increased recharge of groundwater as the floodplain regains functionality.

#### **Vegetation**

The effects of using mechanized equipment and manually working along Antoine Creek are consistent with the analysis in Section 3.3.3 of the Programmatic EA (“Vegetation”). Section 3.3.3.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Vegetation”) describes overall moderate impacts to vegetation after considering moderate short-term adverse effects and beneficial long-term effects. No ESA-listed or other sensitive plant species are present within the Project area.

The Project is anticipated to have impacts consistent with those described in the Programmatic EA. Vegetation along temporary access routes and at excavation locations would be crushed by heavy machinery. Areas associated with the removed structures and farm facilities are largely devoid of vegetation but would be revegetated upon their removal. The Project would have beneficial effects to vegetation from the extensive riparian planting along the new stream channel and seeding and planting native species in disturbed areas following project implementation. Section 3.3.3.2 of the Programmatic EA (“Environmental Consequences for Vegetation”) evaluated constructed features that would disturb up to 20 acres of vegetation, the area impacted by this action would be about 30 acres, but because the area being disturbed is pastureland comprised of non-native grasses and areas that currently do not contain vegetation, such as within the footprints of the removed agricultural facilities, vegetation impacts would remain low while the long-term beneficial effects of restored or improved vegetative conditions would be moderate, as contemplated by the Programmatic EA.

### **Wetlands and Floodplains**

The effects of using mechanized equipment and manually working along Antoine Creek are consistent with the analysis in Section 3.3.4 of the Programmatic EA (“Wetlands and Floodplains”). Section 3.3.4.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Wetlands and Floodplains”) describes overall low impacts to wetlands and floodplains after considering short-term adverse effects and beneficial long-term effects.

The Project is anticipated to have impacts similar to those described in the Programmatic EA. Specifically, there would be short-term (i.e., weeks-long) adverse effects to floodplains during project construction, as there would be about 30 acres of excavation from earthmoving. No wetlands would be impacted during construction. Consistent with the Programmatic EA, Project implementation would also have long-term beneficial effects. It would create conditions in this stream reach with increased connectivity to the floodplain and more diverse wetland vegetative conditions. These would increase the amount and quality of wetlands in the Project area. Appropriate Clean Water Act permitting would be obtained prior to any wetland disturbance. This level of effect would be low after considering short-term adverse effects and beneficial long-term effects, as stated in the Programmatic EA.

### **Wildlife**

The effects of using mechanized equipment and manually working along Antoine Creek are consistent with the analysis in Section 3.3.5 of the Programmatic EA (“Wildlife”). Section 3.3.5.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Wildlife”) describes overall low impacts to wildlife after considering short-term adverse effects and beneficial long-term effects. In Okanogan County, Washington ESA-listed Canada lynx and North American wolverine are known to exist (USFWS Information for Planning and Consultation (IPaC), 2024), but suitable habitat is not located within or near the Project site, and the Project would thus have no effect on ESA-listed wildlife species. No other ESA-listed, state-listed, or other sensitive wildlife species are present within the Project area.

The Project’s short-term effects would be less than those analyzed in the Programmatic EA because the action area is comprised of non-native grasses and provides very little habitat for wildlife. The actions of humans and machines during construction would temporarily displace any nearby wildlife from their preferred locations and prevent them from reoccupying the site until construction activity has ceased. The Project would have long-term moderate beneficial effects on wildlife habitat in the area by improving the quality and extent of native riparian vegetation. This level of effect would be low after considering short-term adverse effects and beneficial long-term effects, as stated in the Programmatic EA.

## **Geology and Soils**

The effects of using mechanized equipment and manually working along Antoine Creek are consistent with the analysis in Section 3.3.6 of the Programmatic EA (“Geology and Soils”). Section 3.3.6.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Geology and Soils”) describes moderate impacts to geology and soils. The Project is anticipated to have impacts consistent with those described in the Programmatic EA. Staging, hauling, and constructing large wood structures along Antoine Creek would cause soil displacement, compaction, and the mixing of soil horizons. Channel realignment, including through the agricultural removal sites, would have soil excavation and redistribution. Design criteria, mitigation measures, and best management practices would all be applied as described in Section 2.4 of the Programmatic EA (“Mitigation Measures and Design Criteria”) to minimize impacts and maintain long-term productivity of soils.

The Project does not specifically target soil for restoration or enhancement (as it does fish habitat and hydrologic functions), but the proposed actions could result in maintaining and improving soil properties and functions as hydrologic function is restored within the floodplain. The level of beneficial effect would be moderate, consistent with the effect level described in the Programmatic EA.

## **Transportation**

The Project’s effects along Antoine Creek are consistent with the analysis in Section 3.3.7 of the Programmatic EA (“Transportation”). Section 3.3.7.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Transportation”) describes low impacts to transportation.

The Project would remove a culvert on Whiskey Creek Road, but a temporary bridge would be installed to allow for passage during construction. Access to the Project site would be via existing roads, and vehicles transporting workers and equipment to Project sites would share local roads with other traffic during construction, which would last less than four months. This level of impact would be low, as stated in the Programmatic EA.

## **Land Use and Recreation**

The effects of the proposed Project in and along Antoine Creek are consistent with the analysis in the Programmatic EA, Section 3.3.8, “Land Use and Recreation.” The Programmatic EA, Section 3.3.8.3, states that overall effects on land uses and recreation would be low to moderate.

There would be no effect on land use or recreation from the Project. Land uses would not change, since agricultural uses were stopped once the property was purchased by the CTCR. Nor would public recreational opportunities change since most of the land is owned by the CTCR and is not open to public use. There are also no recreational opportunities available on the DNR-managed land. This level of effect is consistent with that described in Section 3.3.8.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Land Use and Recreation”), which states that land use practices underlying Project sites would not be changed for most projects.

## **Visual Resources**

The Project’s effects along Antoine Creek would be consistent with the analysis in Section 3.3.9 of the Programmatic EA (“Visual Resources”). Section 3.3.9.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Visual Resources”) describes low impacts to visual resources.

The proposed restoration actions are at the upper end of Antoine Creek and would only be visible to the few residents who live on Whiskey Creek Road. As described in Section 3.3.9.2 of the Programmatic EA (“Environmental Consequences for Visual Resources”), Project-related construction would result in some short-term visual impacts, including some disturbance that detracts from the view and the visible



presence of newly planted grasses, forbs, and shrubs. However, these visual impacts would last for only a few weeks during staging, construction, and replanting. When construction is complete, the river would gradually appear less disturbed as the newly planted seeded grasses and forbs grow. Within a year or two, the matured vegetation would provide the same natural scenery that can be seen elsewhere along this road. The only change to the viewshed from the Project would be the removal of the farm buildings, which would return the viewshed to a more natural condition. This level of impact would be low, as stated in the Programmatic EA.

### **Air Quality, Noise, and Public Health and Safety**

The Project's effects along Antoine Creek would be consistent with the analysis in Section 3.3.10 of the Programmatic EA ("Air Quality, Noise, and Public Health and Safety"). Section 3.3.10.3 of the Programmatic EA ("Effects Conclusion for the Proposed Action on Air Quality, Noise, and Public Health and Safety") describes low impacts to air quality, noise, and public health and safety. In the short term, the closest residence is more than 0.5 miles away, so they are unlikely to hear noise during the few weeks of construction activities. Also, residents would be too far away for construction-related dust or exhaust to affect them.

In the longer term, the Project would not result in any new sources of emissions or noise. Although some potential safety impacts are anticipated by workers sharing roads when travelling to and from work sites and during construction activities, including removal of the agricultural facilities, the Project has no potential to impact public safety infrastructure (e.g., roads, telecommunications equipment, etc.) or to burden emergency services (e.g., police, fire, and emergency medical services). This level of impact would be low, as stated in the Programmatic EA.

### **Cultural Resources**

The Project's effects are consistent with the analysis in Section 3.3.11 of the Programmatic EA ("Cultural Resources"). Section 3.3.11.3 of the Programmatic EA ("Effects Conclusion for the Proposed Action on Cultural Resources") describes low impacts to cultural resources, with any potential effects being amenable to resolution through the Section 106 consultation process under the National Historic Preservation Act.

BPA conducted a cultural resource survey and consulted with the Washington Department of Archaeology and Historic Preservation (DAHP) and the CTCR Tribal Historic Preservation Office (THPO), with respect to potential Project impacts on such resources in the Project's vicinity. Based on the results of that survey, BPA determined that the Project would have no adverse effect on historic resources. The DAHP concurred with this assessment on October 22, 2024, and the CTCR on October 3, 2024.

### **Socioeconomics and Environmental Justice**

The effects of this restoration project along Antoine Creek would be consistent with the analysis in Section 3.3.13 of the Programmatic EA ("Socioeconomics and Environmental Justice"). Section 3.3.13.3 of the Programmatic EA ("Effects Conclusion for the Proposed Action on Socioeconomics and Environmental Justice") describes low socioeconomic and environmental justice impacts.

As described in the Programmatic EA, the Project would not require additional permanent employees, nor would it require individuals to leave or relocate to the local area. There would also be no effect on housing available for local populations, as the Project would not displace people or eliminate residential suitability of lands in or near the Project area. The Project would generate short-term employment for those directly implementing the restoration actions and would provide small short-term cash inputs to local businesses for fuel, equipment, and meals. This degree of effect would be low. There are no environmental justice populations present that could be affected because the Project and its impacts

are limited to the lands on which they are located. There would be no anticipated offsite effects that could impact environmental justice populations elsewhere.

### **Climate Change**

The effects of the Project along Antoine Creek are consistent with the analysis in Section 3.3.14 of the Programmatic EA (“Climate Change”). Section 3.3.14.3 of the Programmatic EA (“Effects Conclusion for the Proposed Action on Climate Change”) describes low impacts on climate change.

Due to the short duration of construction and the relatively small number of construction vehicles that would be involved, the Project-related greenhouse gas emissions are anticipated to be low. The Project would have a low level of greenhouse gas production and its contributions to climate change would be correspondingly minimal, consisting of short-term emissions from motorized equipment operations during implementation of the restoration actions. Further, these emissions would be offset to some degree by the ameliorating effects of restored floodplain function, such as increased water table inputs, increased carbon sequestration in expanded and improved riparian wetlands, and decreased water temperatures from improved instream and riparian habitat conditions. The overall contribution to climate change and greenhouse gas production would be low, which is consistent with the Programmatic EA.

### **Findings**

Bonneville finds that the types of actions and the potential impacts related to the proposed Antoine Creek Enhancement Project are similar to those analyzed in the Columbia River Basin Tributary Habitat Restoration Programmatic (DOE/2126) and Finding of No Significant Impact. There are no substantial changes in the Programmatic EA’s Proposed Action and no substantial new circumstances or information about the significance of the adverse effects that bear on the analysis in the Programmatic EA’s Proposed Action or its impacts within the meaning of 10 CFR § 1021.314 and 40 CFR § 1502.9. Therefore, no further NEPA analysis or documentation is required.

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Concur:

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### **References**

USFWS. 2024. IPaC Information for Planning and Consultation. Accessed September 19 at <https://ecos.fws.gov/ipac/>.