

Energy Gateway South Transmission Project

Fish and Aquatic Resources Specialist Report

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Prepared for:

Ashley National Forest (Duchesne Ranger District)
Manti-La Sal National Forest (Ferron, Price, and Sanpete Ranger Districts)
Uinta National Forest (Heber-Kamas and Spanish Fork Ranger Districts)

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Acronyms

Applicant	PacifiCorp, doing business as Rocky Mountain Power
BLM	Bureau of Land Management
COUT	Colorado to Utah – U.S. Highway 40 to Central Utah to Clover alternative routes
COUT BAX	Colorado to Utah – U.S. Highway 40 to Baxter Pass to Clover alternative routes
CWA	Clean Water Act
EDA	Economic Development Area
EIS	Environmental impact statement
ESA	Endangered Species Act
FLMPA	Federal Land Policy Management Act
FWS	U.S. Fish and Wildlife Service
LRMP	Land and Resource Management Plan
MIS	Management indicator species
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act of 1976
NHD	National Hydrography Dataset
NWI	National Wetland Inventory
Project	Energy Gateway South Transmission Project
POD	Plan of Development
SITLA	School and Institutional Trust Lands Administration (State of Utah)
UDWR	Utah Division of Wildlife Resources
UNHP	Utah Natural Heritage Program
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service

Introduction

In December 2008, PacifiCorp (doing business as Rocky Mountain Power, the Applicant) submitted an Application for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299) submitted to the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) for constructing, operating, and maintaining the Energy Gateway South Transmission Line Project (Project). In response, the BLM, as the lead agency, in coordination with the USFS and other cooperating agencies, are preparing an environmental impact statement (EIS) and land-use plan amendments to evaluate and disclose the potential Project-related environmental impacts that could result from the action proposed by the Applicant (Proposed Action) and alternatives of the Proposed Action. The Applicant's interests and objectives, the purpose of the federal action, and a description of the Project are provided in more detail in Chapters 1 and 2 of the Final EIS (BLM 2016).

Approximately 1,425 miles of alternative routes, through 16 counties in the states of Wyoming, Colorado, and Utah are being evaluated for the transmission line and associated facilities (e.g., access roads and temporary construction workspaces). Portions of the alternative routes cross three national forests—the Ashley, the Uinta-Wasatch-Cache¹, and Manti-La Sal. The Project could affect individuals and/or suitable habitat for special status amphibians and aquatic species including aquatic (lentic and lotic) and semi-aquatic (riparian and wetland) habitats on USFS-administered land.

The National Forest Management Act of 1976 (NFMA) mandates that special status species be given priority when making management decisions. To aid land managers in the decision making process, two USFS manuals have been developed to provide guidance on how management objectives should be attained. The manuals include Manuals 2670 and 2620. Specific guidance is further discussed below.

Manual 2670 - Threatened, Endangered, and Sensitive Plants and Animals, establishes objectives and guidelines for USFS-sensitive species management. The three principal components for facilitating management objectives described in Manual 2670 include:

- Maintain viable populations of all native and desired non-native wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System land.
- Review programs and activities as part of the National Environmental Policy Act of 1969 (NEPA) through a biological evaluation to determine their potential effect on sensitive species.
- If impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole.

Manual 2620 establishes that species selected as management indicator species (MIS) should be used to monitor a particular habitat type. This is accomplished by implementing management directives detailed in each national forest's land and resource management plan (LRMP) to assess habitat conditions and population changes of MIS that occupy particular habitat types. For activities that require analysis under NEPA, results from habitat assessments and MIS presence/absence surveys are recorded in supporting documents such as environmental impact statements (EIS), biological evaluations, or specialist reports.

¹In March 2008, the Uinta National Forest and Wasatch-Cache National Forest were combined into one administrative unit. Each of these national forests is still operating under individual forest plans approved in 2003. When the term Uinta is used in context with the USFS, it refers to the Uinta Planning Area of the Uinta-Wasatch-Cache National Forest.

This specialist report evaluates whether the alternative routes analyzed in the Final EIS (BLM 2016) could be authorized in compliance with federal and state laws, USFS manuals, policies, management direction, and standards and guidelines pertaining to fish and aquatic resources from applicable USFS Land and Resource Management Plans (LRMPs). This specialist report analyzes potential impacts resulting from the Project and other past, present, and reasonably foreseeable future actions (other actions) on species listed under the Endangered Species Act (ESA), USFS-sensitive, and MIS fish and aquatic species, as well as their associated habitats on USFS-administered land. Project compliance with applicable Forest management objectives, standards, and guidelines included in each national forest's LRMP (refer to Appendix A) are evaluated through a quantitative analysis of direct, indirect, and cumulative impacts on USFS-sensitive and MIS fish, amphibians, and aquatic macroinvertebrates. Additionally, a qualitative discussion of potential impacts on federally listed Colorado River fishes occurring downstream from Project impacts on the national forests will be included.

If an action alternative is selected, the Project mitigation measures will be carried forward for the route selected into the Plan of Development (POD), which provides explicit direction to the Applicant's construction personnel, construction contractor(s) and crews, compliance inspection contractor (CIC), environmental monitors, and agency personnel regarding the specifications of construction, as well as operation and maintenance. The content of the POD consists of (1) background information, direction (including environmental protection measures), and implementation plans; and (2) detailed mapping to facilitate execution of the environmental protection measures. In the case of some resources (e.g., biological resources, water resources), post-EIS, pedestrian, agency-approved surveys would be required, the results of which would be used to refine the environmental protection requirements and further inform the detail of the POD. The POD would be developed by the Applicant in collaboration with the lead and cooperating agencies. More explanation about the POD is provided in the Final EIS Section 2.4. Implementation plans that would be included in the POD and applicable to fish and aquatic resources are a Plant and Wildlife Species Conservation Measures Plan; Stormwater Pollution Prevention Plan Framework; Spill Pollution Prevention, Containment, and Countermeasures Plan; Stream, Wetland, Well, and Spring Protection Plan; and Reclamation, Revegetation, and Monitoring Framework Plan. The EIS Record of Decision and the special use permit would be signed only if the USFS approves the POD.

Overview of Issues Addressed

Issues were developed through agency consultation during the impact assessment and mitigation planning phase of the Project. These issues are specifically tailored to address USFS requirements detailed in guidance documents including Forest Service Manuals 2620 and 2670 as well as standards and guidelines developed to attain management objectives and goals detailed in each forest LRMP.

Could USFS issue a Record of Decision for the Project in compliance with Forest Service Manuals 2620 and 2670?

Analysis of Potential Effects on Threatened, Endangered, USFS-sensitive, and MIS to Determine Project Compliance with USFS Manuals 2620 and 2670

- Would the Project affect species listed as threatened or endangered under the Endangered Species Act?
- Would the Project result in a trend towards federal listing or loss of viability on the forest of USFS sensitive species?
- Would the Project affect MIS population trends and availability of habitats for MIS species?

Could USFS issue a Record of Decision for the Project in compliance with Land and Resource Management Plans for the Ashley, Manti-La Sal, and Uinta National Forests?

Analysis to Determine Project Compliance with U.S. Forest Service Land and Resource Management Plans

- Would implementation of design features of the proposed action, selective mitigation measures, and site- and species-specific avoidance and mitigation measures be sufficient for the project to be authorized in compliance with the LRMPS?
- Would impact thresholds for specific resources identified in the LRMPS be exceeded?
- Would an LRMP amendment or development of additional site-specific mitigation measures be necessary?

Issue Indicators

Issue indicators and data used to evaluate effects on fish and aquatic resources include the area (in acres) and location of suitable habitat and previous observations of species analyzed. Information from the Utah Natural Heritage Program (UNHP) and USFS regarding the locations of fish and aquatic resources and key elements of their habitats (e.g., conservation and persistence streams for cutthroat trout) was used, when available, to determine species occurrences on USFS-administered land. However, fish and aquatic inventories have not been conducted in all areas and comprehensive data regarding the area and location of aquatic habitats on the national forests are generally not available. For species where habitat and location data are not available for the analysis, habitat models have been created using the best available information regarding habitat requirements and the distribution of these habitats across the landscape. Potential habitat identified by the GIS-based habitat models will be used to quantify and report acreages of habitat for each species affected by the Project on USFS-administered land. Extents of modeled habitat for individual species are based conservatively to capture all likely habitat areas used by each species for breeding, rearing, and feeding purposes based on species accounts and use of each type of habitat. For the purposes of this assessment, assumptions were made to include the following:

- Additional widths for access roads (2 additional feet to account for slope and construction access);
- The area of analysis for water resources consisted of a 328-foot buffer on either side of the reference centerline. This buffer width was chosen because 328 feet is the most conservative avoidance buffer regulating ground-disturbing activities on federal lands. The buffer width is derived from the Utah BLM Riparian Policy (BLM 2010a) and was agreed to be a sufficient scope of analysis by agency representatives during the interdisciplinary team meetings.
- Overestimation of areas considered suitable habitat for individual species, to account for all possible areas of use.

Affected Environment

MIS and sensitive species lists were obtained from the Final EIS for the Ashley National Forest LRMP (USFS 1986a), the LRMP for the Manti-La Sal National Forest (USFS 1986b), and the Final EIS for the

2003 Uinta National Forest LRMPs (USFS 2003), as well as the most current USFS Region-4 sensitive species lists (USFS 2013). Natural history, conservation status, monitoring and population trend information were obtained from Ashley National Forest Fisheries and Wildlife Species Diversity Report (USFS 2009a), Life History and Analysis of Endangered, Threatened, Candidate, and Sensitive Species of the Ashley National Forest (Christensen and Abeyta 2006), Life Histories and Population Analysis for Management Indicator Species of the Ashley National Forest (Stroh, et al. 2006), Boreal toad Statewide Monitoring Summary (UDWR 2008), Ashley National Forest Fisheries and Wildlife Species Diversity Analysis (USFS 2009a), Intermountain Region (R4) Threatened, Endangered, Proposed, and Sensitive Species: Known and Suspected Distribution by Forest (USFS 2013), and Uinta-Wasatch-Cache National Forest State of the Forest Report for Uinta Planning Area (USFS 2011), as well as the Utah Natural Heritage Program (UNHP) Dataset (UNHP 2012) unless another citation is otherwise specified. Where the appropriate Ashley, Manti-La Sal, and Uinta National Forest reports were unavailable to inform this analysis of impacts on fish and aquatic special status species, Utah-based heritage data (UNHP 2012) were used to gather species occurrence and specific habitat information was utilized.

Existing conditions on the three national forests described in these documents provided the basis for analyses of potential effects of the Project on these species and their habitats. Species presence information for the Manti-La Sal National Forest was updated between the draft and final versions of this report to incorporate information provided by the USFS, which was unavailable when the draft report was completed. Estimated effects and potential determinations are based in part on the information presented in these documents. These documents are hereby incorporated by reference.

Table 1 identifies federally listed endangered fish, USFS-sensitive fish and amphibians, and MIS that may be present in the 2-mile-wide study corridor around each alternative route reference centerline analyzed in the Final EIS (BLM 2016). Species included in Table 1 are analyzed in this specialist report. For a list of all special status fish and aquatic species included in the overall Project impact analysis, species not carried forward for analysis, as well as individual species accounts considered in the analysis, refer to the Final EIS; Appendix J (BLM 2016).

TABLE 1 SPECIAL STATUS FISH AND AQUATIC SPECIES KNOWN TO OCCUR OR WITH POTENTIAL TO OCCUR WITHIN ALTERNATIVE ROUTE STUDY CORRIDORS					
Common Name	Scientific Name	National Forest			Rationale
		Ashley	Manti-La Sal	Uinta	
Federally Listed Endangered Species¹					
Bonytail chub	<i>Gila elegans</i>	O	O	O	The nearest known occurrences and designated critical habitats are located approximately 56 miles downstream of USFS land in the Green River.
Colorado pike minnow	<i>Ptychocheilus lucius</i>	O	O	O	
Humpback chub	<i>Gila cypha</i>	O	O	O	
Razorback sucker	<i>Xyrauchen texanus</i>	O	O	O	
June Sucker	<i>Chasmistes liorus</i>		O	O	Found in Utah Lake and spawns in several tributaries. Designated critical habitat is outside the Project action area. May be affected by ground-disturbing activities in watersheds that drain into Utah Lake.

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		Ashley	Manti-La Sal	Uinta	
U.S. Forest Service Sensitive Species					
Bonneville cutthroat trout	<i>Oncorhynchus clarki Utah</i>		✓	✓	Reference centerlines are located near and/or cross occupied habitat and designated conservation and persistence habitat for the species. Heritage data included occurrences of the species on the western end of the Project in Utah (UNHP 2012).
Boreal Toad	<i>Bufo boreas</i>	✓	✓	✓	Reference centerlines are located near and/or cross potentially suitable habitat for the species. Heritage data included four records of specimens collected in Utah in the San Pitch River drainage; 1 mile of the Project area, but all are from approximately 50 years ago and surveys conducted in 2008 did not confirm occupation. No recent occurrences of the species have been recorded (UNHP 2012) within the 2-mile-wide study corridor. The closest known populations of boreal toad are in the Strawberry Reservoir survey area (outside the Project study corridor) where in 2008, 79 individuals were documented in various sample locations (Utah Division of Wildlife Resources [UDWR] 2008).
Colorado River cutthroat trout	<i>Oncorhynchus clarki pleuriticus</i>	✓	✓	✓	Reference centerlines for the Project are located near and/or cross occupied habitat and designated conservation and persistence water bodies for the species. Heritage data included occurrences of the species near reference centerlines in Utah (UNHP 2012).
Columbia spotted frog	<i>Rana luteiventris</i>		✓	✓	Reference centerlines for the Project are located near and/or cross potentially suitable habitat for the species. Heritage data included occurrences of the species in the Project area in Utah within the past 10 years along the San Pitch River near Mount Pleasant and north of Fairview (Links U631 and U600) as well as in the West Creek area, south of Mona (UNHP 2012).
Southern Leatherside Chub	<i>Lepidomeda aliciae</i>		✓	✓	Reference centerlines are located near known occurrences of the species in the Thistle Creek drainage (UNHP 2012).
U.S. Forest Service Management Indicator Species					
Bonneville cutthroat trout	<i>Oncorhynchus clarki Utah</i>			✓	Reference centerlines are located near and/or cross occupied habitat for the species. Heritage data included occurrences of the species on the western end of Project in Utah (UNHP 2012).
Colorado River cutthroat trout (and Colorado River X	<i>Oncorhynchus clarki pleuriticus</i>	✓		✓	Reference centerlines for the Project are located near and/or cross occupied habitat for the species. Heritage data included occurrences of the species

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		Ashley	Manti-La Sal	Uinta	
Yellowstone Hybrids)					near reference centerlines in Utah (UNHP 2012).
Macroinvertebrates (aquatic)		✓	✓		Macroinvertebrates are known to occur in the Project area. Numerous species inhabit perennial lentic and lotic habitats in the Project area.
NOTES: ¹ Nomenclature follows U.S. Fish and Wildlife Service 2012 for federally listed threatened and endangered species and NatureServe Explorer 2012 for all others. O = Offsite and primarily relates to downstream fish ✓ = Known to occur in the specified national forest					

Existing Condition

Current conditions and trends for all special status species are largely unknown. For those species where data have been collected and are available, conditions and trends are discussed. For those special status species for which data are not available, it is assumed that habitats suitable for supporting special status species based on life history requirements could potentially be inhabited by those species. Comprehensive species accounts for all special status species are included in Appendix J of the Project EIS (BLM 2016).

Federally Listed Endangered Species

Bonytail Chub, Humpback Chub, Colorado Pikeminnow, and Razorback Sucker (Ashley, Manti-La Sal, and Uinta National Forest)

No occurrences of bonytail chub, humpback chub, Colorado pikeminnow, razorback sucker or designated critical habitats are known on the Ashley, Manti-La Sal, or Uinta National Forests. Although these species would not be affected directly by actions related to the Project, downstream effects on potential habitat for these federally listed fish could occur. Critical habitats designated by the FWS for bonytail chub, humpback chub, Colorado pikeminnow, and razorback sucker occur in the Upper and Lower Colorado River Basins.

Designated critical habitats and the species for which the designation was made include:

- Colorado River (main-stem): bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker
- Duchesne River: razorback sucker
- Green River: bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker
- White River: Colorado pikeminnow, razorback sucker
- Yampa River: bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker

June Sucker (Manti-La Sal and Uinta National Forest)

No occurrences of June sucker or June sucker designated critical habitat are known in the Project area on the Manti-La Sal or Uinta National Forests. Although June sucker would not be affected directly by actions related to the Project, downstream effects on potential habitat for this species could occur. Critical habitats designated by the FWS for June sucker occurs in the lower 3 miles of the Provo River. The agency-preferred route crosses into the Utah lake watershed and the Spanish Fork River subbasin of the Jordan River basin. It is probable the June sucker once spawned in the Spanish Fork River, but irrigation depletions and habitat alteration have left this area uninhabited (FWS 1999).

The June sucker is restricted to Utah Lake and the Provo River, although it may occasionally spawn in other historically occupied tributaries of Utah Lake as well, including the Spanish Fork and Hobble Creek (FWS 1999, Abate 2015). Adult June suckers require open-water lake habitat. Juveniles prefer the structure and shelter of emergent aquatic vegetation in shallow water, such as existed previously in marshes where spawning streams join Utah Lake.

USFS-Sensitive Species

Bonneville Cutthroat Trout (Manti-La Sal and Uinta National Forest)

Bonneville cutthroat trout are known to occur in the Manti-La Sal and Uinta National Forests. On the Manti-La Sal National Forest, Bonneville cutthroat trout occur in the Cottonwood Creek-San Pitch River, Lower Thistle Creek, Middle Thistle Creek, and Nebo Creek subwatersheds. On the Uinta National Forest, Bonneville cutthroat trout are known to occur in the Tie Fork subwatershed, as well as the Lower, Middle, and Upper Soldier Creek subwatersheds. Bonneville cutthroat trout population trends are stable overall on the Uinta National Forest. This is due in part to the installation of an upstream fish migration barrier in the Diamond Fork Drainage, protecting the meta-population from non-native fish (USFS 2011b).

Boreal Toad (Ashley, Manti-La Sal, and Uinta National Forest)

The western (boreal) toad occurs in wetlands in Utah that are surrounded by a variety of upland vegetation communities, including sagebrush and grassland, pinyon-juniper, mountain shrubs, and coniferous forest at or above 5,151 feet in elevation (UDWR 2005). The western boreal toad breeds in low velocity, low-gradient streams, off-channel marshes, beaver ponds, small lakes, reservoirs, stock ponds, wet meadows, seeps, and associated woodlands. Differential habitat use between sexes has not been documented in Utah (UDWR 2005). In higher elevations, boreal toads were found in wetlands and streams containing native Bonneville cutthroat trout (*Oncorhynchus clarkiutah*) (Thompson et al. 2004). Potentially suitable habitat occurs on all three national forests crossed by the Project alternative routes. Distribution of boreal toads is poorly understood and known occupied habitat has not been documented in the Project study corridor along any alternative route.

Colorado River Cutthroat Trout (Ashley, Manti-La Sal, and Uinta National Forest)

In the Ashley National Forest, Colorado River cutthroat trout occur in aquatic habitats in the South Fork Avintaquin and the Tabbyune Creek-White River subwatersheds. As of July 16, 2003, the Ashley National Forest contained 23 populations of genetically pure populations of Colorado River cutthroat trout, in 147.6 occupied stream miles and five lake populations covering 142.9 acres (Colorado River Cutthroat Trout Conservation Team 2006). Colorado River cutthroat trout are stocked annually in several

lakes across the national forest (Bartlett and Crosby 2005). Management and conservation of the species has contributed to population stability across the national forest (USFS 2009a).

In the Manti-La Sal National Forest, Colorado River cutthroat trout occur in the Gooseberry Creek and Indian Creek subwatersheds. Populations and suitable habitats were considerably affected by the Seeley Fire of June 2012, which burned 18,500 acres in the Huntington Creek watershed. In August 2012, a major rainstorm event further compounded the impact of the fire on aquatic habitats in the watershed by washing destabilized soils, rocks, and burnt logs into tributaries of and eventually into the main-stem of Huntington Creek. Debris and sediment inundated the streams resulting in substantial fish mortality.

In the Uinta National Forest, Colorado River cutthroat trout occur in the Right Fork White River, Tabbyune Creek-White River, and Willow Creek subwatersheds. Results in the 2011 Uinta National Forest State of the Forest Report indicate a stable overall trend for Colorado River cutthroat trout. This is primarily due to the Duchesne and Currant Creek Drainage populations. The Vat Creek Diversion has prevented upstream migration of non-native fish into the West Fork of the Duchesne River (USFS 2011b).

Columbia Spotted Frog (Manti-La Sal, and Uinta National Forest)

The Columbia spotted frog is likely to occur in lentic, lotic, riparian, and wetland habitats on the Manti-La Sal and Uinta National Forests. On the Manti-La Sal National Forest, Columbia spotted frog are known to occur in the Oak Creek-San Pitch River subwatershed, with major populations inhabiting the San Pitch River. In the Uinta National Forest, Columbia spotted frog are known to occur in the West Creek-Current Creek subwatershed with major populations occurring just outside of the National Forest boundary in the Current Creek and Burrison Ponds wetland complex north of Nephi, Utah.

Southern Leatherside Chub (Manti-La Sal and Uinta National Forest)

Southern leatherside chub is not known to occur in the Project study corridor crossing the Manti-La Sal or Uinta National Forests but element occurrences do exist in the study corridor where it crosses the Middle Thistle Creek subwatershed, in Thistle creek (UNHP 2012). Suitable habitat with hydrologic connectivity to aquatic habitats known to support this species exists on the Manti-La Sal and Uinta National Forests, but the species has no documented occurrence within national forest boundaries. It is possible that given hydrologic connectivity and relative proximity, suitable habitat in the Manti-La Sal and Uinta National Forests potentially supports populations of the species.

USFS-Management Indicator Species

Colorado River Cutthroat Trout (Ashley and Uinta National Forest)

Colorado River cutthroat populations and Colorado River/Yellowstone cutthroat trout hybrid populations are monitored as MIS for perennial riverine habitats on the Ashley National Forest (Stroh, et al. 2006) and on the Uinta National Forest. Colorado River and/or hybrid populations with Yellowstone cutthroat trout are widely distributed among the cold water tributaries of the Green and upper Colorado rivers. The Colorado River cutthroat trout habitats are managed as sensitive habitats and populations are monitored as MIS on the Ashley and Uinta National Forests to analyze habitat conditions and population trends in those habitats on the forests (refer to the Colorado River cutthroat trout sections).

Stream populations of cutthroat trout in the Ashley National Forest have been on a downward trend due to fragmentation and simplification of habitat, the introduction of non-native competitors and predators, and

overexploitation of fisheries (Young, et al. 1996). These trends are expected to reverse with current forest-wide implementation of the Colorado River cutthroat trout Conservation Agreement and Strategy by the Utah Division of Wildlife Resources and the Ashley National Forest (USFS 1997). The potential upward trend for lake populations is primarily due to the Colorado River cutthroat trout broodstock program and stocking of lakes across the national forest. The UDWR manages a productive Colorado River cutthroat trout brood population in Sheep Creek Lake (USFS 2009a).

In the Uinta National Forest, the overall trend for Colorado River cutthroat trout is stable. This is primarily due to the Duchesne and Carrant Creek Drainage populations. In the Duchesne River Drainage, the Vat Creek Diversion has prevented the upstream migration of non-native fish into the West Fork of the Duchesne River. In 1998 an upstream fish migration barrier was installed above this diversion to prevent the spread of whirling disease into Carrant Creek Reservoir. This effort was unsuccessful in that whirling disease was found in Carrant Creek Reservoir in 2010. These barriers however secure much of this habitat from non-native fish which is a major threat to native cutthroat trout populations. Similar older barriers are also found in the Carrant Creek drainage to limit upstream non-native fish movement out of Carrant Creek Reservoir (USFS 2011).

Bonneville Cutthroat Trout (Uinta National Forest)

The overall trend for Bonneville cutthroat trout on the Uinta National Forest is stable. This is primarily due to the Diamond Fork Drainage where the Diamond Fork meta-population is protected from non-native fish through the use of an upstream fish migration barrier. The Dip Vat population is also protected from non-native fish through the use of an upstream fish migration barrier.

Most of the other populations/meta-populations are known to be or are suspected of being impacted by non-native species either through direct competition, predation or genetic contamination through crossbreeding with rainbow trout. In addition, Bear Lake cutthroat trout populations have been monitored in several Strawberry Reservoir tributaries. The Bear Lake strain of Bonneville cutthroat trout is not native in the Strawberry River drainage and therefore, is not considered a MIS population (USFS 2011).

Aquatic Macroinvertebrates (Ashley and Manti-La Sal National Forest)

Macroinvertebrates including, but not limited to, mayflies, caddisflies, daphnia, copepods, stoneflies, mollusks, and worms are known to occur in aquatic habitats throughout the study corridor.

In the Ashley National Forest, macroinvertebrate samples have been collected for evaluation of aquatic ecosystem condition and trends in most major streams since 1987. Monitoring data indicate that forest-wide macroinvertebrate population trends are stable and that the national forest LRMP requirement of maintaining a Biotic Condition Index of 75 or above typically is met or exceeded (USFS 1986a).

In the Manti-La Sal National Forest, aquatic macroinvertebrate conditions across the forest vary from stream to stream. Some communities have improved since 1992 while others have not changed or have decreased since 1992. Overall, habitat conditions in aquatic habitats crossed by the Project, namely in the Huntington Creek watershed, have shown a gradual decline since 1984 (USFS 2001).

Desired Condition

Guidance regarding the desired condition of fish and aquatic resources analyzed in this report on USFS-administered land in the Project area is provided by federal and state laws, USFS policy and manuals, and relevant Forest Plans.

State Regulations

- **Utah State Code Section 23-15-2** establishes that all wildlife including, but not limited to, wildlife on public or private land or in public or private waters in the state, falls in the jurisdiction of the UDWR. Utah Code Annotated 23-15-2 and 23-13-3 (Republished in 1991).
- **Utah State Code Section 23-14-1** directs the UDWR to protect, propagate, manage, conserve, and distribute protected wildlife throughout the state. This statute also authorizes UDWR to identify and delineate crucial seasonal wildlife habitats.
- **Utah State Code Section 23-14-18** provides for the establishment of hunting/fishing seasons, locations and harvest limits.
- **Utah State Code Section 23-14-19** establishes that the Wildlife Board shall exercise its powers by making rules and issuing proclamations and orders pursuant to this code.
- **Utah Annotated Code R657-48** directs the UDWR to maintain a Utah Sensitive Species List that identifies plant and animal species (1) listed, or candidates for listing, pursuant to the ESA; (2) for which a conservation agreement is in place; or (3) whose population viability is threatened in Utah (i.e., wildlife species of concern). Timely and appropriate conservation actions implemented on behalf of species listed on the Utah Sensitive Species List will preclude the need to list these species.
- **Utah Comprehensive Wildlife Conservation Strategy** directs the integration and implementation of ongoing and planned management actions that will conserve native species and thereby prevent the need for additional listings under the ESA.

Federal Regulations

- **Endangered Species Act.** The Endangered Species Act (16 United States Code (U.S.C., et seq.), as amended, provides broad protection for species of fish, wildlife, and plants listed as threatened or endangered by the FWS. All federal agencies—in consultation with and with the assistance of the FWS—must ensure any action authorized, funded, or carried out by federal agency is not likely to jeopardize the continued existence of an endangered, threatened, or proposed listed species, or result in destruction or adverse modification of a species' critical habitat.
- **The Federal Water Pollution Control Act.** As amended in 1977, the law became commonly known as the Clean Water Act (CWA), codified generally as 33 U.S.C. 1251 et seq. The CWA's objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Individual sections of the Act maintain and protect the nation's water resources.
- **Federal Land Policy Management Act,** as amended, consolidates and articulates BLM and USFS management responsibilities and governs most uses of the federal land, including authorization to grant or renew rights-of-way. In accordance with Federal Land Policy Management Act (FLPMA), BLM, and USFS must make land-use decisions based on principles of multiple use and sustained yield. As such, a grant of right-of-way must be limited to its necessary use and must contain terms and conditions that reflect the agencies' management responsibilities under FLPMA, including minimizing impacts on fish and wildlife habitat.

- **USFS Manual 2620 – Wildlife, Fish, and Sensitive Habitat Management.** This manual provides direction, regulation, and policy regarding fish and wildlife management with the objective of maintaining viable populations of all native and desired non-native wildlife, fish and plant species in habitats distributed throughout their geographic range on National Forest System land.
- **USFS Manual 2670** directs each Regional Forester to designate sensitive species on federal land administered by USFS as well as prescribes management of the species. In accordance with the manual, sensitive species are defined “as plant or animal species identified by a Regional Forester for which population viability is a concern, as evidenced by a significant current or predicted downward trend in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce an existing distribution of the species.”
- **The Organic Administrative Act of 1897, as amended.** This act recognizes watersheds as systems to be managed with care, to sustain their hydrologic function.
- **The Fish and Wildlife Coordination Act of 1934.** Based on this act, fish and wildlife resources receive equal consideration with other resources in water resource development programs.
- **The Multiple-Use, Sustained-Yield Act of 1960, as amended.** This act recognizes and clarifies USFS authority and responsibility regarding the management of fish and wildlife.
- **Executive Order 11990 of 1977.** This Executive Order requires agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the beneficial values of wetlands.
- **LRMPs**, for the Ashley (1986, amended 1988- 2008), Manti-La Sal (1986, amended 1987-2006), and Uinta (2003, amended 2004 - 2011) National Forests identify goals for forest health and constraints on resource uses to meet these goals. LRMPs also identify project restrictions to protect fish and wildlife and MIS for each forest.

Environmental Consequences

Methodology

Impact assessment methodologies varied slightly based upon species being assessed and compliance with applicable federal requirements. The following sections provide a brief summary of analysis methodology used.

Local Route Variations

The EIS for the Project considered the potential impacts of several route variations that were developed to address local-scale issues. Appendix F of the Project EIS (BLM 2016) provides a description of all route variations considered in the Final EIS. The EIS for the Project considered variations to Alternatives COUT-A and COUT-C that would cross USFS-administered land. The local route variation to COUT-A is located near Chipman Creek on the Uinta National Forest. This route variation is referred to as COUT-A Variation 1 in this report. There are three local route variations to Alternative COUT-C on USFS-administered lands. One local route variation occurs along U.S. Highway 6 and is referred to in this report as COUT-C Variation 1. The other two variations occur in the Camp Timberlane/Argyle Canyon area. These route variations are referred to as COUT-C Variations 2 and 5 in this report to match nomenclature

for these routes in the EIS for the Project. This report addresses the potential impacts that were assessed along the entire length of each alternative route on USFS-administered lands.

Compliance with Applicable LRMPs

The USFS general directions, management objectives, and standards and guidelines from the Ashley, Manti-La Sal, and Uinta National Forests LRMPs were assessed based on their applicability to fish and aquatic resources. Those general directions, management objectives, and standards and guidelines applicable to fish and aquatic resources were then assessed to determine if design features of the Proposed Action and selective mitigation measures were adequate for USFS to approve an action alternative in compliance with LRMPs. Additional analysis was conducted to evaluate compliance with some standards and guidelines that provided quantitative direction for management of specific resources. Based on this analysis, construction, operation, and maintenance along any of the alternative routes would be consistent with the Ashley, Manti La Sal, and Uinta National Forests LRMPs, as amended. Forest Plan compliance is documented in the Project record.

Compliance with USFS Manuals 2620 and 2670

Potential direct, indirect, and cumulative effects on sensitive fish species were assessed quantitatively or qualitatively based on detail and applicability of species-specific data, presence of potentially suitable habitat, and Project disturbance based on the ground disturbance model developed for the Project EIS (refer to Final EIS Section 2.5.1.2 [BLM 2016]). Additionally, the incremental effects of past, present, and reasonably foreseeable future actions on federally listed fish, amphibians, and macroinvertebrates habitats are discussed quantitatively.

Modeled potentially suitable habitat used in the analysis is based on known species traits, natural history requirements, and presence of element occurrences (UNHP 2012). An element occurrence is defined by the Utah Natural Heritage Program as an area of land and/or water where a species or ecological community is or was present and has practical conservation value. Element occurrences for fish and amphibians used in this report are primarily point and line data associated with habitats known to support populations or where individuals have been documented to occur. Species traits, natural history requirements, and element occurrences were utilized to model habitat for each individual species being analyzed. Methods for delineating modeled habitat are species specific and are detailed in the following section.

Analysis is necessary to demonstrate Project compliance with USFS forest-wide directives from USFS Manuals 2620 and 2670, as well as forest-specific LRMPs.

Assumptions

- Modeled potentially suitable habitat is not considered to be occupied; rather, modeled habitats are considered to be an important component of population stability and will be analyzed and discussed as such.
- Element occurrence data are not collected in a consistent manner and cannot be used for determining quantitative impacts on species.
- Project designs are conceptual and ground disturbance is estimated. All analyses are based on estimates of potential ground disturbance and are based generally on the worst case scenario.

Federally listed Endangered Species – Colorado River Fishes:

The five federally listed endangered Colorado River fish analyzed for this report are not known to occur nor are any critical habitats designated on land administered by the USFS. The closest designated critical habitat for the five Colorado River fishes occur over 50 miles downstream from national forest lands. Any impacts resulting from the Project on lands administered by the USFS, such as water withdrawal or discharge of sediment, would be indirect and minimal. Ground-disturbing activities resulting from the Project are not expected to result in any direct impacts on these species.

USFS Sensitive Species – Fish and Amphibians

Potential aquatic habitat for USFS sensitive fish species was identified as all perennial lentic and lotic waters selected from the National Hydrography Dataset (NHD) (USGS 2009) within subbasins (8-digit hydrologic unit code [HUC]) crossed by reference centerlines having documented occurrences of sensitive fish. Aquatic habitats were buffered by 100 and 300 feet in order to quantify the area of aquatic habitats (100-foot buffer) as well as the area of riparian influence (300-foot buffer). The area of potentially suitable aquatic habitat supporting sensitive fish is used in a quantitative impact analysis for potential effects resulting from construction, operation, and maintenance of the Project.

Potential aquatic and semi-aquatic habitat for Columbia spotted frog was identified as perennial lentic, lotic, and spring features using the NHD, as well as Palustrine Emergent, Riverine Perennial and Intermittent, and Lacustrine Wetland classes selected from the National Wetland Inventory (NWI) database (FWS 2012). The selection of habitats is based on life history accounts and reference populations identified in the Project EIS (BLM 2016). Aquatic and semi-aquatic habitats were buffered by 100 and 300 feet in order to quantify the area of potentially suitable habitat (100-foot buffer) as well as the area of riparian influence (300-foot buffer) in acres. The area of potentially suitable habitat supporting Columbia spotted frog is used in a quantitative impact analysis for potential effects resulting from construction, operation, and maintenance of the Project.

Potential breeding habitat for boreal toad was identified as perennial lentic, lotic, and spring features selected from the NHD, as well as wetland classes selected from the NWI database, including Palustrine Emergent and Riverine Upper and Lower Perennial systems. The selection of habitats is based on life history accounts and reference populations identified in the Project EIS (BLM 2016). Aquatic and semi-aquatic habitats were buffered by 100 and 300 feet in order to quantify the area of potentially suitable habitats (100-foot buffer) as well as the area of riparian influence (300-foot buffer) in acres. Potential boreal toad terrestrial habitat was modeled based on literature review and personal communications with local biologists.

Potential terrestrial habitat for boreal toad includes Aspen, Mountain Shrub, and Mixed conifer habitats at or above 5,150 feet above mean sea level adjacent to potential breeding habitats. The National Gap Analysis Program Land Cover dataset was used to identify these habitat layers (USGS 2010). Potential breeding habitats were buffered 1.5-1.8 miles (typical toad dispersal distance [UDWR 2008]) and 5 miles (maximum dispersal distance [Lambert 2003]). The area of suitable breeding and terrestrial habitat potentially supporting boreal toad is used in a quantitative impact analysis for potential effects resulting from construction, operation, and maintenance of the Project. Results of that analysis are presented in this report. Additionally, modeled potential breeding and terrestrial habitat would be used for pre-construction clearance surveys.

USFS Management Indicator Species

Aquatic habitats potentially supporting Colorado River cutthroat trout, Bonneville cutthroat trout, and macroinvertebrates include all perennial lentic and lotic habitats selected from the NHD. There is generally a lack of conclusive data regarding occupied habitats throughout the Project area or on land administered by the USFS. Generally speaking, Colorado River cutthroat trout can be assumed to only occur in waters that drain into the Colorado River; Bonneville cutthroat trout occur only in waters that drain into the Great Basin (some translocation has been done but the species is native to Great Basin waters) and macroinvertebrates are known to be widespread throughout various perennial habitats similar to those found in the Project area. Based on this gap in data, it is justifiable that all perennial habitats in these general regions could potentially be inhabited by Colorado River cutthroat trout, Bonneville cutthroat trout, and macroinvertebrates. Identification of potential habitats is used as a basis for the qualitative analysis of potential direct, indirect, and cumulative effects resulting from the Project and other past, present, and reasonably foreseeable future actions on habitats potentially supporting MIS.

All perennial habitats potentially supporting macroinvertebrates are identified in Section 3.2.9 Fish and Aquatic Resources in the Project EIS (BLM 2016). All habitats potentially supporting Colorado River and Bonneville cutthroat trout identified through the analysis of habitat conducted under the special status species heading for each fish will be utilized for a qualitative discussion of potential effects on these trout species in later sections.

Temporal Context for Effects Analysis

The temporal scope of analysis includes 5 years for direct and indirect impacts associated with Project construction. The Applicant's Proposed Action does not include plans for decommissioning the Project; therefore, the temporal scope of analysis for impacts associated with operation and maintenance of the Project is based on the assumption that effects of operating and maintain the transmission line after construction would be permanent.

Cumulative Impact Analysis Areas

Cumulative impact analysis areas for special status fish and aquatic species were based on available information regarding species specific home ranges or known element occurrences and biologically relevant geographic boundaries for each species. The cumulative impacts analysis areas consist of each subbasin (8-digit HUC) with any portion falling within national forest boundaries that are crossed by the reference centerline of any alternative route and has documented occurrence of special status species in the subwatershed boundary. Each subwatershed is analyzed separately and grouped by alternative route.

Incomplete and Unavailable Information

- General lack of information regarding current condition and trends of special status species on the Ashley, Manti-La Sal, and Uinta National Forests.
- Spatial data of sensitive species occurrences on the Uinta and Ashley National Forests is limited to element occurrences from the UNHP database. Provisional, nonspatial information was derived from the Forest LRMPs.

- Known occupied boreal toad breeding habitat and terrestrial habitat is not known to exist in the Project study corridor but suitable habitat does exist. There is potential the species exists but individuals have not been documented.
- Data regarding stream reaches known to support cutthroat trout (without management prescription designation; i.e., conservation and persistence streams) are unavailable.
- Definition and identification of cutthroat trout “recovery streams” were not included in the Uinta LRMP.

Effects Analysis

For the quantitative analysis of potential effects on special status fish and aquatic species resulting from the Project, an estimate of ground disturbance in acres for each species’ habitats on land administered by the USFS and in the cumulative impacts analysis area was quantified using the ground-disturbance model developed for the Project. Since design of Project facilities has not been finalized, the ground-disturbance model is used to estimate potential disturbance resulting from construction, operation, and maintenance of a typical 500kV transmission line. Disturbance calculations are based on categorical access levels to estimate the potential area of ground-disturbance based on topography, existing access, and estimated area of disturbance associated with construction of transmission line towers, work areas, and ancillary facilities. These disturbance calculations provide the basis for a quantifiable comparison of potential ground disturbance for each alternative route that could affect fish and aquatic resources. Section 2.5.1.2 of the Project EIS (BLM 2016) describes the methodology and process behind development of the ground-disturbance model.

For the quantitative analysis of effects from the Project as well as past, present, and reasonably foreseeable future actions on potential aquatic, semi-aquatic, and terrestrial habitats in the cumulative impacts analysis area, information gathered during the EIS inventory process was used to identify areas of previous or current impact as well as areas of potential future impacts based on descriptions of past, present, and reasonably foreseeable future actions. These impacts, when combined with potential Project-related impacts, will serve to demonstrate potential cumulative impacts on fish and aquatic resources discussed in this report.

In addition to the effects of past and present actions, fish and aquatic resources in the cumulative impact assessment area in association with the COUT BAX alternative routes have been affected by wildfires and vegetation management actions. The fish and aquatic resources affected by wildfires and vegetation management actions have occurred mostly along the Wasatch Plateau and occur in comparatively equal concentrations relative to each COUT BAX alternative route. The Seeley (2012), Wood Hollow (2012), and Salt Creek (2007) fires as well as USFS timber sales and fuel treatments conducted by Manti-La Sal National Forest account for most of the effects on fish and aquatic resources associated with the COUT BAX alternative routes.

Areas affected by wildfires were excluded from the quantitative analysis as habitat does recover from these events. Recovery from wildfires depends on the time since the occurrence; precipitation amounts, plant species, and degree of associated degradation (soil loss and fire intensity). It is difficult to determine the degree of localized recovery relative to each of the previously listed events.

Vegetation management activities also were excluded because, although they may result in initial temporary losses in habitat, vegetation management activities are assumed to improve habitat in the long-term.

It should be noted that the impact assessment model for cumulative effects has been designed to report very conservative estimates of effects on individuals and habitats. All past, present, and reasonably foreseeable future actions are weighted equally regardless of their actual extent of potential impacts mainly because impacts from many projects cannot be accurately anticipated. Because of this generalized and conservative analysis, large scale impacts are not likely to occur even though they are reported. This methodology was developed to identify the “worst case scenario” of potential impacts and it is important the reader is aware and cognizant of this in the report.

In addition to the quantitative analysis of impacts on individuals and habitat, a qualitative discussion for each species based on potential impacts on suitable habitat where the species may occur but where definitive spatial data or trend data are unavailable or unknown is included in the results section.

Compliance with U.S. Forest Service Land and Resource Management Plans

Uinta National Forest

The Project is expected to be compliant with all but two standards and guidelines specific to fish and aquatic resources from the Uinta Forest LRMP. Analysis of potential effects resulting from construction, operation, and maintenance of the Project is necessary to evaluate Project compliance or noncompliance. These two guidelines include:

WL&F-17 Guideline: Protect known occupied boreal toad habitat from disturbance (e.g., trampling) during the active breeding season (generally 4 to 5 weeks following snowmelt): Boreal toad breeding and terrestrial habitats are identified and analyzed for compliance with USFS Manuals 2620 and 2670. Results of that analysis will provide sufficient information to demonstrate whether the Project is compliant or non-compliant with Guideline WL&F-17.

Assumptions:

- (1) Modeled habitat for the impact assessment would be sufficient to identify potential boreal toad breeding habitats for preconstruction surveys.
- (2) Biologists from the Uinta National Forest would be consulted to determine and confirm the extent, timing, and methodology used for surveys of potential breeding habitats.

MP-3.3-6 Guideline: For streams identified as conservation and persistence streams for Bonneville and Colorado River cutthroat trout, total soil resource commitment should be limited to no more than 4 percent of the riparian area acreage within this prescription for each individual watershed. Methods for determining soil resource commitment are as follows:

Assumptions:

- (1) A permanent access road with a maximum width of 16 feet would be constructed along the centerline. In Section 2.4 of the Project Description, minimum road width is 14 feet, which would be typical in flat terrain. The 16-foot width was selected based on the assumption that implementation of any and all selective mitigation measures described previously in this document would limit the extent of disturbance in riparian areas and all unavoidable permanent impacts (road crossings) would be constructed at the minimum width. An additional 2 feet was added to the impact area to provide a more conservative estimate of potential impacts on riparian areas and subsequent permanent soil resource commitment.

- (2) Riparian areas would include all Bonneville and Colorado River cutthroat trout conservation and persistence streams buffered by 328 feet (300 meters).
- (3) Riparian areas would be grouped by sub-basin at an 8-digit HUC Level and bounded by the Uinta National Forest boundary.

Ashley and Manti-La Sal National Forests

Through proper implementation of design features of the Proposed Action and selective mitigation measures, as well as development of site- and species-specific avoidance and mitigation measures to avoid or mitigate the effects of Project-related disturbance on known occupied habitats or potentially occupied habitats, the Project is expected to be in compliance with all features of the Ashley and Manti-La Sal National Forest LRMPs.

Past, Present, and Reasonably Foreseeable Future Actions Relevant to Cumulative Effects Analysis

Land administered by Ashley, Manti-La Sal, and Uinta National Forests are managed for multiple resource uses. Past and present actions in the cumulative impact analysis areas include timber harvest, livestock grazing, and recreational use (e.g., off-road-vehicle use, biking, hiking, camping, and hunting), oil and gas exploration and development, mining, mineral production, transmission lines, pipelines, highways, and residential developments on or near land administered by the USFS, the BLM, State and private lands. These land uses have previously, currently, and continue to contribute to modification of the landscape.

Reasonably foreseeable future actions proposed on land administered by the USFS or adjacent to administrative boundaries that have the potential to incrementally affect fish and aquatic resources would include habitat enhancement and restoration projects, transmission line projects, timber harvest projects, coal and gravel mines, pipelines, reservoir projects, and transportation projects.

Design Features and Selective Mitigation Measures

Design Features of the Proposed Action

Design features of the Proposed Action for environmental protection and selective mitigation measures would be implemented to assist in avoiding and minimizing effects on sensitive fish and aquatic resources. Design features are part of the Applicant's Project description and are measures the Applicant would implement as standard practices of construction, operation, and/or maintenance, as applicable. A list of design features are presented in Table 2-8 of the Project EIS (BLM 2016). Selective mitigation measures are those the Applicant agrees to apply selectively through the planning process to avoid, reduce, or minimize impacts of the Project. A list of selective mitigation measures are presented in Table 2-13 of the Project EIS (BLM 2016). Design features effective at reducing initial impacts on fish and aquatic resources include Design Features 3, 26, 27, 28, 30, 33, and 34, which are described in this section.

- **Design Feature 3 (management of special status species).** Special status species, threatened and endangered species, or other species of particular concern would be considered in accordance with management policies set forth by appropriate land-management or wildlife-management agencies (e.g., BLM, U.S. Fish and Wildlife Service [FWS], state wildlife agencies, etc.). This would entail conducting surveys for plant and wildlife species of concern along the transmission line route selected for construction and associated facilities (e.g., access and spur roads, staging

areas, etc.) as agreed on by the agencies. Survey protocols must be accepted or recommended by the affected federal land-managing agency, FWS, and state wildlife agencies, as appropriate. In cases for which such species are identified, appropriate action would be taken to avoid adverse impacts on the species and its habitat, which may include altering the placement of roads or towers, where practicable as approved by the landowner and construction inspection contractor (CIC), as well as monitoring activities. This design feature would avoid areas of particular concern due to the inhabitation of special status species or critical habitats reducing the potential for indirect and/or direct effects on special status fish and aquatic resources.

- **Design Feature 26 (vehicle access restriction).** All construction-vehicle movement outside the right-of-way would be restricted to pre-designated access, contractor-acquired access, public roads, or overland travel approved in advance by the applicable land-management agency, unless authorized by the CIC. This design feature would reduce traffic in areas susceptible to erosion and sedimentation to aquatic habits supporting fish and aquatic resources.
- **Design Feature 27 (construction activity access restriction).** The spatial limits of construction activities, including vehicle movement would be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents indicating survey or construction limits would be applied to rocks, vegetation, structures, fences, etc. This design feature would minimize the likelihood that activities related to construction, operation, and maintenance would result in direct or indirect impacts on fish and aquatic resources by limiting the proximity of those activities to sensitive aquatic habitats.
- **Design Feature 28 (personnel instruction).** Prior to construction, the CIC would instruct all personnel on the protection of cultural, ecological, and other natural resources such as (a) federal and state laws regarding antiquities, paleontological resources and plants and wildlife, including collection and removal; (b) the importance of these resources; (c) the purpose and necessity of protecting them; and (d) reporting and procedures for stop work. Application of this design feature will minimize impacts on fish and aquatic resources throughout the Project corridor, but especially in areas where aquatic habitats or special status species were not previously known to occur prior to commencement of construction.
- **Design Feature 30 (hazardous materials).** Hazardous material would not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials within one week of Project completion. A Spill Pollution Prevention, Containment, and Countermeasures Plan Framework, will be developed as part of the POD. This design feature would be used to prevent exposure of aquatic habitats to harmful materials and would minimize the potential for direct and indirect impacts on fish and aquatic resources resulting from Project activities.

Refueling and storing potentially hazardous materials would not occur within a 100-foot radius of a water body, a 200-foot radius of all identified private water wells, and a 400-foot radius of all identified municipal or community water wells. Spill preventive and containment measures or practices would be incorporated as needed.

- **Design Feature 33 (riparian area avoidance).** Consistent with BLM Riparian Management Policy, surface disturbing activities within 300 feet of a riparian areas (defined as areas of land directly influenced by permanent surface or subsurface water having visible vegetation or physical characteristics reflective of permanent water influence, including wetlands, stream

banks, and shores of ponds or lakes) in Utah and Colorado would be required to meet exception criteria defined by the BLM, such as acceptable measures to protect riparian resources and habitats by avoiding or minimizing stormwater runoff, sedimentation, and disturbance of riparian vegetation, habitats, and wildlife species. In Wyoming, surface-disturbing activities within 500 feet of all perennial waters and/or wetland and riparian areas and 100 feet of all ephemeral channels also would be required to meet exception criteria in association with the BLM Rawlins Field Office RMP (BLM 2008b). Mitigation measures would be developed on a site-specific basis, in consultation with the affected federal land-management agency, and incorporated into the final POD.

If any disturbance was anticipated within 20 feet of the edge of a riparian area or other wetland habitat, a silt fence or certified weed-free wattle would be installed along the travel route on the wetland side unless the wetland is up-gradient

- **Design Feature 34 (invasive species avoidance).** Adhere to interagency developed methods of avoidance, inspection, and sanitization as described in the *Operational Guidelines for Aquatic Invasive Species Prevention and Equipment Cleaning* (USFS 2009b). If control of fugitive dust near sensitive water bodies is necessary, water would be obtained from treated municipal sources or drafted from sources known to contain no aquatic invasive species. Support vehicles, drill rigs, water trucks and drafting equipment would be inspected and sanitized, as necessary, following interagency-approved operational guidelines.

Selective Mitigation Measures

In addition to design features of the Proposed Action for environmental protection, selective mitigation measures would be implemented to avoid, minimize, or mitigate residual impacts on fish and aquatic resources. Selective mitigation measures applicable to reducing residual impacts on fish and aquatic resources include Selective Mitigation Measures 2, 4, 5, 7, 11, and 12.

- **Selective Mitigation Measure 2 (Sensitive Resource Avoidance).** There would be no blading of new access roads in certain areas of sensitive resources (e.g., perennial streams, riparian areas, wetlands, historic trails) during construction (or maintenance). In these particular areas, existing crossings would be used at perennial streams, national recreational trails, and irrigation channels and existing or overland access routes are to be used for construction and maintenance in these select areas. To minimize ground disturbance, overland routes must be flagged with easily seen markers, and the route must be approved in advance.
- **Selective Mitigation Measure 4 (Minimize Tree Clearing).** Removal of trees in the right-of-way would be minimized to limit disturbance to timber resources, reduce visual contrast, and protect sensitive habitat, to the extent practicable to satisfy conductor-clearance requirements (i.e., PacifiCorp Vegetation Management Standards). Trees and other vegetation would be removed selectively (e.g., edge feathering) to blend the edge of the right-of-way into adjacent vegetation patterns, as practicable and appropriate. To protect biological resources, only trees over 5 feet tall would be selectively removed in riparian habitats.
- **Selective Mitigation Measure 5 (Minimize New or Improved Accessibility).** To limit new or improved access into the Project area, as well as earthwork associated with the construction of tower pads in extremely steep terrain, all new or improved access (e.g., blading, widening existing access) and tower pads that would not be required for maintenance would be closed or rehabilitated using the most effective and least environmentally damaging methods appropriate to that area and developed through consultation with the landowner or land-management agency.

Methods for road closure or management include installing and locking gates, obstructing the path (e.g., earthen berms, boulders, redistribution of woody debris), revegetating and mulching the surface of the roadbed to make it less apparent, restoring the road to its natural contour and vegetation, or constructing waterbars to ensure proper drainage. Tower pads would be contoured to match existing grade and revegetated to the extent practicable to reduce their visual dominance in extremely steep terrain.

- **Selective Mitigation Measure 7 (Span and/or Avoid Sensitive Features).** Within the limits of standard tower design and in conformance with engineering and Applicant requirements, structures would be located to allow conductors to clearly span identified sensitive features. Structures would be placed so as to avoid sensitive features, including, but not limited to, wetlands, riparian areas, water courses, hazardous substance remediation, and cultural sites, to the extent possible. Avoidance measures may include selective tower placement, spanning sensitive features, or realigning access routes.
- **Selective Mitigation Measure 11 (Minimize Right-of-Way Clearing).** Clearing of the right-of-way would be minimized to reduce visual contrast and avoid sensitive features including, but not limited to, land uses, biological resources, and cultural sites. In select areas, the right-of-way width may be modified (within the limits of PacifiCorp Vegetation Management Standards and standard tower design) to protect sensitive resources, but current land uses would be allowed to continue unabated, provided the use meets applicable standards.
- **Selective Mitigation Measure 12 (seasonal and spatial wildlife restrictions).** To minimize disturbance to identified plant and wildlife species during sensitive periods, construction and maintenance activities would be restricted in designated areas unless exceptions are granted by the Authorized Officer or his/her designated representative and other applicable regulatory agencies (e.g., FWS, state wildlife agencies). A list of seasonal wildlife restrictions are presented in Appendix E, Table E-10 of the Final EIS (BLM 20162015).

Additional mitigation measures to reduce impacts on USFS sensitive fish and aquatic species may be implemented where impacts on habitat or populations could occur. These measures may include actions such as outright avoidance, timing restrictions for construction, and environmental compliance monitoring during construction activities.

If a specific action alternative is selected, appropriate Project mitigation measures will be carried forward for the alternative route selected into the POD (refer to Project EIS Section 2.4). In the case of some resources (e.g., biological resources, water resources), post-EIS pedestrian, agency-approved surveys would be required to refine the environmental protection requirements and further develop the detail of the POD and POD mapping. Implementation plans that would be included in the POD include a Flagging, Fencing and Signage Plan; Environmental Compliance Management Plan; Water Resources Protection Plan; Stormwater Pollution Prevention Plan Framework; and Reclamation, Revegetation and Monitoring Framework Plan.

Direct Effects

Direct effects on fish and aquatic resources would include mortality of individuals and direct removal of aquatic (lentic and lotic) and semi-aquatic (wetland and riparian) habitats resulting from construction, operation, and maintenance of permanent Project facilities including but not limited to access roads, ancillary facilities, fiber-optic lines, series compensation stations, and transmission line towers (i.e., individuals crushed by vehicles and grading or blading activities that permanently remove habitat).

Construction of temporary Project facilities could require crossing numerous lotic habitats; potentially a few lentic habitats; and few, if any, wetland or riparian habitats supporting sensitive fish and/or aquatic species. Often, these crossings require the placement of fill material (e.g., log bunks, crane pads, rock, soil, bridge pilings, culverts, wing walls, etc.) to provide a structure sufficient to support construction equipment and materials while at the same time reducing potential environmental impacts including those potential impacts on fish and aquatic species as well as their associated aquatic and semi-aquatic habitats.

Typically, temporary stream crossings would be used to cross aquatic habitats with little to no stream flow; where a crossing would only be needed for the construction phase of the Project; or where existing streambed substrate would support construction, operation, and maintenance related traffic. Types of temporary stream crossings would include (1) dry crossings with no bank or channel improvement, (2) mechanically grading banks to a slope sufficient to drive equipment and building materials across the channel (bank recontouring and revegetation would follow the work at the temporary crossing), (3) placement of temporary fill that would be removed following the completion of work at the site, or (4) temporary span structures. While temporary, these crossings would have the potential to create long- and short-term effects on stream morphology and ecological function. Modification of stream banks for temporary crossings could require the removal of vegetation that could take many years to recover depending on the plant species present, creating the potential for long-term bank erosion and sedimentation of aquatic habitats depending on site-specific conditions.

Indirect Effects

Indirect effects on fish and aquatic resources resulting from construction, operation, and maintenance of the Project may occur as a result of activities that increase the probability of erosion near aquatic habitats and subsequent sedimentation to those habitats as well as those activities that result in short-term modification of habitats supporting fish, aquatic, and semi-aquatic species.

Ground-disturbing activities that alter natural channel morphology, substrate composition, and stability; and those activities that would compact or decompact soils or remove riparian vegetation in proximity to fish and aquatic habitats could result in increased sediment loads, removal of water filtering and shading vegetation (wetlands or riparian vegetation), accidental spills of environmentally harmful materials (fuel, oil, concrete, etc.), and/or introduction of aquatic invasive species. All indirect effects would result in a reduction in fish and aquatic species fitness, reproductive potential (fecundity), survivability, and long-term adaptability.

Ground disturbance associated to the construction of temporary Project facilities, which require crossing lotic, lentic, wetland, and/or riparian habitats supporting fish and other aquatic or semi-aquatic species, could result in the type of indirect effects mentioned previously. Often, these crossings require the placement of temporary and permanent fill material (e.g., log bunks, crane pads, rock, soil, bridge pilings, culverts, wing walls, etc.) to provide a structure sufficient to support construction equipment and materials while at the same time minimizing environmental impacts including impacts on fish, aquatic, and semi-aquatic species as well as their associated habitats.

Research has shown that road construction and maintenance activities such as the clearing of stream-side vegetation, recontouring of channels, and vehicular travel through streams increased stream temperature and reduced dissolved oxygen content as suspended solids absorb heat from sunlight. Temperatures greater than 70 degrees Fahrenheit can severely stress most coldwater fish and aquatic species (Wood and Armitage 1997).

Typically, temporary stream crossings would be used to cross aquatic habitats during periods of little to no stream flow; where a crossing would be needed only for the construction phase of the Project; or where existing streambed substrate would support traffic related to construction, operation, and maintenance.

Generally, indirect effects on fish and aquatic resources would be of short duration and mitigated through proper implementation of design features, selective mitigation measures, and reclamation following ground-disturbing activities.

Cumulative Effects

The Project and other past, present, and reasonably foreseeable future actions are not likely to result in direct effects on listed endangered fish or designated critical habitats. This assumption is based on the premise that development of facilities in aquatic habitats or in proximity to aquatic habitats is undesirable from a constructability standpoint and because federal and state laws mandate the avoidance of impacts on aquatic habitats. Because the likelihood of direct impacts on endangered fish and critical habitats is improbable, a quantitative assessment of effects on individuals is not analyzed in this section, rather a qualitative discussion of actions, which could result in indirect, cumulative, and incremental effects on designated critical habitats for federally listed endangered fish species, is the main focus for those species.

For sensitive species for which occurrence data are available, potentially suitable habitat has been modeled and impacts resulting from the Project as well as other past, present, and reasonably foreseeable future actions are quantified based on the predictive habitat model described in the results section below.

Direct and indirect effects from the construction, operation, and maintenance of the Project would contribute to the effects of past, present, and reasonably foreseeable future actions on habitats potentially supporting or known to support special status fish, amphibians, and macroinvertebrates. The culmination of Project effects along with other past, present, and reasonably foreseeable future actions could incrementally result in adverse effects such as habitat fragmentation, loss of available habitat, decreases in habitat quality, and loss of individuals. Beneficial effects could also result from past, present, and reasonably foreseeable future actions. Habitat improvement projects including terrestrial, riparian, and aquatic improvements could result in improved habitat conditions for sensitive fish and amphibians.

Results

Impacts Common to All Alternatives

Development of any action alternative of the proposed Project has the potential to result in direct and indirect impacts on aquatic and semi aquatic habitats potentially supporting special status fish and/or amphibians. Most, if not all of these potential impacts would be temporary and through proper implementation of design features and selective mitigation measures, impacts would be minimized to the extent practicable or avoided all together.

Past, present, and reasonably foreseeable future actions have the potential to affect all special status species as well as their known and potential habitats similarly in each national forest.

Past, present, and reasonably foreseeable future actions potentially affecting special status fish, amphibian, and macroinvertebrate potential aquatic, semi-aquatic, and terrestrial habitats on land administered by the Ashley National Forest include:

Past and Present

- Habitat and rangeland management projects for the BLM Vernal Field Office
- Oil and gas development projects including the Berry Petroleum South Unit, various BLM oil and gas units in the Vernal Field Office
- Lake Canyon Economic Development Area (EDA)
- Utah Division of Oil, Gas and Mining oil well pads, and active oil and gas leases on land administered by Utah School and Institutional Trust Lands Administration (SITLA)
- The Lobo Ranchettes residential development

Reasonably Foreseeable Future Actions

- Future UDWR Watershed Restoration Focus Areas for rangeland, riparian, and forest habitats,
- The proposed TransWest Express Transmission Project.

Past, present, and reasonably foreseeable future actions potentially affecting special status fish, amphibian, and macroinvertebrate potential aquatic, semi-aquatic, and terrestrial habitats on land administered by the Manti-La Sal National Forest include:

Past and Present

- Coal-mining projects including the Bear Canyon
- Deer Creek, Trail Mountain, and Skyline mines as well as the Cottonwood Waste Rock Site
- Active sand and gravel permits on SITLA-administered land
- Oil and gas leases on SITLA-administered land, BLM units in the Price and Richfield field offices, the Ferron Natural Gas project, and Liberty Pioneer Gas Exploration
- The Miller's Flat vegetation management project

Reasonably Foreseeable Future Actions

- Future UDWR Watershed Restoration Focus Areas for rangeland, riparian, and forest habitats
- The TransWest Express Transmission Project
- The Shalom Electric Boulger Timber Salvage Project
- The Flat Canyon Coal Lease Tract
- The Narrows East Bench, Oak Creek, and Cottonwood pipelines
- The Narrows Reservoir
- The Narrows Sand and Gravel Quarries
- The Narrows Highway Relocation and Tunnel transportation project
- The Long Canyon Coal Lease
- The Uinta-Wasatch-Cache National Forest fence project.

Past, present, and reasonably foreseeable future actions potentially affecting special status fish, amphibian, and macroinvertebrate potential aquatic, semi-aquatic, and terrestrial habitats on land administered by the Uinta National Forest include:

Past and Present

- Oil and gas development projects including the Lake Canyon EDA project and active leases on SITLA-administered land
- The Soldier Summit Estates Residential development
- The Sheep Creek vegetation management project

Reasonably Foreseeable Future Actions

- Future UDWR Watershed Restoration Focus Areas for rangeland, riparian, and forest habitats
- The proposed TransWest Express Transmission Project
- The Sheep Creek recreation trail
- Proposed residential developments including the Beaver Canyon and Lost Bear phases of the Strawberry Highlands development
- The proposed Squaw Creek transportation project.

Endangered Species

No occurrences or designated habitats for humpback chub, bonytail chub, Colorado pike minnow, or razorback sucker exist on land administered by the Ashley, Manti-La Sal, or Uinta National Forests. The federally listed endangered Colorado River fishes would not be affected directly by Project-related actions on USFS-administered lands.

Potential indirect effects from water use necessary for the construction, operation, and maintenance of the Project in the Colorado River Basin is a major concern for local and federal fisheries biologists. Section 2.4.5.3 of the Project description (in the Project EIS [BLM 2016]) identifies that water necessary for the Project would be derived only from either treated municipal sources or obtained under special permission from existing water-rights holders. Specific water sources and volumes of water use associated with each source have not been identified for the Project at this time. Water use in the Colorado River Basin would require formal consultation with FWS under the Upper Colorado River Endangered Fish Recovery Program. Additional analysis of water use and its potential effect on listed fish would be conducted for the preferred alternative route in the Biological Assessment for formal consultation with FWS.

All four endangered Colorado River fishes exist in systems where sediment loads historically have been at high levels. Through implementation of Design Feature 26 (vehicle access restriction) as well as Selective Mitigation Measures 2 (sensitive resource avoidance), 5 (minimize new or improved accessibility), and 7 (span and/or avoid sensitive features), increased sedimentation resulting from Project impacts would be limited. Project impacts resulting in increased sedimentation are not likely to transfer sediment loads capable of affecting water quality to a measurable degree in the Colorado River Basin where FWS designated critical habitats for the four species occur.

Findings

All alternatives would require formal consultation with FWS for humpback chub, bonytail chub, Colorado pike minnow, or razorback sucker and their designated critical habitats under the Upper Colorado River Endangered Fish Recovery Program for any Project-related water use in the Colorado River Basin.

USFS Sensitive and Management Indicator Species

Potential impacts on habitats known to support or potentially supporting USFS-listed sensitive species and MIS are discussed in a qualitative and quantitative format in the following sections. Percentages of potential habitat affected are presented in text and the area, in acres from which percentages were calculated are presented in tables for each species.

Bonneville Cutthroat Trout (Sensitive: Manti-La Sal and Uinta National Forests; Uinta National Forest MIS)

Potential Bonneville cutthroat trout habitat would be avoided or spanned under Selective Mitigation Measures 2 and 7 (span and /or avoid sensitive features). Direct disturbance of aquatic habitats where stream or river crossings are necessary would be limited under Selective Mitigation Measure 5 (minimize new or improved accessibility). Aquatic habitats potentially supporting Bonneville cutthroat trout may experience incremental increases in turbidity as a result of sedimentation during storm events when run-off in areas where access roads are constructed within 100 feet of streams and rivers may erode disturbed soils. Post-construction road maintenance may contribute small amounts of sediment periodically to potential Bonneville cutthroat trout habitat, along with regular run-off during rain events. However, increases in turbidity to potential Bonneville cutthroat trout would be limited through proper implementation of Selective Mitigation Measures 4 (minimize tree clearing), which would limit vegetation clearing in riparian habitats to trees and shrubs greater than 12 feet in height, 2 and 7 (span and/or avoid sensitive features), and 5 (minimize new or improved accessibility). Additionally, habitat improvement projects in terrestrial and aquatic habitats watershed-wide would likely result in improved conditions in areas of suitable Bonneville cutthroat trout habitats.

Bonneville cutthroat trout are limited to watersheds that terminate in the Great Basin. All watersheds on the Ashley National Forest in the Project area drain into the Colorado River Basin and thus the perennial lentic and lotic habitats on the Ashley National Forest are not considered potential habitats for Bonneville cutthroat trout.

Results of the impact analysis show development of the Project would affect no more than 3 percent of potential Bonneville cutthroat trout habitat on lands administered by the Manti-La Sal National Forest. This is a conservative estimate, as streams providing potential Bonneville cutthroat trout habitat would be avoided to the extent practicable.

Other past, present, and reasonably foreseeable future actions could affect potential Bonneville cutthroat trout habitat and are largely attributed to existing and future oil and gas leases in the Soldier Creek Watershed. Areas on the Manti-La Sal National Forest affected by wildfires were excluded from the quantitative analysis as habitat can recover, and even benefit, from these events. Vegetation management activities also were excluded because, although they may result in initial temporary losses in habitat, they are assumed to improve habitat in the long-term.

On land administered by the Uinta National Forest, impacts resulting from the Project would affect no more than 2 percent of the potential Bonneville cutthroat trout habitat in subwatersheds on the forest. This is a conservative estimate, as streams providing potential Bonneville cutthroat trout habitat would be avoided to the extent practicable. The effects of the Project in conjunction with other past, present, and reasonably foreseeable future actions could affect up to 38 percent of potential Bonneville cutthroat trout habitat in the cumulative impacts analysis area. These effects are mostly attributed to effects other than the Project, which contributes only minor impacts. Areas affected by wildfires were excluded from the quantitative analysis as habitat can recover, and even benefit, from these events. Vegetation management activities also were excluded because, although they may result in initial temporary losses in habitat, they are assumed to improve habitat in the long-term.

The quantitative analysis of potential effects presented in Table 2 is very conservative and overestimates surface disturbance from other actions. Further, given provisions of federal laws such as the CWA and forest LRMPs regarding the avoidance of aquatic systems, effects on potential Bonneville cutthroat trout habitat associate with other past, present and reasonably foreseeable future actions would be mostly avoided or mitigated.

**TABLE 2
SUMMARY OF EFFECTS ON BONNEVILLE CUTTHROAT TROUT HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Potential Habitat ² (acres)		Project- related Disturbance (acres)		Remaining Habitat (acres)		Potential Habitat Available (acres)		Project- related Disturbance (acres)		Past, Present, and Reasonably Foreseeable Future Actions (acres)		Remaining Habitat (acres)	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
Manti-La Sal National Forest														
Cottonwood-San Pitch River Subwatershed														
COUT BAX-E	216	641	3	8	213	633	1,082	3,205	3	7	300	898	779	2,300
COUT-H	216	641	3	8	213	633	1,082	3,205	3	8	300	898	779	2,299
Lower Thistle Subwatershed														
COUT-A	395	1,183	0	0	395	1,183	822	8,297	7	20	130	410	2,684	7,867
COUT-A Variation 1	395	1,183	0	0	395	1,183	822	8,297	7	20	130	410	2,684	7,867
COUT-B	395	1,183	0	0	395	1,183	822	8,297	7	20	130	410	2,684	7,867
COUT-C	395	1,183	0	0	395	1,183	822	8,297	7	21	130	410	2,684	7,866
COUT-C Variation 1	395	1,183	0	0	395	1,183	822	8,297	7	21	130	410	2,684	7,866
COUT-C Variation 2	395	1,183	0	0	395	1,183	822	8,297	7	21	130	410	2,684	7,866
COUT-C Variation 5	395	1,183	0	0	395	1,183	822	8,297	8	23	130	410	2,684	7,864
Middle Thistle Subwatershed														
COUT-A	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
COUT-A Variation 1	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
COUT-B	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
COUT-C	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
COUT-C Variation 1	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
COUT-C Variation 2	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
COUT-C Variation 5	726	2,171	0	0	726	2,171	1,733	5,109	1	3	142	407	1,591	4,702
Nebo Creek Subwatershed														
COUT-A	2,058	6,088	0	0	2,058	6,088	2,663	7,859	10	29	50	116	2,603	7,714
COUT-A Variation 1	2,058	6,088	0	0	2,058	6,088	2,663	7,859	10	29	50	116	2,603	7,714
COUT-B	2,058	6,088	0	0	2,058	6,088	2,663	7,859	10	28	50	116	2,603	7,715
COUT-C	2,058	6,088	0	0	2,058	6,088	2,663	7,859	10	30	50	116	2,603	7,713
COUT-C Variation 1	2,058	6,088	0	0	2,058	6,088	2,663	7,859	10	30	50	116	2,603	7,713
COUT-C Variation 2	2,058	6,088	0	0	2,058	6,088	2,663	7,859	10	30	50	116	2,603	7,713

**TABLE 2
SUMMARY OF EFFECTS ON BONNEVILLE CUTTHROAT TROUT HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Potential Habitat ² (acres)		Project- related Disturbance (acres)		Remaining Habitat (acres)		Potential Habitat Available (acres)		Project- related Disturbance (acres)		Past, Present, and Reasonably Foreseeable Future Actions (acres)		Remaining Habitat (acres)	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
COU-C Variation 5	2,058	6,088	0	0	2,058	6,088	2,663	7,859	11	33	50	116	2,603	7,710
Uinta National Forest														
Middle Thistle Subwatershed														
COU-A	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
COU-A Variation 1	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
COU-B	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
COU-C	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
COU-C Variation 1	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
COU-C Variation 2	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
COU-C Variation 5	726	2,171	0	0	726	2,171	1,733	5,109	1	1	142	407	1,591	4,702
Middle Soldier Subwatershed														
COU-B	456	1,376	7	21	449	1,355	1,003	2,932	9	50	59	169	946	2,764
COU-C	456	1,376	8	22	448	1,355	1,003	2,932	9	53	59	169	946	2,764
COU-C Variation 1	456	1,376	8	22	448	1,355	1,003	2,932	9	54	59	169	941	2,763
COU-C Variation 2	456	1,376	8	22	448	1,355	1,003	2,932	9	53	59	169	946	2,764
COU-C Variation 5	456	1,376	9	24	447	1,352	1,003	2,932	10	59	59	169	945	2,764
Upper Soldier Subwatershed														
COU-B	501	1,483	1	3	500	1,480	1,635	4,821	6	20	126	408	1,504	4,396
COU-C	501	1,483	1	3	500	1,480	1,635	4,821	7	20	126	408	1,503	4,395
COU-C Variation 1	501	1,483	1	3	500	1,480	1,635	4,821	7	20	126	408	1,503	4,395
COU-C Variation 2	501	1,483	1	3	500	1,480	1,635	4,821	7	20	126	408	1,503	4,395
COU-C Variation 5	501	1,483	1	3	500	1,480	1,635	4,821	7	22	126	408	1,503	4,393
Tie Fork Subwatershed														
COU-A	1,111	3,268	6	13	1,105	3,255	1,162	3,417	6	13	27	80	1,129	3,338
COU-A-1	1,111	3,268	6	13	1,105	3,255	1,162	3,417	6	13	27	80	1,129	3,337
COU-B	1,111	3,268	6	13	1,105	3,255	1,162	3,417	1	2	27	69	1,134	3,348
COU-C	1,111	3,268	6	13	1,105	3,255	1,162	3,417	1	2	27	69	1,134	3,348

**TABLE 2
SUMMARY OF EFFECTS ON BONNEVILLE CUTTHROAT TROUT HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Potential Habitat ² (acres)		Project- related Disturbance (acres)		Remaining Habitat (acres)		Potential Habitat Available (acres)		Project- related Disturbance (acres)		Past, Present, and Reasonably Foreseeable Future Actions (acres)		Remaining Habitat (acres)	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
COUT-C Variation 1	1,111	3,268	6	13	1,105	3,255	1,162	3,417	1	2	27	69	1,134	3,348
COUT-C Variation 2	1,111	3,268	6	13	1,105	3,255	1,162	3,417	1	2	27	69	1,134	3,348
COUT-C Variation 5	1,111	3,268	6	15	1,105		1,162	3,417	1	2	27	70	1,134	3,348

NOTES:

¹Cumulative Impact Analysis Area is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present and intersected by reference centerline

²Habitat on national forest is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present and intersected by the reference centerline and by the national forest.

³Habitat buffer is the potential habitat buffered by 100 and 300 feet.

The estimated extent of potential Bonneville cutthroat trout habitat affected by each alternative route on the Manti-La Sal and Uinta National Forests is presented in Table 2.

Findings

Project-related actions along any of the alternative routes in the Manti-La Sal and Uinta national forests would not affect individuals or habitat for Bonneville cutthroat trout. Additionally, the effect of the Project in conjunction with past, present, and reasonably foreseeable future actions may affect individuals but is not likely to cause a trend to federal listing or loss of viability of Bonneville cutthroat trout on the Manti-La Sal or Uinta National Forests.

Boreal Toad (Ashley, Manti-La Sal, and Uinta National Forests)

The types of potential Project-related impacts on boreal toad potential breeding habitats are expected to be the same as those described for Columbia spotted frog. Potential Project-related impacts on potential boreal toad terrestrial habitats within the typical dispersal distance of 1.55 to 1.86 miles from breeding habitats (UDWR 2005) include fragmentation and/or loss of contiguous terrestrial habitat through removal of vegetation, introduction and spread of invasive plants or noxious weeds, or a shift in vegetation components such that vegetation following reclamation of Project-related ground disturbance would not provide suitable habitat. Additionally, boreal toad mortalities could occur during construction and maintenance if individuals are crushed by or collide with moving construction equipment. Additionally, habitat improvement projects in terrestrial and aquatic habitats watershed-wide would likely result in improved conditions in suitable boreal toad habitats.

Preconstruction surveys of potential breeding habitat would occur during the breeding season and in accordance with Design Feature 3 (management of special status species). If potential breeding habitat is found to be occupied, a seasonal wildlife restriction (during the boreal toad breeding season, 4 to 5 weeks following snowmelt) would be applied to occupied breeding habitats under Selective Mitigation Measure 12.

Implementation of a boreal toad breeding habitat seasonal restriction would limit the potential for boreal toad mortalities during the breeding season but construction activities within terrestrial habitats could adversely affect individual boreal toad survival both during and outside of the breeding season.

Additionally, protection of boreal toad terrestrial habitat would be provided through proper implementation of Selective Mitigation Measures 4 (minimize tree clearing), which would limit vegetation clearing in riparian habitats to trees and shrubs greater than 12 feet in height, 2 and 7 (span and/or avoid sensitive features), and 5 (minimize new or improved accessibility).

Results of this analysis show development of the Project would result in impacts on less than 1 percent of boreal toad potential breeding habitat and 7 percent of total terrestrial habitat in the Headwaters-Willow Creek subwatershed in the Ashley National Forest. Conversely, incremental effects of the Project along with other past, present, and reasonably foreseeable future actions on potential boreal toad breeding habitats in the cumulative impacts analysis area could affect up to 46 percent of the potential breeding habitat with effects all occurring outside the forest boundary in the Upper Argyle Creek subwatershed. The Project would only contribute 4 percent of the total impacts in the cumulative impacts analysis area. These effects are mostly attributed to effects other than the Project, which contributes only minor impacts. Areas affected by wildfires were excluded from the quantitative analysis as habitat can recover, and even benefit, from these events. Vegetation management activities also were excluded because, although they may result in initial temporary losses in habitat, they are assumed to improve habitat in the long-term. The

entire Argyle Creek *watershed* is a watershed restoration focus area and effects of historic fires will likely be largely reclaimed and mitigated through forest management practices. These efforts should improve and restore impacted breeding and terrestrial habitat.

On lands administered by the Manti-La Sal National Forest, impacts resulting from the Project would affect no more than 3 percent of potential breeding habitat and no more than 1 percent of potential terrestrial habitat. Incremental effects of the Project along with other past, present, and reasonably foreseeable future actions on potential boreal toad breeding habitat in the cumulative impacts analysis area could affect up to 90 percent of the habitat in the cumulative impacts analysis area but again, these impacts are likely over estimated given the information available regarding the extent of past, present, and reasonably foreseeable future actions. Impacts on potential terrestrial habitat resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions in the cumulative impacts analysis area could affect up to 79 percent of the total available habitat. These effects are mostly attributed to effects other than the Project, which contributes only minor impacts. Areas affected by wildfires were excluded from the quantitative analysis as habitat can recover, and even benefit, from these events. Vegetation management activities also were excluded because, although they may result in initial temporary losses in habitat, they are assumed to improve habitat in the long-term.

Additionally, there are no previously documented populations of boreal toad in the Huntington Creek watershed. This can be attributed to a combination of the lack of surveys for the species and poor water quality in Huntington creek limiting the potential for the species to occur all together.

On land administered by the Uinta National Forest, impacts resulting from the Project would affect less than 1 percent potential breeding and terrestrial habitat in the Indian Creek subwatershed, 4 percent in the Tie Fork subwatershed, and no more than 1 percent potential breeding and terrestrial habitat in the Willow Creek subwatershed. No other boreal toad potential breeding or terrestrial habitat in any other subwatershed occurring on land administered by the Uinta National Forest would be impacted from the Project. Incremental effects of the Project along with other past, present, and reasonably foreseeable future actions on boreal toad habitat in the cumulative impacts analysis area could result in a reduction of potential breeding habitat by up to 19 percent and potential terrestrial habitat by up to 15 percent where the Project could impact no more than 1 percent of the potential breeding habitat and less than 1 percent of the total terrestrial habitat whereas range improvement and watershed restoration projects managed by the forest would account for the rest of the potential effects. Vegetation management activities, including the incorporation of a Noxious Weed Management Plan, are assumed to improve boreal toad potential breeding and terrestrial habitat in the Project area in the long-term.

Breeding and terrestrial habitats modeled for the impact analysis provide information sufficient to address the Uinta National Forest LRMP Guideline WL&F-17. Potential suitable habitats identified for the analysis would be used as a basis for conducting pre-construction surveys of potential breeding habitat on land administered by the Uinta National Forest if the selected route alternative has the potential to affect those habitats. Preconstruction surveys would be conducted prior to initiation of construction activities. If areas of occupied boreal toad breeding habitat are documented, site- and species-specific as well as temporal mitigation measures to avoid and minimize impacts on boreal toad individuals and habitats would be detailed in the Project POD.

The estimated extent of boreal toad potential breeding and terrestrial habitat potentially affected by each alternative route on the Ashley, Manti-La Sal, and Uinta National Forests as well as potential impacts resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions in the cumulative impacts analysis area is presented in Table 3.

**TABLE 3
SUMMARY OF EFFECTS ON BOREAL TOAD BREEDING AND TERRESTRIAL HABITAT**

Alternative Route	U.S. Forest Service Administered Land									Cumulative Impact Analysis Area ¹											
	Acres of Potential Habitat			Project-related Acres of Disturbance			Acres of Remaining Habitat			Acres of Potential Habitat			Project-related Acres of Disturbance			Past, Present, and Reasonably Foreseeable Future Actions			Acres of Remaining Habitat		
	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³
	Habitat Buffer ⁴									Habitat Buffer ⁴											
100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	
Ashley National Forest																					
Headwaters-Willow Subwatershed																					
COU-C Variation 5	13	258	74	0	0	5	13	258	71	1,082	3,217	7,403	5	17	88	90	228	375	988	2,978	6,991
Lance Sowers Canyon Subwatershed																					
COU-B	1,057	3,415	4,344	6	20	22	1,508	3,395	4,322	1,059	3,429	4,375	7	23	22	76	251	287	981	3,173	4,089
Left Fork Indian Canyon Subwatershed																					
COU-B	1,021	3,160	5,848	0	0	0	1,021	3,160	5,848	1,423	4,481	6,681	0	0	0	44	249	119	1,379	4,237	6,562
Mill Hollow West Fork Avintaquin Subwatershed																					
COU-C Variation 2	1,040	3,100	8,000	0	0	5	1,040	3,100	7,995	1,408	4,186	9,551	0	0	10	28	75	147	1,380	4,111	9,403
South Fork Avintaquin Subwatershed																					
COU-C Variation 2	1,282	3,869	8,716	0	0	2	1,282	3,869	8,714	1,505	4,510	8,963	0	0	3	18	49	65	1,487	4,462	8,898
Tabby Canyon Sowers Canyon Subwatershed																					
COU-B	716	2,267	1,431	4	0	0	712	2,267	1,431	996	3,123	1,656	13	47	2	66	211	79	928	2,906	1,577
Tabbyune Creek White River Subwatershed																					
COU-C Variation 2	138	407	1,285	0	0	0	138	407	1,285	1,910	5,765	15,762	29	47	71	157	465	1,062	1,732	5,267	14,649
Upper Argyle Creek Subwatershed																					
COU-B	0	0	20	0	0	0	0	0	20	1,594	4,832	11,537	28	58	51	154	424	636	1,436	4,398	10,881
Manti-La Sal National Forest																					
Cottonwood San Pitch Subwatershed																					
COU BAX-E	214	632	2,758	3	8	29	24	629	2,729	875	2,602	9,961	3	8	55	135	418	422	737	2,177	9,197
COU-H	214	632	2,758	3	8	32	24	629	2,729	875	2,602	9,961	3	8	60	135	418	422	737	2,177	9,192
Gooseberry Creek Subwatershed																					
COU BAX-E	848	2,347	7,495	2	10	7	846	2,337	7,488	1,309	3,518	11,084	2	10	15	95	288	450	1,212	3,230	10,634
COU-H	848	2,347	7,495	2	11	8	846	2,336	7,477	1,309	3,518	11,084	2	11	16	95	288	450	1,212	3,230	10,634
Huntington Lake-Huntington Creek Subwatershed																					
COU BAX-B	403	1,256	3,388	4	15	34	398	1,241	3,354	1,553	6,076	8,049	5	0	60	788	461	5,636	764	5,615	2,405
COU BAX-C	403	1,256	3,388	4	15	34	398	1,241	3,354	1,553	6,076	8,049	5	0	60	788	461	5,636	764	5,615	2,405
COU-I	403	1,256	3,388	5	16	37	397	1,240	3,351	1,553	6,076	8,049	5	0	65	788	461	5,636	764	5,615	2,405
Indian Creek Subwatershed																					
COU BAX-B	286	872	6,034	1	4	40	285	868	5,994	380	1,149	6,803	2	4	44	64	225	2,307	316	922	4,481
COU BAX-C	286	872	6,034	1	4	40	285	868	5,994	380	1,149	6,803	2	4	44	60	225	2,307	316	922	4,481
COU-I	286	872	6,034	1	4	42	285	868	5,992	380	1,149	6,803	2	4	47	60	225	2,307	316	922	4,480
Left Fork Huntington Subwatershed																					
COU BAX-B	2,018	5,414	16,888	0	0	2	2,018	5,419	16,886	2,384	6,076	19,051	0	0	2	157	461	1,103	2,227	5,615	17,946
COU BAX-C	2,018	5,414	16,888	0	0	2	2,018	5,419	16,886	2,384	6,076	19,051	0	0	2	157	461	1,103	2,227	5,615	17,946
COU-I	2,018	5,414	16,888	0	0	2	2,018	5,419	16,886	2,384	6,076	19,051	0	0	2	157	461	1,103	2,227	5,615	17,946
Lower Thistle Subwatershed																					
COU-A	393	1,179	4,773	0	0	1	393	1,179	4,772	2,633	7,869	20,194	5	18	23	110	0	253	2,518	7,493	19,918
COU-A Variation 1	393	1,179	4,773	0	0	1	393	1,179	4,772	2,633	7,869	20,194	6	18	23	110	0	253	2,518	7,493	19,918
COU-B	393	1,179	4,773	0	0	1	393	1,179	4,772	2,633	7,869	20,194	5	17	23	110	0	253	2,518	7,493	19,918
COU-C	393	1,179	4,773	0	0	2	393	1,179	4,771	2,633	7,869	20,194	6	18	24	110	0	253	2,517	7,492	19,917
COU-C Variation 1	393	1,179	4,773	0	0	2	393	1,179	4,771	2,633	7,869	20,194	5	18	24	110	0	253	2,517	7,492	19,917
COU-C Variation 2	393	1,179	4,773	0	0	2	393	1,179	4,771	2,633	7,869	20,194	5	18	24	110	0	253	2,517	7,492	19,917

**TABLE 3
SUMMARY OF EFFECTS ON BOREAL TOAD BREEDING AND TERRESTRIAL HABITAT**

Alternative Route	U.S. Forest Service Administered Land									Cumulative Impact Analysis Area ¹														
	Acres of Potential Habitat			Project-related Acres of Disturbance			Acres of Remaining Habitat			Acres of Potential Habitat			Project-related Acres of Disturbance			Past, Present, and Reasonably Foreseeable Future Actions			Acres of Remaining Habitat					
	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³			
	Habitat Buffer ⁴									Habitat Buffer ⁴														
100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	
COU-C Variation 5	393	1,179	4,773	0	0	2	393	1,179	4,771	2,633	7,869	20,194	5	20	26	110	0	253	2,517	7,490	19,914			
Lowry Water Subwatershed																								
COU BAX-B	2,938	7,696	28,125	7	17	49	2,931	7,679	28,076	3,000	7,922	28,429	7	17	49	213	632	1,935	2,780	7,274	26,446			
COU BAX-C	2,938	7,696	28,125	7	17	49	2,931	7,679	28,076	3,000	7,922	28,429	7	17	49	213	632	1,935	2,780	7,274	26,446			
COU-I	2,938	7,696	28,125	7	18	53	2,931	7,678	28,072	3,000	7,922	28,429	7	18	53	213	632	1,935	2,780	7,273	26,443			
Middle Thistle Subwatershed																								
COU-A	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
COU-A Variation 1	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
COU-B	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
COU-C	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
COU-C Variation 1	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
COU-C Variation 2	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
COU-C Variation 5	671	2,016	7,557	0	0	0	671	2,016	7,557	1,287	3,908	9,265	1	2	1	68	205	162	1,219	3,701	9,102			
Miller Fork Huntington Subwatershed																								
COU BAX-B	1,604	4,778	22,665	0	0	0	1,604	4,778	22,665	1,300	5,974	25,377	0	0	0	617	2,118	9,529	683	3,856	15,848			
COU BAX-C	1,604	4,778	22,665	0	0	0	1,604	4,778	22,665	1,301	5,974	25,377	0	0	0	617	2,118	9,529	684	3,856	15,848			
COU-I	1,604	4,778	22,665	0	0	0	1,604	4,778	22,665	1,301	5,974	25,377	0	0	0	667	2,118	9,529	634	3,856	15,848			
Mud Creek Subwatershed																								
COU BAX-E	466	1,399	7,795	0	0	7	466	1,399	7,788	3,767	8,525	26,906	9	38	50	666	1,926	6,868	3,093	6,581	20,018			
COU-H	466	1,399	7,795	0	0	7	466	1,399	7,787	3,767	8,525	26,906	10	41	55	666	1,926	6,868	3,093	6,580	20,016			
Oak Creek San Pitch River Subwatershed																								
COU BAX-E	375	1,128	4,827	0	0	3	375	1,128	4,823	1,737	5,260	12,731	9	31	47	169	498	425	1,560	4,733	12,261			
COU-H	375	1,128	4,827	0	0	3	375	1,128	4,823	1,737	5,260	12,731	9	34	52	169	498	425	1,560	4,731	12,256			
Pleasant Creek Subwatershed																								
COU BAX-B	309	916	3,691	0	0	29	309	916	3,663	1,039	3,045	11,857	2	6	92	126	398	800	911	2,642	10,973			
COU BAX-C	309	916	3,691	0	0	28	309	916	3,663	1,039	3,045	11,857	2	6	91	126	398	800	911	2,642	10,974			
COU-I	309	916	3,691	0	0	30	309	916	3,661	1,039	3,045	11,857	2	6	97	126	398	800	911	2,642	10,968			
Right Fork Huntington Creek Subwatershed																								
COU BAX-E	1,997	5,894	26,312	3	11	40	1,994	5,883	26,272	2,985	7,990	32,540	4	17	59	768	2,090	6,677	2,216	5,895	25,852			
COU-H	1,997	5,894	26,312	3	12	44	1,994	5,882	26,267	2,985	7,990	32,540	4	19	65	768	2,090	6,677	2,216	5,894	25,851			
Upper Cottonwood Creek Subwatershed																								
COU BAX-B	489	1,486	6,277	1	5	23	488	1,481	6,254	591	1,809	7,813	1	5	34	451	1,380	5,826	139	427	1,965			
COU BAX-C	489	1,486	6,277	1	5	23	488	1,481	6,254	591	1,809	7,813	1	5	33	451	1,380	5,826	139	427	1,965			
COU-I	489	1,486	6,277	1	6	25	488	1,480	6,253	591	1,809	7,813	1	5	36	451	1,380	5,826	139	427	1,964			
Uinta National Forest																								
Cottonwood Canyon Subwatershed																								
COU-A	873	2,601	6,407	0	0	0	873	2,601	6,407	873	2,601	6,407	0	0	0	4	12	5	869	2,589	6,402			
COU-A Variation 1	873	2,601	6,407	0	0	0	873	2,601	6,407	873	2,601	6,407	0	0	0	4	12	5	869	2,589	6,402			
Footes Canyon Salt Creek Subwatershed																								
COU BAX-B	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	29	30	79	257	266	1,128	3,284	7,145			
COU BAX-C	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	29	30	79	257	266	1,128	3,284	7,145			
COU BAX-E	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	29	30	79	257	266	1,128	3,284	7,146			
COU-A	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	30	32	79	257	266	1,127	3,283	7,144			

**TABLE 3
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Alternative Route	U.S. Forest Service Administered Land									Cumulative Impact Analysis Area ¹											
	Acres of Potential Habitat			Project-related Acres of Disturbance			Acres of Remaining Habitat			Acres of Potential Habitat			Project-related Acres of Disturbance			Past, Present, and Reasonably Foreseeable Future Actions			Acres of Remaining Habitat		
	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³
	Habitat Buffer ⁴									Habitat Buffer ⁴											
	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal
COU-A Variation 1	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	30	32	79	257	266	1,127	3,283	7,144
COU-B	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	30	31	79	257	266	1,128	3,283	7,145
COU-C	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	31	33	79	257	266	1,127	3,282	7,144
COU-C Variation 1	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	31	33	79	257	266	1,127	3,282	7,144
COU-C Variation 2	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	31	32	79	257	266	1,127	3,283	7,144
COU-C Variation 5	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	31	33	79	257	266	1,127	3,282	7,144
COU-H	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	10	31	33	79	257	266	1,127	3,282	7,143
COU-I	249	747	1,889	0	0	0	249	747	1,889	1,211	3,560	7,432	11	35	36	79	257	266	1,127	3,280	7,141
Indian Creek Subwatershed																					
COU-A	3,620	7,149	16,882	1	3	53	3,619	7,146	16,882	380	7,153	16,885	1	0	23	64	118	125	316	7,036	16,738
COU-A Variation 1	3,620	7,149	16,882	1	3	53	3,619	7,146	16,882	380	7,153	16,885	1	0	45	64	118	125	316	7,032	16,716
Lower Soldier Subwatershed																					
COU-A	1,353	4,106	7,973	19	41	25	1,334	4,064	7,948	2,554	7,680	18,480	24	57	92	138	418	484	2,394	7,206	17,905
COU-A Variation 1	1,353	4,106	7,973	19	41	25	1,334	4,064	7,948	2,554	7,680	18,480	24	57	92	138	418	484	2,394	7,206	17,904
COU-B	1,353	4,106	7,973	18	40	25	1,334	4,064	7,948	2,554	7,680	18,480	6	19	72	138	418	484	2,411	7,243	17,924
COU-C	1,353	4,106	7,973	19	42	26	1,334	4,063	7,947	2,554	7,680	18,480	6	20	76	138	418	484	2,411	7,242	17,920
COU-C Variation 1	1,353	4,106	7,973	19	42	26	1,334	4,063	7,947	2,554	7,680	18,480	6	20	76	138	418	484	2,411	7,242	17,920
COU-C Variation 2	1,353	4,106	7,973	19	43	26	1,334	4,063	7,947	2,554	7,680	18,480	6	20	76	138	418	484	2,411	7,242	17,920
COU-C Variation 5	1,353	4,106	7,973	21	47	29	1,332	4,059	7,944	2,554	7,680	18,480	7	23	85	138	418	484	2,410	7,240	17,912
Middle Soldier Subwatershed																					
COU-B	320	1,024	1,210	1	11	5	319	1,013	1,205	814	2,448	4,440	3	15	4	30	111	36	784	2,333	4,404
COU-C	320	1,024	1,210	1	11	5	319	1,013	1,205	814	2,448	4,440	3	16	4	30	111	36	784	2,333	4,404
COU-C Variation 1	320	1,024	1,210	1	11	5	319	1,013	1,205	814	2,448	4,440	4	18	6	30	111	36	780	2,319	4,398
COU-C Variation 2	320	1,024	1,210	1	11	5	319	1,013	1,205	814	2,448	4,440	3	16	4	30	111	36	784	2,333	4,404
COU-C Variation 5	320	1,024	1,210	1	12	5	319	1,012	1,205	814	2,448	4,440	3	17	4	30	111	36	784	2,332	4,404
Mill Fork Subwatershed																					
COU-B	189	637	0	0	0	0	189	637	0	874	2,594	8,412	0	0	0	11	16	19	863	2,578	8,392
COU-C	189	637	0	0	0	0	189	637	0	874	2,594	8,412	0	0	0	11	16	19	863	2,578	8,392
COU-C Variation 1	189	637	0	0	0	0	189	637	0	874	2,594	8,412	0	0	0	11	16	19	863	2,578	8,392
COU-C Variation 2	189	637	0	0	0	0	189	637	0	874	2,594	8,412	0	0	0	11	16	19	863	2,578	8,392
COU-C Variation 5	189	637	0	0	0	0	189	637	0	874	2,594	8,412	0	0	0	11	16	19	863	2,578	8,392
Nebo Creek Subwatershed																					
COU-A	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	7	21	34	42	96	269	2,514	7,480	23,112
COU-A Variation 1	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	7	21	34	42	96	269	2,514	7,480	23,112
COU-B	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	7	21	33	42	96	269	2,514	7,481	23,112
COU-C	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	7	22	35	42	96	269	2,513	7,479	23,111
COU-C Variation 1	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	7	22	35	42	96	269	2,513	7,479	23,111
COU-C Variation 2	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	7	22	35	42	96	269	2,513	7,479	23,111
COU-C Variation 5	2,070	6,105	21,468	0	0	3	2,070	6,105	21,465	2,562	7,597	23,414	8	24	39	42	96	269	2,513	7,477	23,107
Right Fork White River Subwatershed																					
COU-C Variation 2	1,076	3,268	7,533	0	0	0	1,076	3,268	7,533	1,263	3,829	8,583	0	0	0	31	125	68	1,232	3,704	8,515
COU-C Variation 5	1,076	3,268	7,533	0	0	0	1,076	3,268	7,533	1,263	3,829	8,583	0	0	0	31	125	68	1,232	3,704	8,515

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SUMMARY OF EFFECTS ON BOREAL TOAD BREEDING AND TERRESTRIAL HABITAT**

Alternative Route	U.S. Forest Service Administered Land									Cumulative Impact Analysis Area ¹											
	Acres of Potential Habitat			Project-related Acres of Disturbance			Acres of Remaining Habitat			Acres of Potential Habitat			Project-related Acres of Disturbance			Past, Present, and Reasonably Foreseeable Future Actions			Acres of Remaining Habitat		
	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³	Breeding ²		Terrestrial ³
	Habitat Buffer ⁴									Habitat Buffer ⁴											
	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal	100 feet	300 feet	Typical Dispersal
Soldier Creek Strawberry River Subwatershed																					
COU-T-A	2,402	3,580	4,981	0	0	0	2,402	3,580	4,981	3,287	5,708	8,996	4	12	29	490	649	967	2,873	5,047	8,010
COU-T-A Variation 1	2,402	3,580	4,981	0	0	0	2,402	3,580	4,981	3,287	5,708	8,996	4	12	29	490	649	967	2,873	5,047	8,010
Tabbyune Creek White River Subwatershed																					
COU-T-C Variation 2	138	407	1,534	10	14	16	128	393	1,518	1,910	5,765	15,762	39	47	71	157	465	2,123	1,732	5,267	14,649
COU-T-C Variation 5	138	407	1,534	11	15	18	127	392	1,516	1,910	5,765	15,762	32	52	79	157	465	2,123	1,730	5,263	14,643
Tie Fork Subwatershed																					
COU-T-A	1,083	3,201	7,225	6	13	54	1,077	3,191	7,171	1,123	3,329	7,533	6	13	44	22	60	125	1,096	3,256	7,365
COU-T-A Variation 1	1,083	3,201	7,225	6	13	54	1,077	3,191	7,171	1,123	3,329	7,533	6	13	47	22	60	125	1,096	3,256	7,361
COU-T-B	1,083	3,201	7,225	6	13	53	1,077	3,191	7,172	1,123	3,329	7,533	1	2	1	22	60	125	1,101	3,267	7,407
COU-T-C	1,083	3,201	7,225	6	13	55	1,077	3,191	7,170	1,123	3,329	7,533	1	2	1	22	60	125	1,101	3,267	7,406
COU-T-C Variation 1	1,083	3,201	7,225	6	13	55	1,077	3,191	7,170	1,123	3,329	7,533	1	2	1	22	60	125	1,101	3,267	7,406
COU-T-C Variation 2	1,083	3,201	7,225	6	13	55	1,077	3,191	7,170	1,123	3,329	7,533	1	2	1	22	60	125	1,101	3,267	7,406
COU-T-C Variation 5	1,083	3,201	7,225	6	14	61	1,077	3,190	7,163	1,123	3,329	7,533	1	2	1	22	60	125	1,101	3,267	7,406
Upper Soldier Subwatershed																					
COU-T-B	483	1,433	3,100	1	3	9	482	1,430	3,091	1,601	4,751	17,849	6	17	73	123	403	1,037	1,473	4,333	16,745
COU-T-C	483	1,433	3,100	1	3	9	482	1,430	3,091	1,601	4,751	17,849	6	18	77	123	403	1,037	1,473	4,333	16,742
COU-T-C Variation 1	483	1,433	3,100	1	3	9	482	1,430	3,091	1,601	4,751	17,849	6	18	77	123	403	1,037	1,473	4,333	16,742
COU-T-C Variation 2	483	1,433	3,100	1	3	9	482	1,430	3,091	1,601	4,751	17,849	6	18	77	123	403	1,037	1,473	4,333	16,741
COU-T-C Variation 5	483	1,433	3,100	1	3	10	482	1,430	3,090	1,601	4,751	17,849	6	20	85	123	403	1,037	1,472	4,331	16,734
West Creek Current Creek Subwatershed																					
COU-T-BAX-B	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-BAX-C	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-BAX-E	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-A	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-A Variation 1	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-B	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-C	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-C Variation 1	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-C Variation 2	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-C Variation 5	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-H	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
COU-T-I	562	1,619	4,254	0	0	0	562	1,619	4,254	701	2,069	5,011	0	0	2	18	56	94	683	2,014	4,915
Willow Creek Subwatershed																					
COU-T-A	1,263	3,935	14,056	9	34	97	1,255	3,901	13,959	1,615	4,963	15,948	9	31	82	369	1,099	1,992	1,237	3,864	13,879
COU-T-A Variation 1	1,263	3,935	14,056	9	34	97	1,255	3,901	13,959	1,615	4,963	15,948	7	28	80	369	1,099	1,992	1,239	3,865	13,877

NOTES:
¹ Cumulative Impact Analysis Area consists of subwatersheds crossed by reference centerline having potential breeding and terrestrial habitats extending out to the hydrologically connected subwatershed boundary.
² Potential breeding habitat is the perennial lotic habitats buffered by 100 and 300 feet located within or adjacent to suitable terrestrial habitat.
³ Terrestrial habitat is the modified Gap Analysis Project cover type to include mountain shrub, mixed conifer, and aspen conifer habitats at or above 5,150 feet in elevation (UDWR, 2008) within typical dispersal distance (1.5-1.8 miles) of breeding habitats on the three national forests. All suitable terrestrial habitats occur within the typical dispersal distance from breeding habitat.
⁴ Habitat buffer for potential breeding habitat includes all perennial lentic and lotic aquatic habitats adjacent to (within 300 feet) of suitable terrestrial habitat buffered by 100 and 300 feet. Habitat buffer for terrestrial habitat includes all suitable terrestrial habitats out to typical dispersal distance 1.5-1.8 miles from potential breeding habitat. Note: suitable terrestrial habitat could extend out to maximum known dispersal distance of 5 miles but following analysis of those habitats it was found that no contiguous tracts of suitable terrestrial habitat occurs beyond the typical dispersal distance.

Findings

Project-related actions along any of the alternative routes in the Ashley, Manti-La Sal and Uinta National Forests may affect individuals but is not likely to cause a trend to federal listing or loss of viability of boreal toad. Additionally, the effect of the Project in conjunction with past, present, and reasonably foreseeable future actions may affect individuals but is not likely to cause a trend to federal listing or loss of viability of boreal toad on the Ashley, Manti-La Sal or Uinta National Forests.

Colorado River Cutthroat Trout (Sensitive: Ashley, Manti-La Sal, and Uinta National Forests; Ashley and Uinta National Forests MIS)

Potential Colorado River cutthroat trout habitat would be avoided or spanned under Selective Mitigation Measures 2 and 7 (span and/or avoid sensitive features) and direct disturbance to aquatic habitats where stream or river crossings are necessary would be limited under Selective Mitigation Measure 5 (minimize new or improved accessibility). Aquatic habitats potentially supporting Colorado River cutthroat trout may experience incremental increases in turbidity as a result of sedimentation during storm events when run-off in areas where access roads are constructed near (within 100 feet) of streams and rivers erodes disturbed soils. Post-construction road maintenance may contribute small amounts of sediment periodically to potential Colorado River cutthroat trout habitat, along with regular run-off during rain events. However, increases in turbidity would be limited through application of the aforementioned mitigation measures. Additionally, habitat improvement projects in terrestrial and aquatic habitats watershed-wide would likely result in improved conditions in suitable Colorado River cutthroat trout habitats.

The impact analysis shows development of the Project would not result in any direct impacts on potential Colorado River cutthroat trout habitat on land administered by the Ashley National Forest. On land administered by the Manti-La Sal National Forest, direct impacts resulting from the Project would not affect any potential Colorado River cutthroat trout habitat. Indirect impacts resulting from construction of the Project may occur on potential Colorado River cutthroat trout habitat in both the Ashley and Manti-La Sal National Forests.

Impacts resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions in the cumulative impacts analysis area could affect up to 20 percent of the total available potential Colorado River cutthroat trout habitat. These effects are both beneficial and potentially adverse. Potential adverse effects could currently be resulting from oil and gas leases maintained by the Price and Richfield BLM field offices. However, given provisions of federal laws such as the CWA and forest LRMPs regarding the avoidance of aquatic systems, effects on potential Colorado River cutthroat trout individuals and habitat associated with oil and gas leases would be mostly avoided or mitigated. There is a large area of potential beneficial impacts in the Indian and Gooseberry Creek subwatersheds. These areas are designated as DWR watershed restoration focus areas. Improvements resulting from watershed restoration efforts would increase habitat quality throughout the Manti-La Sal National Forest.

On land administered by the Uinta National Forest, impacts resulting from the Project could affect up to 7 percent of the available Colorado River cutthroat trout habitat depending on the route. Impacts resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions in the cumulative impacts analysis area could affect up to 21 percent of total available potential Colorado River cutthroat trout habitat. However, the actions driving these potential effects are mainly attributed to the Sheep Creek vegetation management project and the DWR watershed restoration project. Impacts from these types of habitat projects could lead to some minimal, short-term adverse effects but in the long-term, the effects would mostly result in indirect, beneficial impacts on aquatic habitats supporting

Colorado River cutthroat trout. Areas affected by wildfires were excluded from the quantitative analysis due to the natural recovery of these habitat systems. Recovery from wildfires depends on the time since the occurrence; precipitation amounts, and degree of associated degradation (soil loss and fire intensity). Vegetation management activities also were excluded as they are assumed to improve habitat in the long-term.

The estimated extent of Colorado River cutthroat trout habitat affected by each alternative route on the Ashley, Manti-La Sal, and Uinta National Forests as well as potential impacts resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions in the cumulative impacts analysis area is presented in Table 4.

Summary

Project-related actions along any of the alternative routes may affect individuals but is not likely to cause a trend to federal listing or loss of viability of Colorado River cutthroat on the Ashley, Manti-La Sal, and Uinta National Forests. Additionally, the effects of the Project on lands administered by the Ashley, Manti-La Sal and Uinta National Forests as well as those impacts resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions in the cumulative impacts analysis areas are not likely to have an effect on forest-wide trends for Colorado River cutthroat trout.

Columbia Spotted Frog (Manti-La Sal, and Uinta National Forests)

Potential Columbia spotted frog aquatic and semi-aquatic habitats would be avoided or spanned under Selective Mitigation Measures 2 and 7 (span and/or avoid sensitive features) and direct disturbance to potential habitats would be limited under Selective Mitigation Measure 5 (minimize new or improved accessibility). Additionally, through proper implementation of Mitigation Measure 4 (minimize tree clearing), semi-aquatic habitats with a scrub-shrub or forest canopy less than 12 feet in height would not be cleared. Avoiding clearing vegetation lower than 12 feet would indirectly provide beneficial effects on Columbia spotted frog through preservation of habitat and avoidance of ground-disturbing activities that could directly and indirectly result in adverse impacts on individuals and habitat.

Aquatic and semi-aquatic habitats potentially supporting Columbia spotted frogs may experience incremental increases in sediment deposition and turbidity as a result of ground disturbance and erosion associated with the Project. Post-construction road maintenance may contribute small amounts of sediment periodically to potential Columbia spotted frog habitat, along with regular run-off during rain events. However, increases in sediment deposition and turbidity to potential Columbia spotted frog habitats would be limited through application of the aforementioned mitigation measures. Additionally, habitat improvement projects in terrestrial and aquatic habitats watershed-wide would likely result in improved conditions in suitable Columbia spotted frog habitats.

The impact analysis shows development of the Project would not result in any direct impacts on potential Columbia spotted frog habitat. Conversely, incremental effects of the Project along with other past, present, and reasonably foreseeable future actions on potential Columbia spotted frog habitats in the cumulative impacts analysis areas could affect up to 35 percent of the total available habitat in the Oak Creek subwatershed along the San Pitch River (Manti-La Sal National Forest cumulative impacts analysis area) and 21 percent in the West Creek-Current Creek subwatershed (Uinta National Forest cumulative impacts analysis area).

**TABLE 4
SUMMARY OF EFFECTS ON COLORADO RIVER CUTTHROAT TROUT HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Acres of Potential Habitat ²		Project-related Acres of Disturbance		Acres of Remaining Habitat		Acres of Potential Habitat		Project-related Acres of Disturbance		Past, Present, and Reasonably Foreseeable Future Actions		Acres of Remaining Habitat	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
Ashley National Forest														
South Fork Avintaquin Subwatershed														
COUT-C Variation 2	1,462	4,346	0	0	1,462	4,346	1,838	5,387	0	0	25	64	1,813	5,323
COUT-C Variation 5	1,462	4,346	0	0	1,462	4,346	1,838	5,387	0	0	25	64	1,813	5,323
Tabbyune White River Subwatershed														
COUT-C Variation 2	2,380	6,992	33	547	2,347	6,445	2,618	7,648	30	54	239	665	2,356	6,952
COUT-C Variation 5	2,380	6,992	33	547	2,347	6,445	2,618	7,648	34	60	239	665	2,354	6,948
Willow Creek Subwatershed														
COUT-A	1	7	0	0	1	7	1	7	0	0	1	7	1	7
COUT-A Variation 1	1	7	0	0	1	7	1	7	0	0	1	7	1	7
Manti-La Sal National Forest														
Gooseberry Creek Subwatershed														
COUT BAX-E	927	2,538	2	11	925	27	1,476	3,939	2	11	163	448	1,313	3,490
COUT-H	927	2,538	2	12	925	26	1,476	3,939	2	12	163	448	1,313	3,490
Indian Creek Subwatershed														
COUT BAX-B	315	999	1	4	314	995	415	1,220	2	4	66	221	349	997
COUT BAX-C	315	999	1	4	314	995	415	1,220	2	4	66	221	349	997
COUT-I	315	999	1	4	314	995	415	1,220	2	4	66	221	349	996
Uinta National Forest														
Right Fork White River Subwatershed														
COUT-C Variation 2	1,189	3,475	0	0	1,188	3,475	1,723	4,080	0	0	361	129	1,362	3,950
COUT-C Variation 5	1,189	3,475	0	0	1,188	3,475	1,723	4,080	0	0	361	129	1,362	3,950
Tabbyune White River Subwatershed														
COUT-C Variation 2	137	407	10	14	127	393	2,618	7,648	30	54	239	655	2,356	6,952
COUT-C Variation 5	137	407	11	15	126	392	2,618	7,648	34	60	239	655	2,354	6,948

**TABLE 4
SUMMARY OF EFFECTS ON COLORADO RIVER CUTTHROAT TROUT HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Acres of Potential Habitat ²		Project-related Acres of Disturbance		Acres of Remaining Habitat		Acres of Potential Habitat		Project-related Acres of Disturbance		Past, Present, and Reasonably Foreseeable Future Actions		Acres of Remaining Habitat	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
Willow Creek Subwatershed														
COUT-A	1,655	4,855	9	35	1,646	4,825	2,021	5,909	9	32	399	1,117	1,613	4,765
COUT-A Variation 1	1,655	4,855	9	35	1,646	4,825	2,021	5,909	7	28	399	1,117	1,615	4,767

NOTES:

¹Cumulative Impact Analysis Area is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present and intersected by the reference centerline

²Habitat on national forest is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present, intersected by the reference centerline and intersected by the national forest.

³Habitat buffer is the potential habitat buffered by 100 and 300 feet.

The main contributors to such a large area of impact on potential Columbia spotted frog habitat in the Uinta and Manti-La Sal National Forest cumulative impacts analysis areas can be attributed to active oil and gas leases on SITLA lands, and DWR watershed restoration focus areas. Areas affected by wildfires were excluded from the quantitative analysis as spotted frog habitat can recover from these fire events. Vegetation management activities also were excluded as they are assumed to improve habitat in the long-term.

Applicants applying for oil and gas leases are subject to stringent State and federally mandated protective measures that ensure potential impacts resulting from such activities avoid all direct impacts and minimize or mitigate all indirect impacts on aquatic systems. Further, the DWR has identified most of the West Creek watershed for watershed restoration activities. The DWR project could cause some minor, localized, and short-term adverse impacts on aquatic habitats but in the long-term, those restoration efforts would benefit Columbia spotted frog habitats throughout the watershed.

The estimated extent of Columbian spotted frog potential breeding habitat affected by each alternative route on the Ashley, Manti-La Sal, and Uinta National Forests is presented in Table 5.

Summary

Project-related actions along any of the alternative routes in the Manti-La Sal and Uinta National Forests may affect individuals but is not likely to cause a trend to federal listing or loss of viability. Additionally, the effect of the Project in conjunction with past, present, and reasonably foreseeable future actions may affect individuals but is not likely to cause a trend to federal listing or loss of viability of Columbia spotted frog on the Manti-La Sal, or Uinta National Forests. The Project is anticipated to have no effect on forest-wide trends for the Manti-La Sal or Uinta National Forests.

Southern Leatherside Chub (Manti-La Sal and Uinta National Forests)

Potential southern leatherside chub habitat would be avoided or spanned under Selective Mitigation Measures 2 and 7 (span and /or avoid sensitive features) and direct disturbance to aquatic habitats would be limited under Selective Mitigation Measure 5 (minimize new or improved accessibility) to stream and river crossings where new access roads are constructed. Aquatic habitats potentially inhabited by southern leatherside chub may experience incremental increases in turbidity as a result of sedimentation during storm events when run-off in areas where access roads are constructed near (within 100 feet) of streams and rivers erodes disturbed soils. Post-construction road maintenance may contribute small amounts of sediment periodically to potential southern leatherside chub habitat, along with regular run-off during rain events. However, increases in turbidity would be limited through application of the aforementioned mitigation measures. Additionally, habitat improvement projects in terrestrial and aquatic habitats watershed-wide would likely result in improved conditions in suitable southern leatherside chub habitats.

The impact analysis shows development of the Project would result in minor direct and indirect impacts on potential southern leatherside chub habitat on land administered by the USFS. Where potential habitat exists in the Manti-La Sal and Uinta National Forest cumulative impacts analysis areas, impacts resulting from the Project in conjunction with other past, present, and reasonably foreseeable future actions could affect potential habitat by up to 36 percent.

**TABLE 5
SUMMARY OF EFFECTS ON COLUMBIA-SPOTTED FROG POTENTIAL HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Acres of Potential Habitat ²		Project Related Acres of Disturbance		Acres of Remaining Habitat		Acres of Potential Habitat		Project-related Acres of Disturbance		Past, Present, and Reasonably Foreseeable Future Actions		Acres of Remaining Habitat	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
Manti-La Sal National Forest														
Oak Creek San Pitch River Subwatershed														
COUT BAX-E	385	1,163	0	0	325	1,163	2,045	6,016	11	32	306	843	1,730	5,143
COUT-H	385	1,163	0	0	325	1,163	2,045	6,016	12	38	306	843	1,729	5,140
Uinta National Forest														
West Creek Current Creek Subwatershed														
COUT BAX-B	561	1,625	0	0	561	1,625	2,599	7,347	5	16	448	1,279	2,146	6,053
COUT BAX-C	561	1,625	0	0	561	1,625	2,599	7,347	5	16	448	1,279	2,146	6,053
COUT BAX-E	561	1,625	0	0	561	1,625	2,599	7,347	5	16	448	1,279	2,146	6,053
COUT-A	561	1,625	0	0	561	1,625	2,599	7,347	5	17	448	1,279	2,146	6,052
COUT-A Variation 1	561	1,625	0	0	561	1,625	2,599	7,347	6	17	448	1,279	2,146	6,052
COUT-B	561	1,625	0	0	561	1,625	2,599	7,347	5	16	448	1,279	2,146	6,052
COUT-C	561	1,625	0	0	561	1,625	2,599	7,347	6	17	448	1,279	2,146	6,051
COUT-C Variation 1	561	1,625	0	0	561	1,625	2,599	7,347	6	17	448	1,279	2,146	6,051
COUT-C Variation 2	561	1,625	0	0	561	1,625	2,599	7,347	6	17	448	1,279	2,146	6,051
COUT-C Variation 5	561	1,625	0	0	561	1,625	2,599	7,347	6	17	448	1,279	2,145	6,049
COUT-H	561	1,625	0	0	561	1,625	2,599	7,347	6	17	448	1,279	2,146	6,051
COUT-I	561	1,625	0	0	561	1,625	2,599	7,347	6	19	448	1,279	2,146	6,052

NOTES:

¹Cumulative Impact Analysis Area are watersheds having element occurrences and perennial lentic and lotic habitats present and intersected by the reference centerline.

²Habitat on national forest is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present, intersected by the reference centerline and intersected by the national forest.

³Habitat buffer is the potential habitat buffered by 100 and 300 feet.

Potential adverse effects on southern leatherside chub habitat can be attributed to minor impacts from active oil and gas leases on SITLA lands and the development of future transmission lines. The most substantial effect though would likely benefit aquatic habitats. The DWR has identified roughly 23 miles of Thistle creek as watershed restoration focus area. The effects of restoring watershed conditions in the area would have long-term beneficial impacts on aquatic habitats in the watershed as well as downstream outside the cumulative impacts analysis area.

The estimated extent of potential southern leatherside chub habitat affected by each alternative route on land administered by the Manti-La Sal and Uinta National Forest as well as the cumulative impacts analysis area for each forest is presented in Table 6.

Summary

Project-related actions along any of the alternative routes in the Manti-La Sal National Forest would not affect individuals or habitat for Southern leatherside chub. Project-related actions may affect individuals but is not likely to cause a trend to federal listing or loss of viability of southern leatherside chub on the Uinta National Forest. Additionally, the effect of the Project in conjunction with past, present, and reasonably foreseeable future actions may affect individuals but is not likely to cause a trend to federal listing or loss of viability of Southern leatherside chub on the Manti-La Sal or Uinta National Forests.

Aquatic Macroinvertebrates (Ashley and Manti-La Sal National Forest MIS)

Aquatic habitats including perennial lentic and lotic systems that potentially support macroinvertebrates may experience temporary increases in turbidity and sedimentation due to ground disturbance and subsequent erosion and sedimentation associated with construction, operation, and maintenance of the Project near aquatic habitats. However, increases in turbidity to aquatic habitats potentially supporting macroinvertebrates would be limited, avoided, and minimized. Through proper implementation of design features and Selective Mitigation Measures 1, 2, and 7; sensitive resources including aquatic habitats potentially inhabited by macroinvertebrates would be spanned and avoided to the extent practicable. It is expected that application of these selective mitigation measures would facilitate planning and development decisions during the design phase for implementation during construction of the Project to maintain Project compliance with USFS LRMP standards and guidelines and to maintain targeted biological condition and habitat condition indices in aquatic habitats for which macroinvertebrates serve as MIS.

Summary

Project-related actions along any of the alternative routes in the Manti-La Sal and Uinta National Forests would have no impacts. Additionally, the effect of the Project in conjunction with past, present, and reasonably foreseeable future actions would have no effect on forest-wide trends for either Manti-La Sal or Uinta National Forests.

Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

Based on this analysis, construction, operation, and maintenance along any of the alternative routes would be consistent with the standards and guidelines from the Ashley, Manti-La Sal, and Uinta National Forests LRMPs, as amended (USFS 1986a, 1986b, and 2003, respectively) that were analyzed in this document as well as all other regulations listed in the desired condition section of this document.

**TABLE 6
SUMMARY OF EFFECTS ON SOUTHERN LEATEHRSIDE CHUB HABITAT**

Alternative Route	U.S. Forest Service Administered Land						Cumulative Impact Analysis Area ¹							
	Acres of Potential Habitat ²		Project-related Acres of Disturbance		Acres of Remaining Habitat		Acres of Potential Habitat		Project-related Acres of Disturbance		Past, Present, and Reasonably Foreseeable Future Actions		Acres of Remaining Habitat	
	Habitat Buffer ³						Habitat Buffer ³							
	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet	100 feet	300 feet
Manti-La Sal National Forest														
Middle Thistle Creek Subwatershed														
COUT-A	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
COUT-A Variation 1	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
COUT-B	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
COUT-C	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
COUT-C Variation 1	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
COUT-C Variation 2	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
COUT-C Variation 5	726	2,171	0	0	726	2,171	1,733	5,109	1	2	142	407	1,591	4,700
Uinta National Forest														
Lower Soldier Creek Subwatershed														
COUT-A	1,607	4,751	22	49	1,586	4,701	3,027	8,884	26	65	168	505	2,833	8,316
COUT-A Variation 1	1,607	4,751	22	49	1,586	4,701	3,027	8,884	26	65	168	505	2,833	8,316
COUT-B	1,607	4,751	22	48	1,586	4,702	3,027	8,884	7	21	168	505	2,852	8,359
COUT-C	1,607	4,751	22	51	1,585	4,700	3,027	8,884	7	22	168	505	2,852	8,358
COUT-C Variation 1	1,607	4,751	22	51	1,585	4,700	3,027	8,884	7	22	168	505	2,852	8,358
COUT-C Variation 2	1,607	4,751	22	51	1,585	4,700	3,027	8,884	7	22	168	505	2,852	8,358
COUT-C Variation 5	1,607	4,751	25	57	1,582	4,669	3,027	8,884	8	24	168	505	2,851	8,356
NOTES:														
¹ Cumulative Impact Analysis Area is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present and intersected by the reference centerline.														
² Habitat on national forest is the perennial lentic and lotic aquatic habitats in watersheds having element occurrences present and intersected by the reference centerline and by the national forest.														
³ Habitat buffer is the potential habitat buffered by 100 and 300 feet.														

Summary of Effects

Impacts resulting from the Project on sensitive fish and amphibian species inhabiting aquatic, semi-aquatic, and terrestrial habitats on land administered by the Ashley, Manti-La Sal, and Uinta National Forests may affect individuals and potential habitats but are not likely to cause a trend to federal listing or loss of population viability (refer to Tables 7 through 9 for a summation of anticipated impacts for each species for each forest area). Additionally, current forest trends and habitat/biological indices for MIS on the Ashley, Manti-La Sal, and Uinta National Forests would not be altered by development of the Project.

Proper implementation of design features of the Proposed Action and selective mitigation measures would largely mitigate potential impacts on individuals and habitats. Where sensitive species are present or where there is a high likelihood that potential habitat is occupied, site-specific mitigation requirements such as seasonal restrictions and construction methods would be employed to protect and maintain population and habitat integrity.

TABLE 7 SUMMARY OF PROJECT IMPACTS ON SPECIAL STATUS FISH AND AMPHIBIANS ON THE ASHLEY NATIONAL FOREST			
Alternative Route	Boreal Toad	Colorado Cutthroat Trout	Aquatic Macroinvertebrates
COUT-B	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	No impacts
COUT-C Variation 2	Same as COUT-B	Same as COUT-B	No impacts
COUT-C Variation 5	Same as COUT-B	Same as COUT-B	No impacts

Adequacy of Project Design Features and Selective Mitigation Measures

Project design features and selective mitigation measures would be sufficient to authorize any of the alternative routes in compliance with relevant laws, regulations, and USFS policies.

Other Relevant Mandatory Disclosures

No other mandatory disclosures apply to the resources identified in this report.

Monitoring Recommendations

Implementation of all selective mitigation measures described in Section 2.5.1.2 of the Project EIS and this specialist report are recommended to avoid and/or minimize impacts on special status fish, amphibians, and aquatic macroinvertebrates.

During construction and maintenance activities, Project personnel should be made aware of the potential for special status species to occur in specific areas along the alternative route. Construction activities should be monitored by a qualified biologist where special status species are present in the Ashley, Manti-La Sal, and/or Uinta National Forests along the alternative and construction or maintenance activities may affect individuals and/or habitats. In the event that impacts exceeding the limitations analyzed and disclosed in this specialist report occur, construction and maintenance must halt in the affected area. The

representative biologist from the Ashley, Manti-La Sal, or Uinta National Forests must be notified and appropriate corrective or protection measures would be established before construction could resume.

If modeled boreal toad breeding habitat is found to be occupied during preconstruction surveys, a seasonal wildlife restriction during the boreal toad breeding season (4 to 5 weeks following snowmelt) would be applied to documented occupied breeding habitats under Selective Mitigation Measure 12. Additionally, implementation of a boreal toad breeding habitat seasonal restriction would be incorporated into the Project POD to limit the potential for boreal toad mortalities due to Project activities during the breeding season.

**TABLE 8
SUMMARY OF PROJECT IMPACTS ON SPECIAL STATUS FISH AND AMPHIBIANS ON THE MANTI-LA SAL NATIONAL FOREST**

Alternative Route	Bonneville Cutthroat Trout	Boreal Toad	Colorado Cutthroat Trout	Aquatic Macroinvertebrates	Columbia Spotted Frog	Southern Leatherside Chub
COUT BAX-B	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	No impacts	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	No impacts
COUT BAX-C	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT BAX-E	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-A	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-A Variation 1	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-B	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-C	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-C Variation 1	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-C Variation 2	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-C Variation 5	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts
COUT-H	Same as COUT BAX-B	Same as COUT BAX-B	Same as COUT BAX-B	No impacts	Same as COUT BAX-B	No impacts

**TABLE 9
SUMMARY OF PROJECT IMPACTS ON SPECIAL STATUS FISH AND AMPHIBIANS
ON THE UINTA NATIONAL FOREST**

Alternative Route	Bonneville Cutthroat Trout	Boreal Toad	Colorado Cutthroat Trout	Columbia Spotted Frog	Southern Leatherside Chub
COUT BAX-B	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability	May impact individuals but is not likely to cause a trend to federal listing or loss of viability
COUT BAX-C	Same as COUT BAX-B				
COUT BAX-E	Same as COUT BAX-B				
COUT-A	Same as COUT BAX-B				
COUT-A Variation 1	Same as COUT BAX-B				
COUT-B	Same as COUT BAX-B				
COUT-C	Same as COUT BAX-B				
COUT-C Variation 1	Same as COUT BAX-B				
COUT-C Variation 2	Same as COUT BAX-B				
COUT-C Variation 5	Same as COUT BAX-B				
COUT-H	Same as COUT BAX-B				
COUT-I	Same as COUT BAX-B				

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