

**Weber Hydroelectric Project
FERC Project No. 1744**

**Final Study Plan
Terrestrial Threatened, Endangered and
Sensitive Species and
Noxious Weeds**

March 2016

Prepared by:

PacifiCorp

Hydro Resources

1407 West North Temple, Room 110

Salt Lake City, UT 84116



For Public Review

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 PROJECT AREA.....	2
3.0 PROPOSED BOTANICAL RESOURCE STUDIES	4
3.1 Special Status Plant Survey	4
3.1.1 Ute Ladies’-tresses Orchid Methods	5
3.1.2 Utah Angelica and Wasatch Fitweed Methods.....	5
3.2 Noxious Weed Survey	6
3.2.1 Noxious Weed Methods	8
4.0 PROPOSED TERRESTRIAL WILDLIFE RESOURCE STUDIES	8
4.1 Special Status Terrestrial Wildlife Resource Survey	8
4.1.1 Smooth Greensnake Methods.....	10
5.0 LEVEL OF EFFORT AND COST.....	10
6.0 REFERENCES	11

List of Figures

Figure 1. Weber Hydro Relicensing Project Location	3
--	---

1.0 INTRODUCTION

PacifiCorp, a subsidiary of Berkshire Hathaway Energy, plans to file a new application for relicensing of a major project, the Weber Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC or Commission) Project No. 1744, on the Weber River in Weber, Morgan, and Davis counties in Utah. The current license will expire on May 31, 2020. The Project has a generation capacity of 3.85 megawatts (MW) and is located partially on federal lands managed by the Wasatch-Cache National Forest, and partially on lands owned by the Union Pacific Railroad Company. PacifiCorp filed a Notice of Intent to File Application for New License (NOI) and a Pre-Application Document (PAD) to initiate the FERC Alternative Licensing Process (ALP) for the Project on May 29, 2015.

During preparation of the PAD, PacifiCorp evaluated existing information on potential terrestrial habitat and species within the Project Area to inform analysis of Project impacts on these resources.

The Project is located partially on federal lands managed by the Wasatch-Cache National Forest (Intermountain Region 4) in the state of Utah. The following U.S. Forest Service (USFS) region and state specific resources were consulted to identify special status species with the potential to occur within the project area.

- USFS R4 sensitive species list (USFS 2013).
- The Utah sensitive species list maintained by the Utah Division of Wildlife Resources (UDWR), which includes federal threatened and endangered species (UDWR 2007).

The PAD recognized several special status plant and terrestrial animal species that have some potential to occur in the Project vicinity. However, surveys for terrestrial wildlife species, special-status species, and noxious weeds have not been performed within the Project Area since the previous relicensing effort in the late 1980s to 1990.

Two special status aquatic species (bluehead sucker and Bonneville cutthroat trout) are known to occur within the Project vicinity and will be evaluated further as part of the Fisheries Study Plan, and will not be treated further in this study plan. This document focuses on terrestrial species. The document provides proposed surveys for special status terrestrial species that have some potential to occur in the Project Area as well as noxious weed surveys. The document also provides information on special status terrestrial species that may occur in the Project vicinity but are not proposed for specific surveys. In consideration of available information, PacifiCorp proposes four resource studies to gain information on potential impacts of the Project on these resources. Proposed terrestrial resource surveys provided herein include the following:

- Special Status Plant Survey for Ute ladies'-tresses orchid (Section 3.1.1)
- Special Status Plant Survey for Utah angelica and Wasatch fitweed (Section 3.1.2)
- Noxious Weed Survey (Section 3.2)
- Special Status Wildlife Survey for Smooth Greensnake (Section 4.1.1)

2.0 PROJECT AREA

For the purposes of this document, the FERC Project Boundary (or Project Boundary) is defined as all lands and waters within the existing FERC Project Boundary for the Weber Hydroelectric Project No. 1744, as denoted on the Project's Exhibit G. The **Project Area** is the area which contains all Project features (encompassing the FERC Project Boundary as defined above), and which extends out for the purposes of characterization and analysis from the furthest edge of the Project Boundary, and across the river to the far riverbank (including the river regardless of which side of the river the project features are found), as shown in Figure 1.

The existing Project consists of:

- (1) a 27-foot-high, 79-foot-long concrete diversion dam, having two radial gates approximately 29 feet wide, and a 35-foot-wide intake structure, for a total width of 114 feet, on the Weber River;
- (2) a 9,107-foot-long, 5-foot to 6.3-foot diameter steel pipeline partially encased in concrete beginning at the intake and terminating at the powerhouse on the Weber River;
- (3) a 3-foot by 18-foot non-operative fish passage structure (used however to pass the minimum flow through the calibrated slide gate opening);
- (4) a powerhouse containing a generating unit with a rated capacity of 3,850 kilowatt (kW) operating under a head of 185 feet producing a 30-year average annual energy output of 16,932 megawatt-hours (MWh);
- (5) a discharging pipe returning turbine flows into the Weber River at the powerhouse; and,
- (6) a 77-foot-long, 46-kilovolt (kV) transmission line which connects to the Weber substation.

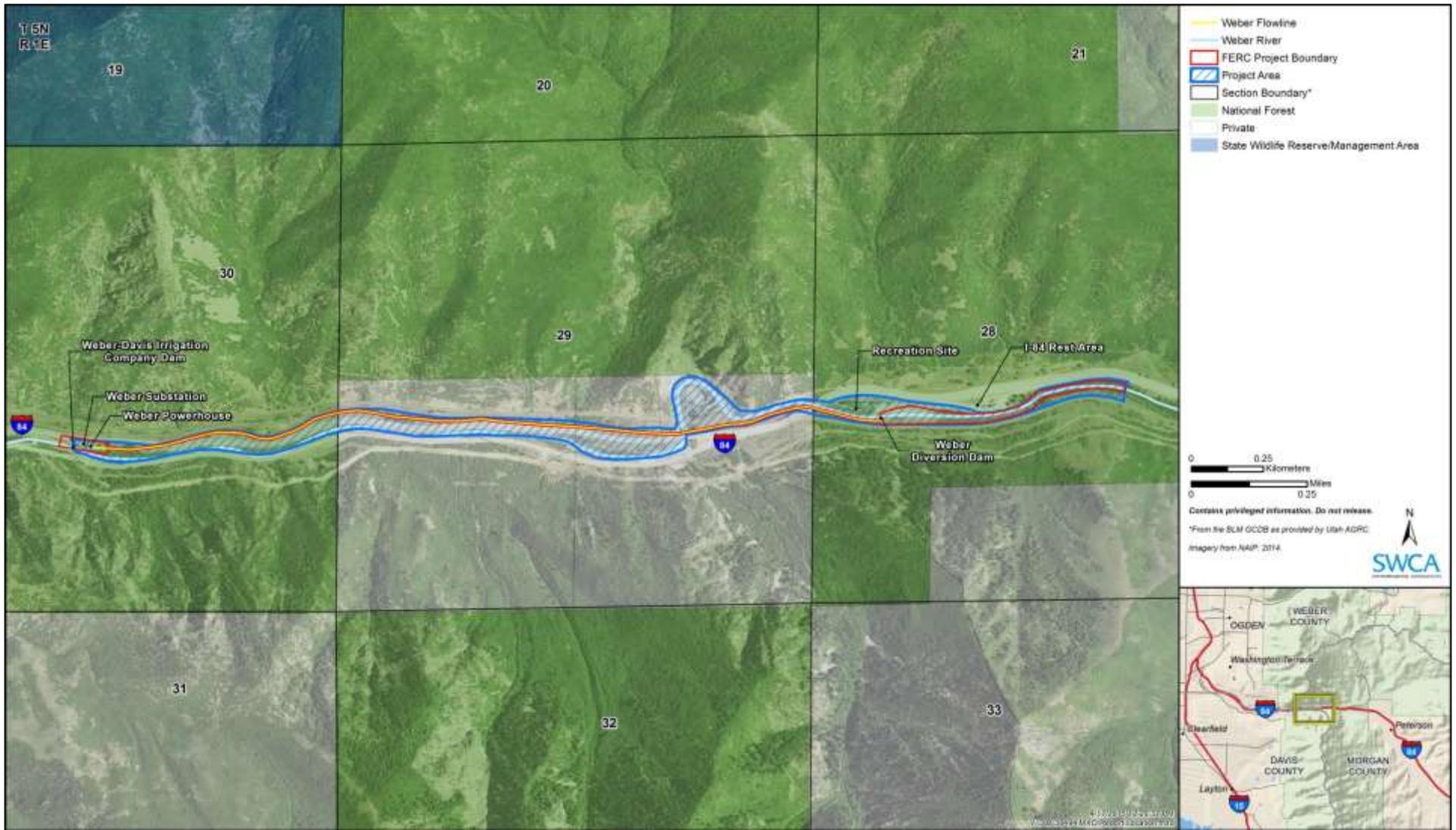


Figure 1. Weber Hydro Relicensing Project Location

3.0 PROPOSED BOTANICAL RESOURCE STUDIES

PacifiCorp proposes to conduct a special status plant survey and a noxious weed survey in the Project Area. The special status plant survey will inventory the Ute ladies'-tresses orchid (*Spiranthes diluvialis*) (ULT) in the Project Area. The noxious weed survey will document the location and extent of noxious weed infestations within the FERC Project Boundary.

3.1 Special Status Plant Survey

During evaluations conducted for the PAD, one USFS R4 sensitive plant species (Burke's draba) and one federally threatened plant species (Ute ladies'-tresses orchid) were identified to have the potential to occur in the vegetation communities and elevation ranges in and within one mile of the Project Area. Burke's draba (*Draba burkei*) is a USFS-Sensitive perennial forb that is endemic to the Wellsville and northern Wasatch ranges of Utah (UNPS 2015). The species' distribution is limited to talus slopes and outcrops of quartzite, limestone, or calcareous shale on Wasatch-Cache National Forest and private lands. The species is associated with mixed conifer, Douglas fir, and maple-oak woodland communities from 5,500 to 9,200 feet elevation. Flowering occurs from May to July.

There is potential for the species to occur on talus or rocky outcrops in Rocky Mountain Bigtooth Maple Ravine Woodlands, Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodlands, and Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland at or above 5,500 feet in Weber Canyon. Although there may be potential for individuals or habitats within one mile of the Project Area, there is no potential for individuals or habitats in or adjacent to the Project Area because it is well below the elevational range of the species. The Project and current or future operations have no potential to impact the species outside of the Project Area. There is no potential for the species to occur in or adjacent to the Project Area; therefore, specific surveys for Burke's draba are not proposed.

Ute ladies'-tresses orchid (*Spiranthes diluvialis*) (ULT) is the only federally listed threatened plant species that has the potential to occur in the vegetation communities and elevation ranges in and within one mile of the Project Area. Although there may be potential for individuals or habitats within one mile of the Project Area, the Project and current or future operations have no potential to impact the species outside of the Project Area. Therefore surveys for ULT are recommended within the Project Area only.

PacifiCorp will assess the potential impacts of Project operations on any ULT plants found within the Project Area. The resulting initial study report will also identify measures to protect and monitor any identified ULT plants.

At the request of the Uinta-Wasatch-Cache National Forest, PacifiCorp will also inventory the Project Area for two USFS R4 sensitive plant species, Utah angelica (*Angelica wheeleri*) and Wasatch fitweed (*Corydalis caseana*). Although these species typically occur at slightly higher elevations than the Project Area, there is a small potential for the species to occur in habitat within the Project Area.

3.1.1 Ute Ladies'-tresses Orchid Methods

ULT is a wetland and stream edge species. It can only be reliably found and identified when it is flowering, which typically occurs sometime during the period from mid-July through mid-September (sometimes as late as early October). Surveys conducted at other times of the year are not reliable and are therefore not acceptable to the U.S. Fish and Wildlife Service (USFWS) for purposes of clearance under Section 7. Surveys will be conducted during the flowering period. If there is a known reference population or observations of flowering events from similar elevations available, surveyors will provide documentation that at the time of their survey, the nearest known colony is flowering.

Surveys for ULT will be focused on wetland areas and the banks of the Weber River within the Project Area. Surveys will be conducted by walking or otherwise closely scrutinizing areas of potential habitat looking for flowering stalks. Two surveyors will walk a parallel line about three feet apart, as the terrain allows, with each surveyor scrutinizing the area in front of the other surveyor (looking sideways or diagonally rather than directly downward into the vegetation).

At the request of the USFWS, PacifiCorp will conduct surveys for ULT for three consecutive years (2015-2017). However, survey results and project impact analysis must be submitted as part of the biological assessment (BA) prior to completion of the third survey season in 2017 to meet the FERC re-licensing schedule. For this reason PacifiCorp will use results from the first year of survey (2015) to assess potential impacts and inform the biological assessment. The second and third year of survey (2016 and 2017) will be conducted to confirm the presence and/or absence of ULT in the Project Area. Results from the 2016 and 2017 surveys will be reported to the USFWS for informational purposes, and the BA and draft license application will be modified, if necessary, based on this additional future information.

3.1.2 Utah Angelica and Wasatch Fitweed Methods

Qualified biologists that conduct the ULT and noxious weed survey will also look for Utah angelica and Wasatch fitweed in potential habitat (i.e., in wet areas with riparian communities) in the month of July or August. Surveyors will document the presence and/or absence of both species in the Project Area.

3.2 Noxious Weed Survey

The following noxious weeds have the potential to occur in or near the Project Area:

Table 1. Utah state-listed noxious weeds with potential to occur in or near the project area.	
Common Name	Scientific Name
<i>Class A Noxious Weeds¹</i>	
Black henbane	<i>Hyoseyamus niger</i>
Diffuse knapweed (Lam.)	<i>Centaurea diffusa</i>
Leafy spurge	<i>Euphorbia esula</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>
Perennial sorghum	<i>Sorghum</i> species, <i>S. halepense</i> , <i>S. almum</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Spotted knapweed	<i>Centaurea maculosa</i>
Squarrose knapweed	<i>Centaurea squarrosa</i>
St. Johnswort	<i>Hypericum perforatum</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Yellow starthistle	<i>Centaurea solstitialis</i>
Yellow toadflax	<i>Linaria vulgaris</i>
<i>Class B Noxious Weeds²</i>	
Common Name	Scientific Name
Bermudagrass	<i>Cynodon dactylon</i>
Broad-leaved peppergrass	<i>Lepidium latifolium</i>
Dalmation toadflax	<i>Linaria dalmatica</i>
Dyers woad	<i>Isatis tinctoria</i>
Hoarycress	<i>Cardaria</i> species

Common Name	Scientific Name
Musk thistle	<i>Carduus nutans</i>
Poison hemlock	<i>Conium maculatum</i>
Russian knapweed	<i>Centaurea repens</i>
Scotch thistle	<i>Onopordium acanthium</i>
Squarrose knapweed	<i>Centaurea virgata</i>
Class C Noxious Weeds³	
Common Name	Scientific Name
Field bindweed	<i>Convolvulus arvensis</i> ; <i>C. species</i>
Canada thistle	<i>Cirsium arvense</i>
Houndstongue	<i>Cynoglossum officinale</i>
Saltcedar	<i>Tamarix ramosissima</i>
Quackgrass	<i>Agropyron repens</i>
<p>¹Class A: Early Detection Rapid Response (EDRR) Declared noxious weeds not native to the state of Utah that pose a serious threat to the state and should be considered as a very high priority.</p> <p>²Class B: (Control) Declared noxious weeds not native to the state of Utah that pose a threat to the state and should be considered a high priority for control.</p> <p>³Class C: (Containment) Declared noxious weeds not native to the state of Utah that are widely spread but pose a threat to the agricultural industry and agricultural products with a focus on stopping expansion.</p>	

Weber County Declared Noxious Weeds

Puncturevine *Tribulus terrestris*

Morgan County Declared Noxious Weeds

Burdock *Arctium minus*

Davis County Declared Noxious Weeds

Buffalobur *Solanum rostratum*

Yellow nutsedge *Cyperus esculentus*

Weed surveys will be performed in the FERC Project Boundary to document the location and extent of noxious weed infestations. This inventory will provide information to support the current Project's operational weed control practices.

3.2.1 Noxious Weed Methods

Surveys will be conducted with a GPS-based weed mapping data dictionary to map the size and density of any infestations of Utah State or County noxious weeds in the FERC Project Boundary. The survey will focus on disturbance margins within the FERC Project Boundary. Weed survey results will be presented in a technical study plan report that summarizes survey activities, results, and areas that should be targeted for weed control. Maps of any weed infestation and associated data will also be provided. Weed surveys will be conducted at the same time as ULT surveys.

4.0 PROPOSED TERRESTRIAL WILDLIFE RESOURCE STUDIES

PacifiCorp proposes to conduct a special status terrestrial wildlife resource survey in the Project Area. A survey will be conducted to inventory a state sensitive species, smooth green snake, in the Project Area.

4.1 Special Status Terrestrial Wildlife Resource Survey

During evaluations conducted for the PAD two federally listed (Endangered Species Act of 1973) terrestrial wildlife species were identified with some potential to occur within one mile of the Project Area: greater sage-grouse (conservation agreement species; *Centrocercus urophasianus*) and yellow-billed cuckoo (federal threatened; *Coccyzus americanus*); both are also USFS R4 sensitive species. There is one state sensitive species (smooth greensnake [*Opheodrys vernalis*]) with the potential to occur in or within one mile of the Project Area.

As noted in the PAD, there is no potential for greater sage-grouse to occur in or adjacent to the Project Area and the Project Area is not within any sage grouse management areas as identified in the *Conservation Plan for Greater Sage-grouse in Utah* (Utah 2013). Therefore, surveys for this species are not proposed as a part of the Weber relicensing study plan effort.

The Project Area does not fall within defined critical habitat for the yellow-billed cuckoo (USFWS 2015a). Yellow-billed cuckoos require relatively dense, large patches of specific species of riparian tree habitat for breeding. A recent report conducted in nearby Ogden Canyon within similar habitat areas did not identify critical habitat or occurrences of yellow-billed cuckoo (Horrocks Engineering 2012). In addition, the habitat in the Project Area, and the habitat 0.5-mile upstream and downstream from the Project Area was assessed using reconnaissance-level data (i.e., photographs from a February 2015 site visit and aerial imagery). The following criteria were used to determine the potential suitability of the habitat for nesting yellow-billed cuckoo:

- Tree species that occur in the riparian zone;
- The density of trees that occur in the riparian zone (this was checked with aerial photographs and then groundtruthed in the field);
- The average estimated canopy height of the riparian tree patches;

- The understory height and cover;
- The patch size of riparian tree habitat (this was checked with aerial photographs and then groundtruthed in the field);
- The amount of canopy cover within the riparian zone.

Based on these criteria, the riparian habitat assessed does not appear to meet the minimum requirements for nesting cuckoos, nor does it meet the definition of suitable breeding and nesting cuckoo habitat in the USFWS Guidelines (USFWS 2015b).

Additionally, the tree species in the Project Area do not generally conform to the cottonwood-willow habitat that nesting yellow-billed cuckoos prefer (Laymon 1998). Generally, the yellow-billed cuckoo does not nest in a patch size of less than 4 hectares (Laymon and Halterman 1989), and there is no patch size in the Project Area that is even close to this large. The canopy cover in the Project Area is low; there are few trees, and those present have relatively wide spacing between them. Additionally, the understory height falls well below the desired height of 2 meters.

Three patches of trees fall within the Project Area. The first patch is in the Weber Powerhouse area on the west end of the Project Area. This patch is along the water's edge and is made up of approximately 14 cottonwood and Russian olive trees in a row. The length of the patch is roughly 200 meters, but the width is only that of a single tree. There are also several planted maple trees near the project facilities. This patch size is too small for nesting cuckoos. The second patch is near the middle of the Project Area on the north side of Interstate 84 just west of the Devil's Gate bend of the river. This patch is also approximately 200 meters long, but it is an upland patch and is made up of Gambel oak trees, which are not used by nesting cuckoos. The third patch is in the recreation site area on the east end of the Project Area. This patch is made up of approximately 25 planted cottonwood trees. The length of the patch is approximately 120 meters, but the width is only that of a single tree, and the row is adjacent to the I-84 freeway and was planted to provide a sound/visual break between the recreation site and the freeway. A few additional planted cottonwood trees are spaced out across the grassy picnic area of the recreation site. There are also approximately 10 naturally occurring cottonwood and Russian olive trees in a single row along the east side of the paved trail above the river bank. Like the first patch, this patch does not have the size or complexity associated with nesting cuckoos. Therefore, there is no potential yellow-billed cuckoo nesting habitat in or adjacent to the Project Area.

Although there may be potential for greater sage-grouse and yellow-billed cuckoo individuals or habitats within one mile of the Project Area, there is no potential for habitats in the Project Area or 0.5-mile upstream and downstream from the Project Area. Although there may be potential for individuals or habitats within one mile of the Project Area, or for individuals to pass through the Project Area, the Project and current or future operations have no potential to impact the species within or outside of the Project Area. Therefore surveys for greater sage-grouse and yellow-billed cuckoo are not proposed as a part of the Weber relicensing study plan effort.

There is one state sensitive species (smooth greensnake) with the potential to occur in the Project Area. The smooth greensnake is generally found in wet meadows, grasslands and

along stream edges. A survey will be conducted to identify any occurrence of smooth greensnake in the Project Area.

4.1.1 Smooth Greensnake Methods

Although there is no specific protocol for surveying for this species, qualified biologists that are conducting the ULT and noxious weed survey will also look for the smooth greensnake and document all wildlife sign and observations.

5.0 LEVEL OF EFFORT AND COST

A crew of two or more qualified biologists will perform initial field surveys on site in 2015 for two days. An initial report of the survey results will be prepared following the field effort in a two-day period. The estimated first-year cost for field surveys, reporting and project management is \$8,550. A single day of supplemental survey for ULT will be conducted on site in 2016 and 2017 for a total of two supplemental field days. A separate report for each supplemental survey will be prepared following the field effort in a two-day period. The estimated cost for supplemental field surveys, reporting and project management is \$2,600.

6.0 REFERENCES

- Horrocks Engineering. 2012. Ogden Canyon Waterline Threatened & Endangered Species Effects Determination Report Weber County, Utah. Available at: http://projects.horrocks.com/ogdencanyonH2O/assets/files/app%20b_2_ogden%20canyon%20te%20effects_determination_final_may15.pdf. Last accessed: June 25, 2015.
- Laymon, S.A. 1998. Yellow-billed Cuckoo: Partners in Flight Bird Conservation Plan. Available at: http://www.prbo.org/calpif/htmldocs/species/riparian/yellow-billed_cuckoo.htm. Last accessed: November 2, 2015.
- Laymon, S.A., and M.D. Halterman. 1989. A proposed habitat management plan for Yellow-billed Cuckoos in California. In Proceedings of the California riparian systems conference: Protection, management, and restoration for the 1990s, pp. 272–277. USDA Forest Service General Technical Report PSW-110, Pacific Southwest Forest and Range Experiment Station, Berkeley, California.
- U.S. Fish and Wildlife Service (USFWS). 2015a. Yellow-Billed Cuckoo Critical Habitat Maps. Available at: http://www.fws.gov/sacramento/outreach/Public-Advisories/WesternYellow-BilledCuckoo/WYBC_critical_habitat_maps.htm#UT. Last accessed: June 25, 2015.
- U.S. Fish and Wildlife Service (USFWS) 2015b. Guidelines for the Identification of Suitable Habitat for WYBCU in Utah. Made available by USFWS Utah Field Office staff: December 01, 2015.
- U.S. Forest Service (USFS). 2013. Intermountain region (R4) threatened, endangered, proposed, and, sensitive species list. February 2013 update. U.S. Department of Agriculture, Forest Service, Wasatch-Cache National Forest.
- Utah Division of Wildlife Resources (UDWR). 2007. Utah sensitive species list. State of Utah Department of Natural Resources, Utah Division of Wildlife Resources. Last updated on March 29, 2011.
- Utah Native Plant Society (UNPS). 2003-2015 [cited June 19, 2015]. Utah rare plant guide. [Internet]. A.J. Frates editor/coordinator. Salt Lake City, UT: Utah Native Plant Society. Available at: <http://www.utahrareplants.org>.
- Utah. 2013. Conservation Plan for Greater Sage-grouse in Utah. Available at: http://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater_sage_grouse_plan.pdf. Last accessed: April 14, 2015.