

FERC Project No. 2426
South SWP Hydropower
ESA-Listed Terrestrial Wildlife Species – California Wildlife Habitat Relationships Study

FIELD RESULTS AND DATA SUMMARY

March 27, 2019

Consistent with Section 5.0 of the South SWP Hydropower Revised Study Plan and as approved in the Federal Energy Regulatory Commission (FERC) Study Plan Determination dated June 14, 2017, the California Department of Water Resources and Los Angeles Department of Water and Power (Licensees) provide the following Field Results and Data Summary for Study 4.1.18, *ESA-Listed Terrestrial Wildlife Species – California Wildlife Habitat Relationships Study* (Study), which includes work completed to date, key findings, associated data files, variances, and remaining work. The Licensees consider these data to be public.

Completed Work to Date:

The Study is complete. The Licensees have completed Step 1 (Create Field Study Maps), and Step 2 (Conduct Field Habitat Assessments at Sampling Points and Incidentally Document ESA-Listed Terrestrial Wildlife). Study efforts completed were similar to work efforts performed by the Licensees under Study 4.1.7, *Special-Status Terrestrial Wildlife Species – California Wildlife Habitat Relationships Study*. A summary of completed work is as follows:

- Field study maps were developed under Step 1 for California Wildlife Habitat Relationships (CWHR) habitat types, sampling points, California Natural Diversity Database (CNDDDB) species occurrence records, and other known locations of Endangered Species Act (ESA)-listed species.
- Prior to field surveys, a total of 66 randomized locations representing 26 habitat types were identified (2 Blue Oak – Foothill Pine [BOP], 1 Blue Oak Woodland [BOW], 2 Coastal Oak Woodland [COW], 1 Desert Riparian [DRI], 2 Desert Wash [DSW], 1 Joshua Tree [JST], 2 Juniper [JUN], 1 Montane Hardwood – Conifer [MHC], 2 Montane Hardwood, 2 Montane Riparian, 3 Pinyon – Juniper, 1 Sierran Mixed Conifer [SMC], 2 Valley Oak Woodland [VOW], 2 Valley Foothill Riparian [VRI], 5 Chamise – Redshank Chaparral [CRC], 6 Coastal Scrub [CSC], 6 Mixed Chaparral [MCH], 1 Montane Chaparral [MCP], 4 Sagebrush [SGB], 3 Annual Grassland [AGS], 2 Fresh Emergent Wetland [FEW], 1 Pasture [PAS], 2 Perennial Grassland [PGS], 3 Wet Meadow [WTM], 2 Urban [URB], 2 Barren [BAR], and 5 locations in areas previously unmapped by the Classification and Assessment with Landsat of Visible Ecological Groupings [CalVeg]).
- A single CWHR Habitat Element Checklist datasheet was completed for each of the survey point locations.
- Three non-overlapping, 0.1-acre circular plots were sampled at each wooded habitat location, and three non-overlapping, 25-foot by 25-foot square plots were surveyed at each non-wooded (i.e., shrub or herbaceous-dominated) habitat location using the California Department of Fish and Wildlife (CDFW) CWHR System data forms.

- Photos were taken in the four cardinal directions from the center of each plot looking outwards. In the dataset, photo 1 = north, photo 2 = east, photo 3 = south, and photo 4 = west.
- Changes in vegetation boundaries from the CWHR habitat map were mapped in the field using an iPad, or in the office using ArcGIS.
- Any incidental observations of ESA-listed species were noted, and a California Native Species Field Survey Form was prepared for submittal to CDFW's CNDDDB program.
- Due to safety concerns, some areas were deemed inaccessible based on the presence of private property, steep slopes, unstable footing, dense vegetation, or inundation. As a result, data collection was restricted in these areas. These data collection restrictions are summarized below.
 - Inaccessibility due to safety concerns eliminated the possibility of collecting plot data at some locations. In these instances, an "over-the-fence" approach was implemented, which included the completion of a CWHR Habitat Element Checklist, as well as an estimation of percent cover by species. This modified assessment was conducted at 9 of the 65 sample locations: AGS7, BOW12, DRI26, DSW28, FEW29, FEW30, PAS46, PGS48, and PJN49.
 - Photos were generally taken in the four cardinal directions from the center of each plot looking outwards, except where site conditions prevented standing at those precise locations (e.g., steep slopes, unstable terrain, etc.). When locations were inaccessible, photos were taken from afar.

Key Accomplishments/Summary of Findings to Date:

Study findings for CWHR habitat types are the same as those findings for Licensees' *Special-Status Terrestrial Wildlife Species-California Wildlife Habitat Relationships Study*. These included:

CWHR

- Based on updated mapping, a total of 26 habitat types occur in the Study area. Within the proposed Project boundary, a total of 18 CWHR habitat types, including Lacustrine, occur. The acreages of CWHR habitat types in the proposed Project boundary and Study area are summarized in the table below. Refer to CWHR_Habitat_Maps.pdf (in Associated Data Files, listed below) for maps showing the sample locations, as well as the acreages and distribution of habitats within the study area.

Table 1. CWHR Habitat Acreages and Percentages Within the Study Area and Proposed Project Boundary

CWHR Habitat Type	Number of Sampling Points Planned ¹	Number of Sampling Points Actual ²	Acreage in Proposed Project Boundary ³	Percentage of Proposed Project Boundary	Acreage in Study Area ³	Percentage of Study Area
TREE-DOMINATED HABITATS						
Blue Oak - Foothill Pine (BOP)	2	2	0.5	0.01	610.7	0.7
Blue Oak Woodland (BOW)	1	1	-	-	381.1	0.4
Coastal Oak Woodland (COW)	2	2	2.8	0.1	264.0	0.3
Desert Riparian (DRI)	1	2	51.5	1.2	65.4	0.08
Joshua Tree (JST)	1	1	0.2	0.004	5.4	0.01
Juniper (JUN)	2	0	-	-	144.5	0.2
Montane Hardwood - Conifer (MHC)	1	2	-	-	90.4	0.1
Montane Hardwood (MHW)	2	0	0.5	0.01	329.3	0.4
Montane Riparian (MRI)	2	0	-	-	12.1	0.0
Pinyon - Juniper (PJN)	3	0	5.1	0.1	572.3	0.7
Sierran Mixed Conifer (SMC)	1	0	-	-	80.1	0.1
Valley Oak Woodland (VOW)	2	2	-	-	307.0	0.4
Valley Foothill Riparian (VRI)	2	5	96.4	2.2	516.4	0.6
SHRUB-DOMINATED HABITATS						
Chamise - Redshank Chaparral (CRC)	5	6	135.2	3.0	9391.8	11.0
Coastal Scrub (CSC)	6	9	545.1	12.2	13784.0	16.2
Desert Wash (DSW)	2	1	2.5	0.06	215.2	0.25
Mixed Chaparral (MCH)	6	8	437.4	9.8	37881.8	44.5
Montane Chaparral (MCP)	1	0	-	-	46.2	0.1
Sagebrush (SGB)	4	8	280.8	6.3	3490.6	4.1
HERBACEOUS-DOMINATED HABITATS						
Annual Grassland (AGS)	3	7	196.9	4.4	8616.1	10.1
Fresh Emergent Wetland (FEW)	2	3	55.3	1.2	55.3	0.1
Pasture (PAS)	1	0	-	-	-	-
Perennial Grassland (PGS)	2	1	-	-	9.7	0.01
Wet Meadows (WTM)	3	1	20.9	0.5	30.2	0.04
DEVELOPED HABITATS						
Urban (URB)	2	3	412.7	9.3	3592.9	4.2
NON-VEGETATED HABITATS						
Barren (BAR)	2	1	222.6	5.0	645.4	0.8
AQUATIC HABITATS						
Lacustrine (LAC)	0	0	1993.0	44.7	4021.3	4.7
OTHER						
Unknown (UNK)	5	0	-	-	-	-
Total	66	65	4459.4	100.00	85159.2	100.0

Source: U.S. Forest Service (USFS) 2018 and field data

Notes:

¹Number presented here represents the number of sample points planned for each habitat type based on acreage in study area and value to wildlife.

²Number presented here represents the number of sample points actually collected for each habitat type. Difference from planned number of points due to incorrect mapping and inaccessibility resulting from private property or unsafe conditions. In some cases of limited access, a sampled point had limited data collected (Habitat Element Checklist only, no vegetation plots). This is clarified in the habitat descriptions section below.

³All acreages exclude Angeles Tunnel.

- Habitat was determined to be incorrectly mapped by CalVeg at 33 locations out of the 65 total locations sampled. As a result of this ground-truthing, it was determined that initial habitat mapping based on available CalVeg data was incorrect in just under 50 percent of the sampled cases. This indicates that portions of the Study area that were not ground truthed as part of this Study may be inaccurately mapped. However, most of these areas are largely inaccessible or located on the outer edges of the Study area, far from the proposed Project boundary. For the purposes of this Study, a conservative approach was taken and areas that were not directly observable were assumed to be correctly mapped.
- One of the CWHR habitat types, Pasture (PAS), previously mapped in the Study area, was eliminated. All areas previously mapped as PAS were surveyed in their entirety and changed to Annual Grassland (AGS).
- All five unknown sampling points in the previously unmapped (by CalVeg) area north of Quail Lake were surveyed and determined to be a mix of Annual Grassland (AGS) and Sagebrush (SGB) habitats. These data, along with surrounding mapped vegetation types, were used to extrapolate and fill in the entirety of the unmapped area.

Incidental Sightings

- No incidental observations of ESA-listed species occurred during the *ESA-Listed Terrestrial Wildlife Species – California Wildlife Habitat Relationships Study*.

ESA-Listed Terrestrial Species

- The updated list of CWHR habitat types was run through the CWHR Model (CWHR Version 9.0) and the following six ESA-listed terrestrial wildlife species were listed as having potential habitat within the proposed Project boundary:
 - Arroyo toad (*Anaxyrus [=Bufo] californicus*) – The CWHR identifies a general habitat association of arroyo toad with the following habitat types: Joshua Tree, Mixed Chaparral, Pinyon-Juniper, and Valley Foothill Riparian.
 - California red-legged frog (*Rana draytonii*) – The CWHR identifies a general habitat association of CRLF with the following habitat types: Annual Grassland, Blue Oak-Foothill Pine, Blue Oak Woodland, Coastal Oak Woodland, Coastal Scrub, Fresh Emergent Wetland, Lacustrine, Mixed Chaparral, Montane Hardwood, Montane Hardwood-Conifer, Montane Riparian, Perennial Grassland, Valley Oak Woodland, Wet Meadow, and Valley Foothill Riparian. Additional information about this species within the proposed Project boundary will be available in the data summary for the Licensees' *ESA-Listed Amphibians, California Red-legged Frog Study*.
 - California condor (*Gymnogyps californianus*) – The CWHR identifies a general habitat association of California condor with the following habitat types: Annual Grassland, Barren, Blue Oak-Foothill Pine, Blue Oak Woodland, Chamise-Redshank Chaparral, Coastal Oak Woodland, Coastal Scrub, Lacustrine, Mixed Chaparral, Montane Hardwood, Montane Hardwood-Conifer, Perennial Grassland, Pinyon-Juniper, Sagebrush, Sierran Mixed Conifer, and Valley Oak Woodland.

- Additional information about this species within the proposed Project boundary is available in the data summary for the Licensees' *Special-Status Raptors Study*.
- Coastal California gnatcatcher (*Polioptila californica californica*) – The CWHR does not provide habitat relationships specific to coastal California gnatcatcher separate from California gnatcatcher; however, associated habitats likely include Chamise-Redshank Chaparral, Coastal Scrub, and Mixed Chaparral.
 - Least Bell's vireo (*Vireo bellii pusillus*) – The CWHR identifies a general habitat association of least Bell's vireo with one habitat type: Valley Foothill Riparian. Additional information about this species within the proposed Project boundary is available in the data summary for the Licensees' *ESA-Listed Riparian Bird Species, Southwestern Willow Flycatcher, Least Bell's Vireo, and Yellow-Billed Cuckoo Habitat Evaluations Study*.
 - Western Distinct Population Segment of yellow-billed cuckoo (*Coccyzus americanus*) – The CWHR identifies a general habitat association of yellow-billed cuckoo with one habitat type: Valley Foothill Riparian. Additional information about this species within the proposed Project boundary is available in the data summary for the Licensees' *ESA-Listed Riparian Bird Species, Southwestern Willow Flycatcher, Least Bell's Vireo, and Yellow-Billed Cuckoo Habitat Evaluations Study*.

Associated Data Files (All associated data can be found in the folder with this summary form. Note: Confidential CEII/privileged information will not be posted publicly.):

File Name	Data Description	File Type	File Location
CWHR_Habitat_Sample_Points_.zip	Sample point locations from CWHR habitat mapping study	ZIP	Project website
CWHR_Habitat_Maps.pdf	Maps of CWHR habitat	PDF	Project website
SSWP_CWHR_data_sheets_compiled.pdf	Survey forms for CWHR habitat study	PDF	Project website
CWHR_Habitat_Acreages_Table.xlsx	Habitat acreages and percentages within the study area	Excel	Project website
CWHR_Sample_Point_Photos (folder with 632 jpg files)	All photos associated with CWHR sample points	JPG	Project website

Key:
CWHR = California Wildlife Habitat Relationships

Variances from Study Methods, Schedule or Approach and Abnormalities in Expected Field Conditions:

The completed work referenced above resulted in the following variances and/or abnormalities in expected conditions:

- The CWHR study plan originally stated that 60 points would be sampled; however, 66 sample points were planned prior to field efforts. This discrepancy between the study plan and how the study was conducted can be explained as follows: (1) five of the additional sampling points were added to adequately cover the sections of the buffer surrounding the proposed Project boundary but it was discovered that those sections have not been previously mapped by CalVeg and thus original vegetation classifications needed to be determined; and (2) there was also one additional point included with the addition of identified primary Project roads and further refinement of the proposed Project boundary after the study plan was finalized.
- One survey point out of the 66 sample points was not surveyed due to complete inaccessibility (JUN33). This brought the total number of sampled points down to 65.
- In some cases, inaccessibility or small habitat patch size limited the number of plots that could be sampled at a given location. Limited plot data was collected at seven of the 65 sample locations, including: BOP10, CRC 16, MHC41, MHW42, PJN50, SMC52, and VOW55. One to two plots were sampled at these locations, rather than the typical three.
- Data was collected for one plot only at Urban locations, as the majority of the cover in these areas was hardscape, which is easily visible and detectable on aerial photographs, and transect data provided little value to the Study as a whole.

These variances are considered minor and did not influence the findings of the Study as a whole. Areas that were subject to limited sampling (Urban plots and the specific locations listed above) were sufficiently sampled to accurately represent the habitats at each area.

Remaining Work:

The Study is complete. No work remains.