

Project Name	Devil Canon FERC Relicensing Project (No. 14797)
Study	Botanical Resource Study- PFC (Crew 1); NNIP & ESA (Crews 2, 3, 4)
Week ID	Week 1 (4/3/2017-4/7/2017)
Crew 1	Morgan Kennedy*, Ignacio Maldonado, Allegra Engleson (HDR)
Crew 2	Catherine Schnurrenberger*, Meghan Oats (4/3-4/4), Allegra Engleson (HDR) (4/5-4/7)
Crew 3	Sarah Barrera (HDR)*, Marlyng Gama
Crew 4	Shelly Austin (HDR)*, Aaron Newton (HDR)

* Indicates Field Crew Lead

Survey Date(s)	Crew ID	Survey Location	Survey Completion Notes
4/3/17	1	Hesperia, Silverwood Lake (Orientation)	Completed safety and field training with field staff
	2	Hesperia, Silverwood Lake (Orientation)	Completed orientation
	3	Hesperia, Silverwood Lake (Orientation)	Completed orientation
	4	Devil Canyon Hydro Facility Region- SBDO	20170403_dwr_dc_p2426_nnip_crew_4 20170403_dwr_dc_p2426_rare_crew_4
4/4/17	1	Silverwood Lake- PFC via boat	PFC- Silverwood east
	2	Silverwood Main- Northwest (parks area)	20170404_dwr_dc_p2426_nnip_crew_2
	3	Silverwood Main- Southeast (parks area)	20170404_dwr_dc_p2426_nnip_crew_3
	4	Devil Canyon Hydro Facility Region- SBDO	20170404_dwr_dc_p2426_nnip_crew_4 20170404_dwr_dc_p2426_rare_crew_4
4/5/2017	1	Silverwood Lake- PFC via boat	PFC- Silverwood east
	2	Silverwood Main- Northwest (parks area)	20170405_dwr_dc_p2426_nnip_crew_2
	3	Silverwood Main- Southeast (parks area)	20170405_dwr_dc_p2426_nnip_crew_3
	4	Devil Canyon Hydro Facility Region- SBDO	20170405_dwr_dc_p2426_nnip_crew_4 20170405_dwr_dc_p2426_rare_crew_4
4/6/17	1	Silverwood Lake- PFC via boat	PFC- Silverwood east/Marina vicinity
	2	Silverwood Main- Northwest (parks area)	20170406_dwr_dc_p2426_nnip_crew_2
	3	Silverwood Main- Southeast (parks area)	20170406_dwr_dc_p2426_nnip_crew_3
	4	Devil Canyon Hydro Facility Region- SBDO	20170406_dwr_dc_p2426_nnip_crew_4 20170406_dwr_dc_p2426_rare_crew_4
4/7/17	1	Silverwood Lake- PFC via boat	PFC- Marina vicinity
	2	Silverwood Main- Northwest (parks area)	20170407_dwr_dc_p2426_nnip_crew_2
	3	Silverwood Main- Southeast (parks area)	20170407_dwr_dc_p2426_nnip_crew_3
	4	Devil Canyon Hydro Facility Region- SBDO	20170407_dwr_dc_p2426_nnip_crew_4 20170407_dwr_dc_p2426_rare_crew_4

Summary of Biological Findings

- Conducted PFC surveys at Silverwood Lake. Began surveys on the far east side of the lake near the intake facility and Miller Canyon (1).
- NNIP target species were found and mapped in all locations surveyed (2).
- Data collected in the Cleghorn Day use area and west along the shoreline and PCT on 4/4/17. Continued the survey throughout the Northwest area in the State Park throughout the rest of the week. The habitat was mostly disturbed or chaparral however the plants were located in openings, not in dense shrubbery (2).

- On 4/6/17, *C. benedictus*, or blessed thistle, was present. Though this is non-native it is not listed as invasive in California – it still tends to be act like an invasive plant (2).

Study and Protocol Comments

- iPad technical challenges- features are more comprehensive than the format of the iPad allowed for data entry. Need to update to allow specific feature entries, excluding extensive noting (1).
- Clarify with mgmt. on the protocol for mapping large patches of NNIP (1).
- Clarify lentic vs. lotic protocol. Double check to make sure that we are completing appropriate datasheets. Also, are ephemeral streams included (1)?
- Some areas are difficult/ not safe to access. These areas will need NNIP and Rare Plant surveys via boat. These surveys will be done as visual inspection via recon/bino (1).

Additional Comments

- Revisit the area where Mojave Desert (east reach) terminates into lake. This area is not accessible by boat, however is the only area observed to data that contains lacustrine/ freshwater emergent wetlands (1).
- iPad troubleshooting and updates required for remaining field work. Also, Avenza pdf and other background files need to be loaded to the iPads for reference (1).
- Land use/ ownership maps (1).
- Confirm Mojave chaperone for next week (1).
- Develop daily protocol for tracking areas where survey has been completed by each crew on a daily/week basis (1).
- Began slowly, recording points and mapping full polygons. However, we then began mapping points with acreage class for target NNIP species which made our field days run smoother (1).

Project Name	Devil Canon FERC Relicensing Project (No. 14797)
Study	Botanical Resource Study- PFC (Crew 1); NNIP & ESA (Crews 2, 3, 4)
Week ID	Week 2 (4/10/2017-4/14/2017)
Crew 1	Ignacio Maldonado*, Allegra Engleson (HDR)
Crew 2	Marlyng Gama*, Luke Barrett
Crew 3	Sarah Barrera (HDR)*, Adam Lockyer (HDR)
Crew 4	Shelly Austin (HDR)*, Aaron Newton (HDR)

* Indicates Field Crew Lead

Survey Date(s)	Crew ID	Survey Location	Survey Completion Notes
4/10/17	1	Silverwood Lake- PFC assessments via boat	No additional completion notes
	2	Silverwood East- Cedar Springs Parking Lot to Sycamore Landing Boat-in Site; Silverwood- Vista Point/ Chamise Boat-in, to Cleghorn parking area	20170410_dwr_dc_p2426_nnip_crew_2
	3	Silverwood West- Vista Overlook to Cedar Springs Dam	20170414_dwr_dc_p2426_nnip_crew_3
	4	DWR/Mojave Siphon Region	20170410_dwr_dc_p2426_nnip_crew_4
4/11/17	1	Silverwood Lake- PFC assessments via boat	No additional completion notes
	2	Silverwood East- Cedar Springs Parking Lot to Sycamore Landing Boat-in Site; Silverwood- Vista Point/ Chamise Boat-in, to Cleghorn parking area	20170411_dwr_dc_p2426_nnip_crew_2
	3	Silverwood West- Vista Overlook to Cedar Springs Dam	20170413_dwr_dc_p2426_nnip_crew_3
	4	DWR/Mojave Siphon Region	20170411_dwr_dc_p2426_nnip_crew_4
4/12/2017	1	Silverwood Lake- PFC assessments via boat	No additional completion notes
	2	Silverwood East- Cedar Springs Parking Lot to Sycamore Landing Boat-in Site; Silverwood- Vista Point/ Chamise Boat-in, to Cleghorn parking area	20170412_dwr_dc_p2426_nnip_crew_2
	3	Silverwood West- Vista Overlook to Cedar Springs Dam	20170412_dwr_dc_p2426_nnip_crew_3
	4	Black oak parking area/campground	20170412_dwr_dc_p2426_nnip_crew_4 20170412_dwr_dc_p2426_rare_crew_4
4/13/17	1	Silverwood Lake- PFC assessments via boat	No additional completion notes
	2	Silverwood East- Cedar Springs Parking Lot to Sycamore Landing Boat-in Site; Silverwood- Vista Point/ Chamise Boat-in, to Cleghorn parking area	20170413_dwr_dc_p2426_nnip_crew_2
	3	Silverwood West- Vista Overlook to Cedar Springs Dam	20170413_dwr_dc_p2426_nnip_crew_3
	4	Sawpit Canyon	20170413_dwr_dc_p2426_nnip_crew_4
4/14/17	1	Silverwood Lake- PFC assessments via boat	No additional completion notes
	2	No work	Completed early
	3	Silverwood West- Vista Overlook to Cedar Springs Dam	20170414_dwr_dc_p2426_nnip_crew_3
	4	Miller Canyon	20170414_dwr_dc_p2426_nnip_crew_4

Summary of Biological Findings
No noted biological findings of significance
Study and Protocol Comments
No noted study and/or protocol comments
Additional Comments
Compliance with all safety protocols and procedures.

Project Name	Devil Canon FERC Relicensing Project (No. 14797)
Study	Botanical Resource Study- PFC (Crew 1); NNIP & ESA (Crews 2)
Week ID	Week 3 (4/17/2017-4/21/2017)
Crew 1	Morgan Kennedy*, Ignacio Maldonado, Allegra Engleson (HDR) (4/17-4/20), Marlyng Gama (4/19-4/21)
Crew 2	Sarah Barrera (HDR)*, Marlyng Gama (4/17-4/18only)
Crew 3	N/A (no crew 3 or 4 for Week 3 surveys)
Crew 4	N/A (no crew 3 or 4 for Week 3 surveys)

* Indicates Field Crew Lead

Survey Date(s)	Crew ID	Survey Location	Survey Completion Notes
4/17/17	1	Silverwood Lake	Filled-in/ assessed study area PFC data gaps
	2	Silverwood Lake - cleanup	20170417_dwr_dc_p2426_nnip_crew_2
	3	-	-
	4	-	-
4/18/17	1	Silverwood Lake	Filled-in/ assessed study area PFC data gaps
	2	Los Animas Overlook	20170418_dwr_dc_p2426_nnip_crew_2
	3	-	-
	4	-	-
4/19/2017	1	Silverwood Lake	Filled-in/ assessed study area PFC data gaps
	2	-	-
	3	-	-
	4	-	-
4/20/17	1	Silverwood Lake	Filled-in/ assessed study area PFC data gaps
	2	-	-
	3	-	-
	4	-	-
4/21/17	1	Silverwood Lake	Filled-in/ assessed study area PFC data gaps
	2	-	-
	3	-	-
	4	-	-

Summary of Biological Findings

- More lotic than lentic features have been observed at Silverwood Lake (1).

Study and Protocol Comments

- Implement Shoreline/ Riparian Unit datasheet. Intended as cross reference to ensure all areas of the Lake have been surveyed and note what is comprised in all those areas (1).
- Some areas, specifically those areas that extend into the waterline in Miller Canyon (i.e., where there is only foot access/ no boating access)- heads up digitization of features will be required (1).
- Track iPad changes (1).
- Need standardization for reach ID's (1)
- Completed survey area – April surveys complete (1).

Additional Comments

- Response to rare plant timing inquiry:
Timing of rare plant surveys was reviewed and discussed prior to April surveys during our initial kick-off meeting. Bloom period dating for a species is general for an entire range and vicinity that the species is known to occur in. Given the 1) location of project area, 2) the bloom regime observed at the field location this year, 3) present habitat associations for each species in the project area, and the 3) the species listed as rare late bloomers Most late bloom species begin blooming in July or August, which means that the life forms should be fruiting and observable during our field surveys. Make clear for botanical field leads, and double check this during our first couple of days out in June. Note: the one species with a bloom period Aug-Nov, this is a shrub (Ambrosia monogyra), and if present will be able to be identified through lifeform and foliage if not "blooming" (i.e., flowering). If on the rare chance that I reevaluate in the first couple of days next week, and determine that an August survey is needed, then then supplementary surveys and needs should be discussed further. (1)
- Ensure staff has weekly download protocol for SharePoint (1).
- General Notes from previous weeks (Shelly) regarding data:
 - A) I still have the hard copies of the data sheets from my April 14 surveys. Would you like me to mail these to you?
 - B) When I surveyed along the access road leading up from the Devil Canyon hydropower plant in San Bernardino to the surge tank at the top of the hill, I had assumed all of that area along the road was USFS land. However, after looking at the email that Lisa had sent and clicking on the public lands boundaries on ArcGIS, it appears that not the entire area is USFS land. This affects the data sheets I had filled out. Please QC/verify that the following locations are NOT on USFS land (the resultant USFS datasheets will not be needed): 040617 USFS 4 (NNIP), 040617 USFS 5 (NNIP), 040617 USFS 9 (NNIP), 040617 USFS 3 (Rare), 040517 USFS 3 (Rare).
 - a) The only data sheets that SHOULD have USFS data sheets associated with them because they DO occur on USFS land are: 040617 USFS 6 (Rare), 040617 USFS 7 (NNIP), 040617 USFS 8 (Rare), 040617 USFS 1 (NNIP), and 040617 USFS 2 (Rare).
 - b) FYI, because I wasn't 100% certain of which areas were on USFS land and those data sheets are time consuming, I filled out most of the data sheets, but there is some percent cover data that I will need to collect in June for those NNIP and rare plant locations on USFS land. I had made a note on those data sheets before scanning them and uploading to SharePoint that I would need to collect additional data in June. I will make sure Sarah and I collect that data the first week in June.
- Compliance with all safety protocols and procedures (1).

Project Name	Devil Canon FERC Relicensing Project (No. 14797)
Study	Botanical Resource Study- NNIP & ESA (Crews 1, 2, 3)
Week ID	Week 4 (6/5/2017-6/9/2017)
Crew 1	Rocky Brown*, Ignacio Maldonado, Morgan Kennedy* (6/5-6/6), Cynthia Jones* (6/5-6/6),
Crew 2	Melina Kozanitas*, Catherine Schnurrenberger
Crew 3	Shelly Austin*/ Sarah Barrera*, Courtney Chaney
Crew 4	N/A (no crew 4 for June surveys)

* Indicates Field Crew Lead

Survey Date(s)	Crew ID	Survey Location	Survey Completion Notes
6/5/17	1	Silverwood Lake	Completed in-field training for new field crew, completed safety orientation
	2	Silverwood Lake	Completed in-field training for new field crew, completed safety orientation
	3	Devil Canyon Hydropower Plant	Completed west extent of site and slopes north of second afterbay; and south facing slopes south of second afterbay
	4	N/A	N/A
6/6/17	1	Silverwood Main-Southeast (parks area)	No additional completion notes
	2	DWR Mojave Siphon	With escort, completed area within gates, around damn and spillway
	3	Devil Canyon Hydropower Plant	Completed upper half of penstock study area (west side); and paved access road
	4	N/A	N/A
6/7/2017	1	Silverwood Main-Southeast (parks area)	No additional completion notes
	2	Mojave Siphon/ SBDO Intake Tower	Completed base of spillway in a.m. and then moved to Intake Tower- completing the area within gates, from boundary to water line, and along shore within buoy line
	3	Devil Canyon Hydropower Plant	Completed north end and south side of study area
	4	N/A	N/A
6/8/17	1	Silverwood Main-Southeast (parks area)	No additional completion notes
	2	Mojave Siphon/ Black Oak Campground (near intake)	Completed area of Siphon accessible from public access lot. Returned to Intake Tower area and completed area surrounding campground to tower gates and across main road to creek
	3	Devil Canyon Hydropower Plant	Completed penstock area (i.e., southern portion)
	4	N/A	N/A
6/9/17	1	Silverwood Main-Southeast (parks area)	No additional completion notes
	2	Dart Miller Canyon (East end) Dart Miller Canyon (East end)	Began at east end of Dart Miller Canyon, from group camp road to upper road, along creek to inner parking lot
	3	Devil Canyon Hydropower Plant	Complete south send, south of the afterbays
	4	N/A	N/A

Summary of Biological Findings

- NNIP target species were found and mapped in all surveyed locations surveyed (1).
- NNIP target species were found and mapped in all surveyed locations surveyed.
- At the SBDO Intake Tower a population of Plummer's Mariposa lily (*Calochortus plummerae*) was observed and recorded. This species is included in the CNPS Inventory of Rare and Endangered Plants on list 4.2 (limited distribution). The plants were growing along an unofficial trail, bordering a fence line in a decomposed granite and larger granite rock substrate. The surrounding habitat was chaparral; however the plants were located in openings, not in dense shrubbery. A single plant was also observed near the public access parking lot in the Mojave Siphon area in similar habitat.
- Along the creek, located to the west of the Black Oak Campground, a potentially 4.2 listed species was observed and mapped but needs to be confirmed. The plant was keyed to Shield bract monkey flower (*Mimulus glaucescens*), however it is not known to occur in the area. Yellow, or seep, monkey flower (*Mimulus guttatus*) was also observed in the same location and there could be hybridization occurring. Several individuals of the possible *M. glaucescens* were also observed along the creek in the Dart Miller group camp creek bed, again occurring with *M. guttatus*. Several points were taken along this creek however all fell within the ¼ acre definition of a population in accordance with CNDDDB criteria. Additional notes: CS- I have found this species before in the foothills above Chico, which is within its known range, but Silverwood Lake is not in the known range. The habitat is correct and it keys right to the species, and photos look right but I am suspicious that this is a hybrid with *M. guttatus*. I cannot find any reference on the web to this species hybridizing though, so I need to contact the person who wrote the key. I also need to get you photos, I thought I had some on my they are all on the iPad. *M. glaucescens* is a list 4 species and I did collect and press specimen. We also found the leaves of a lily that could be *Lilium humboldtii* ssp. *ocellatum*, the top had been browsed so it might not flower this year! (2)
- Also along this creek the leaves of a lily that could be *Lilium humboldtii* ssp. *ocellatum* were observed. The top had been browsed so it might not flower this year but Crew 2 will be in this area again in subsequent weeks and check its status as well as look for other individuals in the area (2)
- Incidental observation- a woodrat midden (*Neotoma* sp.) was observed along the road up to the dam at the Mojave Siphon, to the north of the road in the right of way under the powerlines. A general point was not taken but will be added.
- At the SBDO intake tower a Great Blue Heron (*Ardea herodias*) rookery was observed in a bigcone Douglas-fir (*Pseudotsuga macrocarpa*) community. A general point will be collected when crew 2 returns to that area in the following week (2).
- Found additional black walnut (*Juglans californica*) population(s) (3).
- Created new NNIP polygons, added spp. to existing polygons from April surveys (3).
- Finalized USFS datasheets from April surveys (3).
- Observed and identified *Calochortus plummerae* plant (3).

Study and Protocol Comments

- Systematic naming conventions- unsure if numbering sequence should continue when switching from NNIP data points to Ca. Natives. Crew 2 continued to use sequential numbering, so if there are gaps in numbering of NNIP points this is because those numbers were used to identify the native plant points collected above and that point number was included in the notes section for those entries (2).
- Placed general note markers on iPad with the comments where terrain was too steep and/or vegetation too dense to survey on foot, and visual recon was completed (3).

Additional Comments

- Finished field study at Devil Canyon Hydropower Plant area on Friday (6/9/2017) afternoon (3).
- Compliance with all safety protocols and procedures.

Project Name	Devil Canon FERC Relicensing Project (No. 14797)
Study	Botanical Resource Study- NNIP & ESA (Crews 1, 2)
Week ID	Week 5 (6/12/2017-6/16/2017)
Crew 1	Rocky Brown*, Ignacio Maldonado
Crew 2	Melina Kozanitas*, Logan Elms
Crew 3	N/A (no crew 3 for Week 5 surveys)
Crew 4	N/A (no crew 4 for June surveys)

* Indicates Field Crew Lead

Survey Date(s)	Crew ID	Survey Location	Survey Completion Notes
6/12/17	1	Silverwood West- Vista Overlook to Cedar Springs Dam; Silverwood Main- Northwest (parks area)	No additional completion notes
	2	Dart Miller Canyon	Began at east end of Dart Miller Canyon, from group camp parking lot along creek trail to bike trail junction
	3	-	-
	4	N/A	N/A
6/13/17	1	Silverwood West- Vista Overlook to Cedar Springs Dam; Silverwood Main- Northwest (parks area)	No additional completion notes
	2	Dart Miller Canyon	From upper parking lot- down road- through forest service land to bike trail
	3	-	-
	4	N/A	N/A
6/14/2017	1	Silverwood West- Vista Overlook to Cedar Springs Dam; Silverwood Main- Northwest (parks area)	
	2	SBDO Intake Tower to mouth of lake/ junction with Dart Miller Canyon bike trail	From intake tower to end of bike trail
	3	-	-
	4	N/A	N/A
6/15/17	1	Silverwood West- Vista Overlook to Cedar Springs Dam; Silverwood Main- Northwest (parks area)	No additional completion notes
	2	Serrano Landing to Sycamore Landing	Serrano landing area to sycamore landing
	3	-	-
	4	N/A	N/A
6/16/17	1	Silverwood West- Vista Overlook to Cedar Springs Dam; Silverwood Main- Northwest (parks area)	No additional completion notes
	2	Dart Miller Canyon Clean-up	Filled-in/ assessed study area data gaps
	3	-	-
	4	N/A	N/A

Summary of Biological Findings

- NNIP target species were found and mapped in all surveyed locations surveyed (1).
- NNIP target species were found and mapped in all surveyed locations surveyed. USFS data collected along road from Dart Miller Canyon parking lot to Serrano Landing, at the bathrooms (i.e., halfway point along road, where road and hiking trail meet) (2).

- A population of Plummer's mariposa lily (*Calochortus plummerae*) was observed and recorded. This species is included in the CNPS Inventory of Rare and Endangered Plants on list 4.2 (limited distribution). The plants were growing along the trail, in a decomposed granite and larger granite rock substrate. The surrounding habitat was chaparral; however the plants were located in openings, not in dense shrubbery. A single plant was also observed along the paved road in similar habitat (2).
- Along this creek the three occurrences of Humboldt's lily (*Lilium humboldtii* ssp. *ocellatum*) were observed (2).
- A population of Pacific bleeding hearts (*Dicentra Formosa*) was observed and collected. A general point was taken noting the first record/ recorded occurrence of this species in San Bernardino County. Shelly Austin of HDR took the specimen to UCR and it will hopefully be added to a local herbarium (2).
- The listed Shield bract monkey flower (*Mimulus glaucescens*) was mapped and reported last week was confirmed to not be present, instead it was determined to be a morphological variant of the yellow or seep monkey flower (*Mimulus guttatus*). Any mapped observations of *M. glaucescens* from week one should be disregarded (2).
- Incidental observation- a general point was taken near the group camp site, along the creek indicating the observation of black bear (*Ursus americanus californiensis*) scat (2).
- Incidental observation- a Pacific rattlesnake (*Crotalus oreganus helleri*) was observed at the mouth of the Silverwood Lake, where the creek crosses the bike trail and feeds into the lake (2).
- Incidental observations- Other wildlife general points were taken along the bike trail marking the great blue heron (*Adrea herodias*) rookery and an osprey (*Pandion haliaetus*) nest. A bald eagle (*Haliaeetus leucocephalus*) was also observed between Serrano and Sycamore landings (2).

Study and Protocol Comments

- A general site maps of progress completed by field crews was provided to the field manager(s) (1).
- Systematic naming conventions- unsure if numbering sequence should continue when switching from NNIP data points to Ca. Natives. Crew 2 continued to use sequential numbering, so if there are gaps in numbering of NNIP points this is because those numbers were used to identify the native plant points collected above and that point number was included in the notes section for those entries (2).

Additional Comments

Compliance with all safety protocols and procedures.