

Biological Resources & Jurisdictional Waters Assessment



Jacobs



Big Bear Valley Partner Agencies Replenish Big Bear Project

Biological Resources And
Jurisdictional Waters Assessment

Final
September 2023

Tom Dodson & Associates

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved

Distribution of copies

Revision	Issue approve	Date issued	Issued to	Comments

Big Bear Valley Partner Agencies Replenish Big Bear Project

Project No: W3X83304 (Replenish Big Bear)
Document Title: Biological Resources & Jurisdictional Waters Assessment
Revision: DRAFT
Date: September 10, 2023
Client Name: Tom Dodson & Associates
Project Manager: Lisa Patterson
Author: Daniel Smith
File Name: DRAFT 2023 Replenish Big Bear BRA_9.10.23

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1. Introduction

The Big Bear Area Regional Wastewater Agency (BBARWA), Big Bear City Community Services District (BCCSD), Big Bear Lake Department of Water and Power (BBLDWP), and Big Bear Municipal Water District (BBMWD), henceforth referred to jointly as the Project Proponents, are proposing to implement the Replenish Big Bear Program. The Project includes upgrades and additions to BBARWA's wastewater treatment plant (WWTP) to produce purified water through full advanced treatment to protect the receiving waters and their beneficial uses. The goal of the Project is to produce full advanced treated water that would be retained within the Big Bear Valley watershed to be used to increase the sustainability of local water supplies. BBARWA will be the lead agency for compliance with the California Environmental Quality Act (CEQA) on behalf of this Project. The Project would involve both state and federal grant funds. Therefore, this Biological Resources Assessment and Jurisdictional Waters Assessment report was prepared in accordance with the standards required by the National Environmental Policy Act (NEPA) and CEQA review processes.

On behalf of Tom Dodson and Associates (TDA), Jacobs Engineering Group, Inc. (Jacobs) has prepared this Biological Resources Assessment (BRA) report for the proposed Replenish Big Bear Program (Project). The BRA fieldwork was conducted by Jacobs's biologist Daniel Smith in June and July of 2022, as well as July of 2023. The purpose of the BRA survey was to address potential effects of the Project on designated Critical Habitats and/or any species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA), as well as any species otherwise designated as sensitive by the California Department of Fish and Wildlife (CDFW [formerly California Department of Fish and Game]) and/or the California Native Plant Society (CNPS).

The Project Area was assessed for special status species known to occur locally. Attention was focused on those state and/or federally listed as threatened or endangered species and California Fully Protected species that have been documented in the vicinity of the Project Area, whose habitat requirements are present within or adjacent to the Project Area. Results of the habitat assessment are intended to provide sufficient baseline information to the Project Proponents and, if required, to City, County, or other local government planning officials and federal and state regulatory agencies, including the U.S. Forest Service (Forest Service), U.S. Fish and Wildlife Service (USFWS) and CDFW, respectively, to determine if the Project is likely to affect any special status biological resources and to identify mitigation measures to offset those effects.

In addition to the BRA field survey, Jacobs assessed the Project Area for the presence of state and/or federal jurisdictional waters potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter-Cologne Water Quality Control Act, and CDFW under Section 1600 of the California Fish and Game Code (FGC), respectively.

1.1 Project Location

The overall Project Area consists of the Big Bear Valley, which is situated in the San Bernardino Mountains of San Bernardino County, California (Figures 1-3, Pages 4-6). The proposed Project is located within the Big Bear Valley Groundwater Management Zone (GMZ or Basin). Big Bear Lake and Baldwin Lake are in the middle of this Basin. The Project will span just east of Big Bear Lake to the WWTP at Baldwin Lake and then south to Shay Pond, and southeast of Big Bear Lake to the Ski Resort Pond and Sand Canyon Recharge Area. The Project is located within several U. S. Geological Survey (USGS) 7.5 Minute Series Quadrangle maps, including the following: *Big Bear City*, *Big Bear Lake*, *Moonridge*. The central point for the proposed Project is the BBARWA WWTP, for which the geographic coordinates of the proposed Project are latitude: 34.268906, longitude: -116.815575. The BBARWA WWTP is in Section 7 of Township 2 North, Range 2 East, San Bernardino Base Meridian (SBBM).



SOURCE: Google Earth

FIGURE 1



SOURCE: Google Earth

FIGURE 2



SOURCE: Google Earth

FIGURE 3

1.2 Project Description

BBARWA owns and operates a 4.89 million gallon per day (MGD) capacity WWTP located just south of Baldwin Lake on the east side of the Big Bear Valley. In 2021, the WWTP treated approximately 1.85 MGD of municipal wastewater collected from BBCCSD, the City of Big Bear Lake, and County of San Bernardino Service Area (CSA) 53 in Fawnskin. The existing treatment process includes the following:

- Preliminary treatment consisting of a mechanical coarse screen and an aerated grit chamber.
- Secondary treatment consisting of extended aeration oxidation ditches and secondary clarifiers.
- Solids handling through a dewatering belt filter press.

Treated effluent is temporarily stored on-site prior to discharge to Lucerne Valley. Dewatered solids are hauled off-site. The influent flows to BBARWA's WWTP are comprised of three components:

- Flow from full-time residential homes.
- Flows due to tourism, commercial activities, and part-time residential homes.
- Flows from Infiltration and Inflow (I/I) due to precipitation.

These components create a seasonal variation in the wastewater flows treated at the plant. BBARWA's 2010 Sewer Master Plan (2010 SMP) estimated that the full-time residential rate is 38 percent (%) of the overall customer population within the area. The tourism season is largely concentrated in the months of December through April due to the local ski resorts; additionally, the months of June and July also see a slight rise in tourism due to Lake recreation activities. The average daily flow is presently approximately 2.0 MGD and the maximum month flow is 5.4 MGD.

BBARWA's WWTP is located on a 93.5-acre property. The WWTP process components occupy 11.2 acres, and the remaining 82.3 acres include storage ponds and evaporation ponds. Influent flows are conveyed through three BBARWA operated sewer mains and lift stations to the plant. The WWTP currently provides preliminary and secondary treatment.

Treated secondary effluent is discharged to a 480-acre site in Lucerne Valley (LV Site) – about 20 miles north of the Big Bear Valley – for irrigation of fodder and fiber crops that are used as feed for livestock. Use of recycled water for crop irrigation at the LV Site began in 1980 and 100% of the WWTP effluent is currently discharged to the LV Site. Discharge to the LV Site must meet the Colorado River Basin RWQCB Waste Discharge Requirement (WDR), which has an effluent limit for TDS of 550 mg/L over a 12-month period.

1.2.1 Project Purpose and Objectives

Natural precipitation is the only source of recharge and water supply to the Big Bear Valley. Drought conditions and a long-term decline in precipitation trends have led the local water management agencies to investigate opportunities for supplemental water supplies, which are extremely limited due to its isolated location at the top of the Santa Ana River watershed (Figures 1-3, Pages 4-6). As such, the Replenish Big Bear Program has been designed to retain local water in the Valley to increase the sustainability of water supplies. To this end, the Project Proponents intend to implement the Replenish Big Bear Program, which would include the following uses and benefits:

- Purified water would be discharged to Shay Pond to sustain habitat for the state and federally listed as endangered unarmored threespine stickleback fish (*Gasterosteus aculeatus williamsoni*), which is currently sustained using potable groundwater.
- Purified water would be discharged to the Stanfield Marsh Wildlife and Waterfowl Preserve (Stanfield Marsh), providing a consistent water source to sustain habitat and increase education opportunities for the community and visitors.
- Purified water would flow through Stanfield Marsh and provide new inflow to Big Bear Lake to increase inflows and Lake level, enhance recreational opportunities and aquatic habitat, and support water quality improvements.
- When needed, purified water stored in Big Bear Lake would be pumped to Sand Canyon to recharge the groundwater basin to strengthen the sustainability of the groundwater basin.
- Purified water stored in Big Bear Lake could also be used for golf course irrigation and dust control by the Big Bear Mountain Resorts (Resorts) in the summer.
- During wet periods, excess purified water stored in Big Bear Lake could be stored locally as snow, providing flexibility to further enhance winter recreation, reduce spills from Big Bear Lake, augment spring runoff, and increase groundwater recharge. This activity is not currently planned to be implemented as part of the Program, but the Program provides the flexibility to adapt if more extreme hydrologic conditions occur in the future.
- Additional inflow may enable BBMWd to modify their current Big Bear Lake management strategy to minimize spills and optimize releases to enable additional water to be captured downstream for recharge of the San Bernardino Basin, rather than discharged to the ocean.

For redundancy purposes, BBARWA is also seeking to maintain its current discharge location in Lucerne Valley, where undisinfected secondary effluent is currently conveyed to irrigate crops used for livestock feed.

1.2.1.1 Stanfield Marsh and Big Bear Lake

Stanfield Marsh is a 145-acre wildlife preserve that is home to rare and diverse species of birds, fish, amphibians, and mammals. Stanfield marsh is situated immediately east (upstream) of Big Bear Lake and is hydrologically connected to the Lake through a set of culverts under Stanfield Cutoff. Currently, rainfall and snowmelt are the only sources of water for Stanfield Marsh, so the water level varies from season to season and throughout longer hydrologic cycles. During wet periods, Stanfield Marsh is a thriving wildlife preserve. During extended drought conditions, the water level recedes dramatically, sometimes drying up completely, and the wildlife become scarce. In the last 15 years, Stanfield Marsh has been less than half full nearly 40 percent of the time. Full advanced treated water would provide a new, drought proof source of inflow to stabilize the water levels and sustain habitat in Stanfield Marsh even during dry periods. Additionally, overflow from Stanfield Marsh would provide new inflow into the Big Bear Lake and increase Lake levels relative to no Project conditions. The proposed outlets into the Lake at Stanfield Marsh would occur at one of two points just west of the Big Bear Airport (Figure 4, Page 10).

Big Bear Lake is managed by BBMWd, which has rights to the lake bottom, Bear Valley Dam, and the right to utilize and manage the surface of Big Bear Lake from Bear Valley Mutual (BVM). BVM maintains a storage right and ownership of all water inflow into the Lake. BVM has the right to request Lake releases commensurate with what may be reasonably necessary to meet the requirements of BVM's stockholders, not exceeding 65,000 acre-

feet (AF) in any ten (10) year period. BBMWD can maintain a higher water level in the lake by delivering water to BVM from an alternate source of water. This alternate source of water (In-Lieu Water) comes mainly from the State Water Project through a contract executed in 1996 with San Bernardino Valley Municipal Water District (Valley District).

BBMWD's current Lake Release Policy was adopted in 2006 provides guidance on how BVM demands will be met depending on the Lake level.

- When the Lake is in the top 4 feet, Mutual's demands will be met with Lake releases.
- When the Lake is between 4 and 6 feet below full, Lake releases will be made in the months of November through April and In-Lieu Water will be obtained from May to October.
- When the Lake is more than 6 feet below full, In-Lieu Water will be obtained.

Snowmaking Withdrawals

BBMWD currently has a contract with the Big Bear Mountain Resorts, allowing the withdrawal of an allocated amount of water from the Lake to use for snowmaking purposes. Currently, Big Bear Mountain Resort is authorized to withdraw a maximum of 11,000 AF of water from the Lake over a 10-year rolling period, not exceeding 1,300 AF in any single year. It is calculated that about half of the water withdrawn from the lake for this purpose is returned as runoff.

Fish Protection Releases

In 1995, the State Water Resources Control Board (SWRCB) issued Order No. 95-4, which requires BBMWD and Mutual to release water from the Lake for fishery protection in Bear Creek. Sufficient water must be released from the Lake to maintain specific flow standards, which vary by month and by hydrologic year type (normal, above normal, or below normal precipitation).



SOURCE: Google Earth

FIGURE 4

1.2.1.2 Unarmored Threespine Stickleback Habitat

One of the projected uses of the recycled water generated by the Replenish Big Bear Program would be to provide a continuous water supply to Shay Pond to enhance and maintain habitat for the state and federally listed as endangered unarmored threespine stickleback fish (UTS). The UTS is listed as endangered under both the federal ESA and CESA, as well as a CDFW Fully Protected species. There is a long history of study and group effort regarding the UTS population in the Shay Creek area. The main stakeholders include the USFWS, CDFW, the San Bernardino National Forest (SBNF), BBCCSD, BBLDWP, and BBARWA. The Shay Creek Working Group, which includes representatives from the USFWS, CDFW, SBNF, BBCCSD, BBLDWP, and BBARWA, was formed during the process of preparing the USFWS' 2002 Biological Opinion (BO) for the area. The requirements of the 2002 BO state that BBCCSD will continue to provide water to Shay Pond to maintain a minimum 20-gallon per minute (gpm) outflow from Shay Pond. To meet this outflow requirement, BBCCSD discharges 50 gpm of potable water into the pond. Based on the average volumes of discharges between 2012 and 2020, BBCCSD discharges approximately 50 acre-feet per year (AFY) of potable water into Shay Pond to maintain the UTS population.

The 2002 BO also states that, should a suitable alternative supply of water be found to be appropriate for the stickleback in the future, BBCCSD may use an 'in-lieu' water supply, which could include the use of tertiary-treated water. The proposed Project would provide an in-lieu water supply (i.e., full advanced treated water, which exceeds tertiary treated water) for Shay Pond to meet the requirements of the 2002 BO, which would enable BBCCSD to recover this potable supply to serve their customers. The proposed Project would replace potable water currently discharged to the pond with tertiary-treated water to maintain the water flow through the pond. The objective is to maintain a minimum pond water level that will support suitable habitat conditions for UTS. Up to 80 AFY of purified water would be sent to Shay Pond, and any remaining purified water will be sent to the Stanfield Marsh, which is tributary to Big Bear Lake.

1.2.1.3 Groundwater Recharge at Sand Canyon

The Sand Canyon groundwater recharge project involves extracting Project water stored in Big Bear Lake to a temporary storage pond using existing infrastructure owned by a local resort. The Project water would then be pumped and conveyed to the Sand Canyon recharge area using a new pump station and pipeline, as shown in Figures 5-6, Pages 13-14. The objective of the Sand Canyon recharge project is to recharge the groundwater basin. The following are operation strategies for the Sand Canyon recharge project:

- Recharge will occur within the defined Sand Canyon recharge area.
- Recharge will not occur during periods where natural surface flows occur in the channel.
- Recharge will occur over a 6-month dry weather period (April-October).
- Flows will be reduced or stopped if Project water does not fully percolate within the defined recharged area.

BBLDWP would monitor the discharge and percolation performance as needed to comply with permit requirements for the Sand Canyon recharge operation.

The hatched area along the Sand Canyon channel depicted on Figure 6, Page 14, is where surface water can percolate and still meet the travel time required to the nearest downstream well. The Project water stored in the Lake would have approximately 2,900 linear feet to percolate into the groundwater basin. The Project water is expected to fully percolate before reaching the end of the recharge area. If the Project water does not fully percolate within the defined recharge area, the surface application discharge rate will be reduced using a variable

frequency drive (VFD) on the Sand Canyon Booster Station until the water does percolate within the defined recharge area.

No channel modifications to the channel bottom are anticipated.

When water is needed for recharge in Sand Canyon, it is assumed that the existing Lake pump station owned by Big Bear Mountain Resort (Ski Resort) could be used to transfer water through an existing pipeline into the existing storage pond located at Bear Mountain Ski Resort. These facilities are used primarily for snowmaking in the winter and are expected to be available for the proposed recharge operation, which would only occur from April through October when the resorts are not making snow.

No new infrastructure is needed to extract the Sand Canyon recharge water from the groundwater basin. The Sand Canyon recharge water would become potable groundwater and would be extracted using BBLDWP's existing potable wells located downstream of the recharge area. The wells are located at least six months of travel time from the recharge area, as required by groundwater recharge regulations.

Once pumped out by BBLDWP, the water would be distributed to BBLDWP customers through the existing water distribution system. A portion (approximately 1/3) of the water will be delivered to BBCCSD using existing interconnections between BBCCSD and BBLDWP that are intended for transferring water between the two agencies.



SOURCE: Google Earth

FIGURE 5

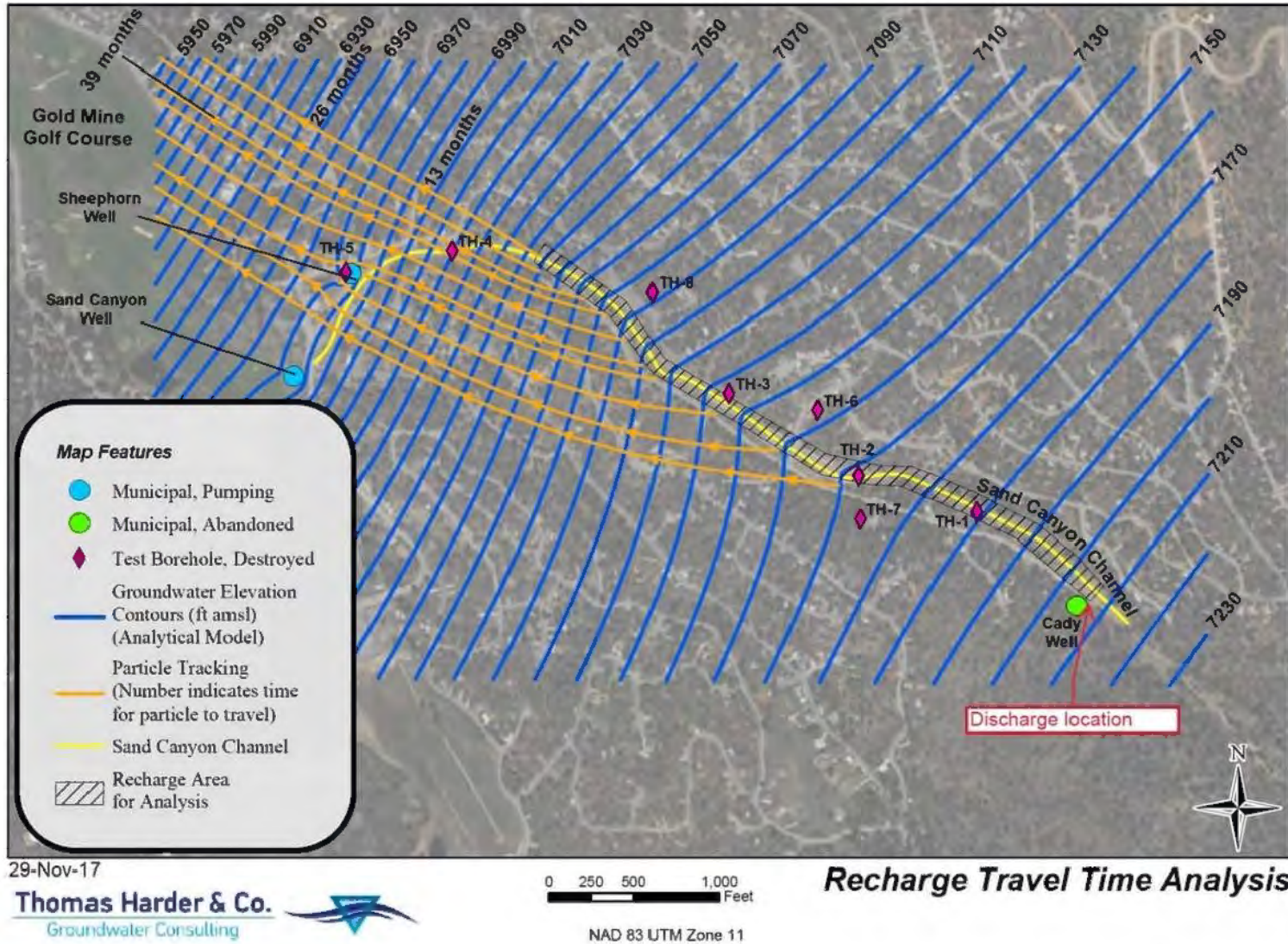


FIGURE 6

1.2.1.4 Other Uses

During wet periods, excess water could be stored as snow at the Resorts using their existing snowmaking infrastructure. This would reduce spills from the Lake, keep more of the water in the Valley, and enhance winter recreation by providing additional snowmaking water to the Resorts beyond their current allotment from the Lake. When the snow melts in the spring, runoff would be augmented, which is expected to increase natural groundwater recharge and may improve fish spawning habitat in streams tributary to the Lake.

A new proposed use under the proposed Program is to pump purified water stored in Big Bear Lake from the Bear Mountain intake pump (also owned by the Ski Resort) for landscape irrigation of the Bear Mountain Golf Course located at 43092 Goldmine Drive, Big Bear Lake, CA 92315. Golf course irrigation would keep additional water in the Valley, and the existing snowmaking facilities could also be used to deliver irrigation water to the Bear Mountain Golf Course in the summer, if desired.

Purified water stored in Big Bear Lake could also be used to provide dust control for a bike park at the Snow Summit Ski Resort. Each spring, the Snow Summit Ski resort is transformed into a bike park. Purified water stored in the Lake could be used from April to October for this purpose. It is estimated that about 120 AFY of purified water stored in the Lake could be utilized in support of this use under the proposed Program.

Additional inflows into Big Bear Lake will also provide BBMWD with more flexibility in managing Lake releases, while still maintaining high Lake levels. During wet periods, additional flood control releases are anticipated to flow down the Santa Ana River to the Seven Oaks Dam, which is upstream of the San Bernardino Groundwater Basin area. BBMWD intends to coordinate with San Bernardino Valley Municipal Water District (Valley District) to optimize the volume of releases from Big Bear Lake that can be captured for recharge of the Bunker Hill Basin, rather than flow past to the ocean.

1.2.2 Project Components

The Replenish Big Bear Program would consist of the following six general Project components:

- 1) Conveyance Pipelines
- 2) Ancillary Facilities including Monitoring Wells and Pump Stations
- 3) Evaporation Pond(s)
- 4) BBARWA WWTP Upgrades
- 5) Sand Canyon Outlet
- 6) Solar Energy Facilities

1.2.2.1 Project Component 1: Conveyance Pipelines

The Replenish Big Bear Program could ultimately install a total of about 6.59 miles or 34,810 LF of various types of pipelines, depending on which proposed alignments are selected. Potential alignments include the following:

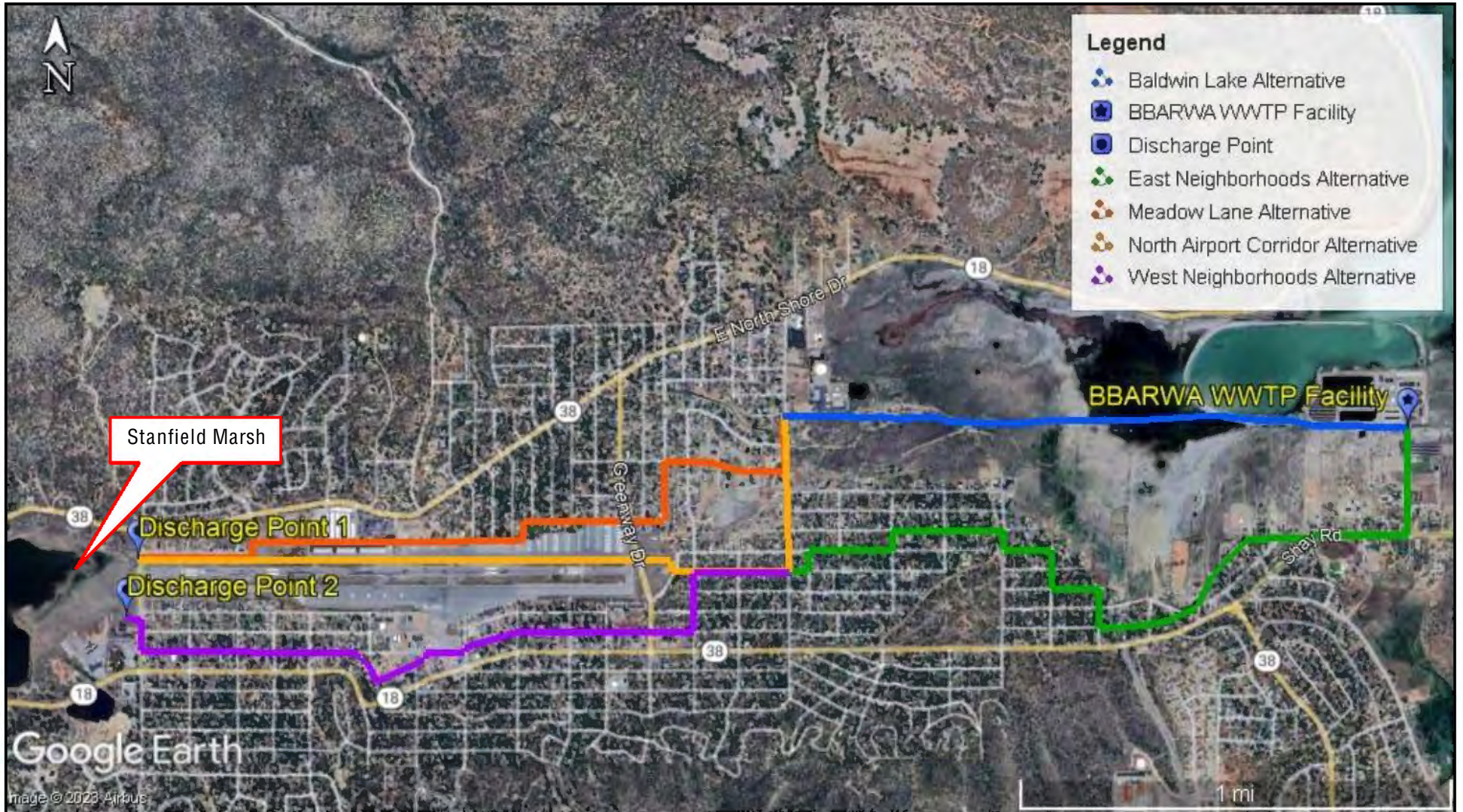
- Installation of a pipeline to Big Bear Lake (Stanfield Marsh) utilizing one of three proposed alternatives from the WWTP to Stanfield Marsh in the maximum amount of approximately 19,940 LF sized at 12 inches in diameter (Figure 7, Page 17).
- Installation of approximately 710 LF of 4-inch pipeline to reach Shay Pond (UTS Habitat) from either an existing pipeline or a new 6-inch replacement pipeline that would be about 5,600 LF (Figures 8a-8b, Pages 18-19).

- Installation of approximately 7,210 LF of 8-inch pipeline that would convey stored water from an existing snowmaking storage pond to a discharge outlet into Sand Canyon (Figure 5, Page 13).
- Installation of approximately 1,350 LF of 8- to 10-inch brine pipeline from the WWTP pellet reactor to the solar evaporation ponds, all within the BBARWA WWTP property (Figure 9, Page 20).

The WWTP to Big Bear Lake (Stanfield Marsh) conveyance pipeline alternatives depicted on Figure 7, Page 17 as “East Neighborhoods Alternative,” “West Neighborhoods Alternative,” and “Meadow Lane Alternative” would be constructed entirely within existing road right-of-way (ROW). For the pipelines in roadways, the total construction width would be up to 15 feet wide, including area for the trench, spoils pile, and pavement repair area. It should be noted that although the “North Airport Corridor Alternative” was included in this assessment, the Project Proponent is not likely to implement this alternative due to potential conflicts with airport operations.

The approximately 710-foot-long Shay Pond conveyance pipeline is expected to connect to an existing pipeline from the BBARWA WWTP. This new line would be constructed entirely within an existing unpaved road (Cascade Street). Figures 8a-8b on Pages 18-19 show a possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline as well. The Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline. However, the replacement pipeline alternative (“Possible Replacement Pipeline Alignment”) could be implemented should the existing pipeline be required to be replaced.

The Sand Canyon conveyance pipeline (Figure 5, Page 13) would mostly be constructed in existing road right-of-way, except for approximately 350 feet that would be constructed between two houses, which would require an easement.



SOURCE: Google Earth

FIGURE 7



SOURCE: Google Earth

FIGURE 8a



SOURCE: Google Earth

FIGURE 8b



SOURCE: Google Earth

FIGURE 9

1.2.2.2 Project Component 2: Ancillary Facilities including Monitoring Wells and Pump Stations

The Replenish Big Bear Program anticipates the installation of up to four new monitoring wells:

- Installation of one or more monitoring wells at the evaporation pond on the WWTP Site to monitor groundwater quality, as required by the future discharge permit.
- Installation of two monitoring wells for groundwater recharge at Sand Canyon, as required by the future discharge permit.

The depths of a new wells are anticipated to range between 250 and 750 feet below ground surface, or as directed by the hydrogeologist. The average area of disturbance required to drill and construct each new well is anticipated to be half an acre or less. Drilling of up to four new wells during a given year, with flexibility to construct the four wells over a period of two or more years, will require the delivery and set up of the drilling rig at each site. It is anticipated these wells may be drilled concurrently, or at different times and the drilling equipment will be transported to and from the sites on separate occasions.

Additionally, the Project would require the installation of three pump stations to convey the water or brine generated by the proposed BBARWA WWTP Upgrades:

- Installation of a 50-gpm brine pump station.
- Installation of an anticipated 1,500 to 1,600 gpm pump station at the BBARWA WWTP to pump purified water to Shay Pond and Stanfield Marsh.
- Installation of a new 600 gpm pump station at the snowmaking pond to convey water to Sand Canyon (Figure 5, Page 13).

It is forecasted that, at each site, no more than 0.5 acre will be actively graded on a given day for site preparation of each pump station. Construction of the pump stations would involve site preparation and grading, construction of structural foundations, installation of piping and electrical equipment, pump, and motor installation, and final sitework, as well as the delivery of equipment and materials.

1.2.2.3 Project Component 3: Evaporation Ponds

The Replenish Big Bear Program would include the development of up to 57 acres of solar evaporation ponds, depending on the total system recovery rate achieved, at BBARWA's WWTP site to accommodate 22,000 gpd to 55,000 gpd of brine concentrate (Figure 9, Page 20). Each new pond is anticipated to be 8 to 10 feet deep with berms built up from the existing grade to create pond areas. Single basin dimensions would range from about 400 to 800 feet long and 400 to 800 feet wide, or about 3.75 to 7.5 acres to provide 6 to 10 ponds to accommodate the brine discharged from the treatment process. The berms would be built up so that the top of the berms would be level with the existing grade of the WWTP. This would provide protection from flooding in that area without requiring excavation much below the existing grade in that area.

The evaporation ponds would be constructed using large construction equipment; earthen berms would be installed; and the basins would be lined with an impermeable liner to prevent percolation of the brine into the underlying soil. Construction of the new evaporation ponds will require the delivery and installation of equipment and materials. It is not known whether each site will require import or export of soil, as the new evaporation ponds will require some excavation of the existing area to provide fill dirt for the earthen berms to create the pond areas. Given the size of the proposed 6 to 10 ponds (400 feet to 800 feet wide by 400 feet to 800 feet long

by 10 feet in depth), it is anticipated that a cut amount from 1 to 2-feet of the existing grade will provide enough fill dirt to create the earthen berms of the ponds. Periodically, the residual solids (primarily consisting of salts left after evaporation) would be collected and disposed of at an appropriately licensed disposal facility.

1.2.2.4 Project Component 4: BBARWA WWTP Upgrades

The Replenish Big Bear Program will require significant upgrades to the treatment process at the WWTP to meet stringent discharge requirements for the Big Bear Lake discharge and the Sand Canyon recharge portion. The existing BBARWA WWTP would be upgraded to produce full advanced treated water to serve the objectives outlined in the previous subsections (Figure 9, Page 20). These upgrades would treat wastewater to full advanced treatment at a capacity of 2.2 MGD, or approximately 2,210 AFY. Upgrades that would occur within the BBARWA WWTP are as follows:

- Upgrade the existing oxidation ditches to biological nutrient removal process.
- Tertiary filtration and nutrient removal via denitrification filters.
- Ultrafiltration (UF) and reverse osmosis (RO) membrane filtration.
- Brine pellet reactor for brine minimization.
- Ultraviolet disinfection and advanced oxidation process (UV/AOP).

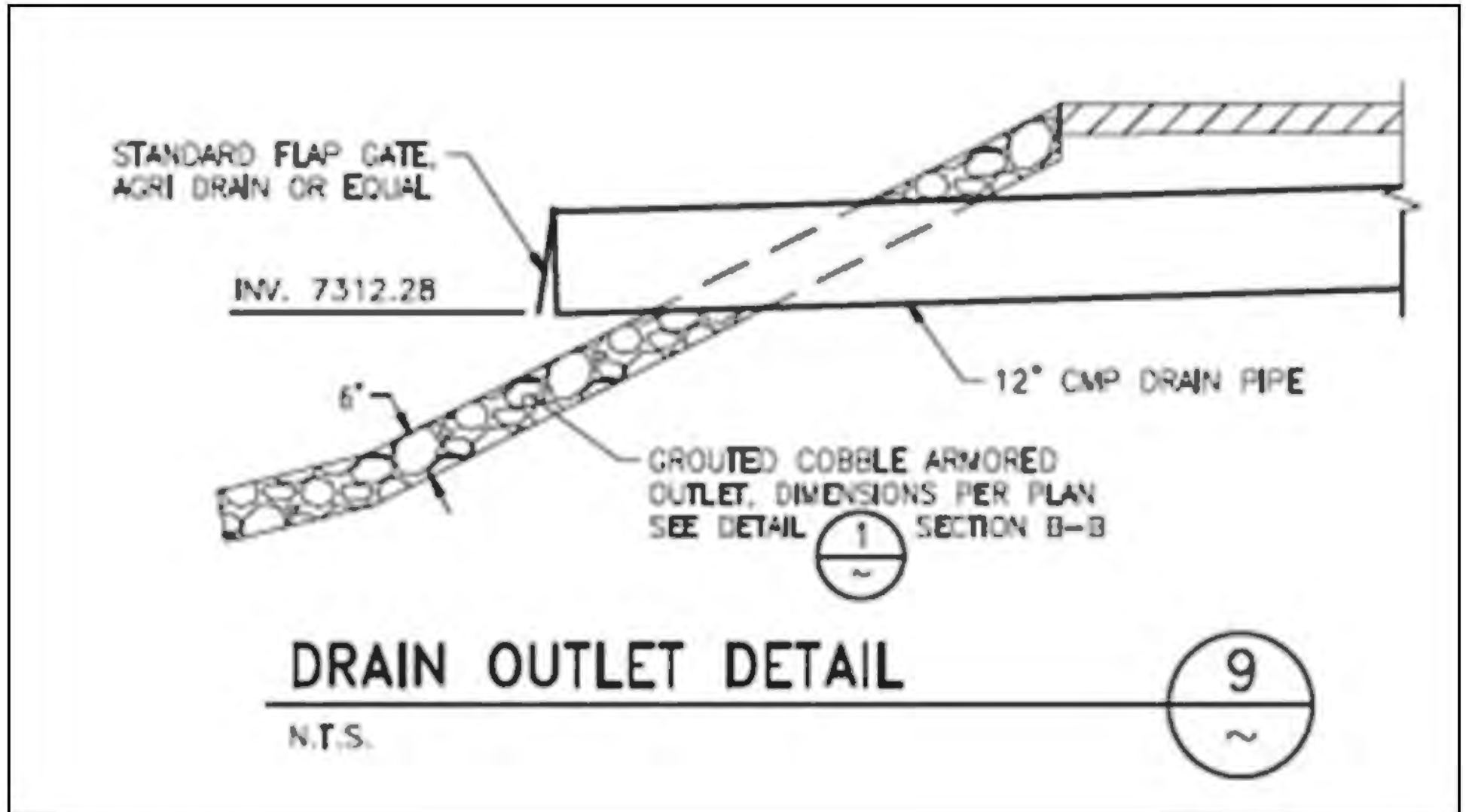
The construction activities to install upgrades at the BBARWA WWTP consists of the following range of activities: demolition of existing concrete basins, grading activities to prepare site for new construction, construction of concrete foundations and supports, installation of piping, equipment, and instrumentation, connection to existing electrical equipment and onsite utility water system construction of building foundations and building structures, and installation of treatment equipment. Civil and site work for the proposed BBARWA WWTP Upgrades would include demolition, grading, drainage, and site improvements. The area around new structures and processes would be backfilled to match existing finished surfaces. All disturbed areas would be paved, covered with crushed stone, or landscaped with ground cover. Areas that require routine vehicle access would be bituminous concrete roadways, consisting of a 12-inch gravel base course, a 2.5-inch bituminous concrete binder course and a 1.5-inch bituminous concrete top course. Areas that require routine pedestrian access would have concrete sidewalks. The sidewalk would consist of 4 inches of reinforced concrete on an 8-inch gravel base course. Painted steel bollards (approximately 4 inches in diameter and 42 inches high) would be provided as needed to protect equipment or structures that are near roadways.

1.2.2.5 Project Component 5: Sand Canyon Outlet

The discharge outlet to Sand Canyon would consist of a pipe outlet at the top of the channel bank that discharges down the side slope of the channel into the channel bottom. The channel slope will be protected from erosion using rip rap or similar erosion control methods, similar to the detail on Figure 10, Page 23.

1.2.2.6 Project Component 6: Solar Energy Facilities

The Project would include the installation of approximately 2.9 acres of new solar facilities (solar panels) within and adjacent the existing BBARWA WWTP (shown in green on Figure 9, Page 20). These new solar facilities would be constructed in previously disturbed areas and would likely require minimal grading and site preparation. Additionally, rooftop solar would be installed on the existing BBARWA Operations and Control building and Administration building.



SOURCE: BBARWA

FIGURE 10

1.3 Environmental Setting

The Project Area is situated east/southeast of Big Bear Lake, in the Big Bear Valley area of the San Bernardino Mountains. The Big Bear Valley area is subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures peak at 80.8 degrees Fahrenheit (° F) in July and fall to an average annual minimum temperature of 20.3° F in January. Average annual precipitation is greatest from November through April and reaches a peak in January (4.49 inches). Precipitation is lowest in the month of June (0.14 inches). Annual total precipitation averages 21.84 inches and annual total snowfall averages 62.6 inches.

The topography of the proposed Project footprint is flat, being mostly within existing paved roadways, WWTP facilities, and disturbed/graded areas. Much of the proposed Project is within and around Big Bear City, which has an elevation of approximately 6,770 feet above mean sea level (amsl). However, the Sand Canyon Recharge Facilities are within the unincorporated community of Moonridge, which is south of Big Bear City. The Moonridge residential area is a mountain community built on moderate to steep slopes. The elevation of the proposed Sand Canyon Recharge components of the Project ranges from approximately 7,275 feet amsl at the Sand Canyon discharge outlet, to 7,350 feet amsl at the highest point of the proposed conveyance pipeline.

Hydrologically, the Project Area is situated within the Bear Valley and Baldwin Hydrologic Sub-Areas (HSA 801.71 and 801.73). The Bear Valley HSA comprises a 34,333-acre drainage area, within the larger Santa Ana Watershed (HUC 18070203). The Baldwin HSA comprises a 22,789-acre drainage, also within the Santa Ana Watershed. The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. One of several tributaries to the Santa Ana River is Bear Creek, which outflows from Big Bear Lake from the Bear Valley Dam located at the westernmost (downstream) end of Big Bear Lake. Big Bear Lake is one of the head waters of the Santa Ana River Watershed.

Soils within the Project Area are comprised of the following:

- Aquents-Grunney complex, 0 to 4 percent slopes: Aquents family soils consist of sandy loam and stratified coarse sand, to sand, to sandy loam, to loam horizons comprised of mixed alluvium. This soil type is poorly drained and has been identified as a hydric soil. Grunney family soils consist of muck, mucky loam, and stratified loamy sand, to sandy loam, to silt loam horizons comprised of mixed alluvium. This soil type is also poorly drained and has been identified as a hydric soil. Aquents-Grunney complex, 0 to 4 percent slopes soils are present within the Baldwin Lake and Shay Pond portions of the proposed Project.
- Moonridge-Shayroad-Cariboucreek complex, 0 to 4 percent slopes: Moonridge family soils consist of loam comprised of alluvium derived from granitoid. This soil type is well drained and has not been identified as a hydric soil. Shayroad family soils consist of sandy loam comprised of alluvium derived from granitoid. This soil type is also well drained and has not been identified as a hydric soil. Cariboucreek family soils consist of loam and clay loam horizons comprised of mixed alluvium. Like Moonridge and Shayroad families, Cariboucreek soils are well drained and do not have a hydric soil rating. Moonridge-Shayroad-Cariboucreek complex, 0 to 4 percent slopes soils are present within the Baldwin Lake portion of the proposed Project.
- Moonridge-Cariboucreek-Urban land complex, 0 to 4 percent slopes: See preceding description. This soil type is present within the Big Bear Lake (Stanfield Marsh) conveyance pipeline alternatives, except for the "Baldwin Lake Alternative" (Figure 7, Page 17).
- Garloaf-Cariboucreek-Urban land complex, 15 to 30 percent slopes: See preceding description for Cariboucreek family soils. Garloaf family soils consist of very cobbly loam and very cobbly clay loam

horizons comprised of alluvium derived from granitoid. This soil type is well drained and has not been identified as a hydric soil. Garloaf-Cariboucreek-Urban land complex, 15 to 30 percent slopes soils are present within the Sand Canyon groundwater recharge portion of the Project, in Moonridge area.

- *Aquents-Riverwash complex, 0 to 4 percent slopes*. See top description for Aquents family soils. This soil type is present within the Sand Canyon groundwater recharge portion of the Project, in Moonridge area.

Please refer to Appendix E for a soil map of the Project Area and surrounding vicinity.

The Big Bear Valley area is comprised of small mountain communities in the SBNF that consist of a mix of residential and commercial development surrounded by undeveloped montane conifer forest (Figures 1-3, Pages 4-6). Existing land use surrounding the proposed Project footprint consists of residential neighborhoods, WWTP facilities, municipal airport, lake (Stanfield Marsh and Baldwin Lake), and open space. Adjacent undeveloped National Forest land supports a mix of montane conifer forests, shrublands, and montane meadow, and ruderal plant communities.

2. Assessment Methodology

2.1 Biological Resources Assessment

Data regarding biological resources in the Project Area were obtained through literature review and field investigation. Prior to performing the surveys, available databases, and documentation relevant to the Project Area were reviewed for documented occurrences of special status species in the Project vicinity (within approximately 3 miles). The USFWS threatened and endangered species occurrence data overlay, USFWS Information for Planning and Consultation System (IPaC), and the most recent versions of the California Natural Diversity Database (CNDDDB; *Rarefind 5*) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for special status species data in the *Big Bear Lake*, *Big Bear City*, *Fawnskin* and *Moonridge* USGS 7.5-Minute Series Quadrangles (Appendix F). These databases contain records of reported occurrences of state and federally listed species or otherwise sensitive species and habitats that may occur within the vicinity of the proposed Project footprint (within approximately 3 miles). Other available technical information on the biological resources of the area was also reviewed including previous surveys and recent findings.

2.1.1 Biological Resources Assessment Field Survey

Jacobs's biologist Daniel Smith conducted a biological resources assessment of the Project Area in June and July of 2022 and made a follow-up survey visit in July of 2023. Much of the Project is expected to be restricted to existing paved roadways and developed WWTP site. However, several Project components would impact areas that have not previously been developed including:

- The "Baldwin Lake Alternative" of the Stanfield Marsh conveyance pipeline from the BBARWA WWTP.
- The "North Airport Corridor Alternative" of the Stanfield Marsh conveyance pipeline from the BBARWA WWTP.
- Approximately 350 LF of the Sand Canyon conveyance pipeline from the existing Ski Resort storage pond.
- The Sand Canyon discharge outlet.
- The Shay Pond discharge outlet.
- The new solar evaporation ponds at the BBARWA WWTP.
- Approximately 2.9 acres of new solar facilities within and adjacent the WWTP.

Therefore, the reconnaissance-level field survey consisted of a pedestrian survey that encompassed 100% visual coverage of the undeveloped aspects of the Project, as well as the road shoulder along the proposed conveyance pipeline alignments, within the developed neighborhoods. No adjacent private properties were accessed during the survey. The purpose of the survey was to assess the Project Area for its potential to support special status species. Wildlife species were detected during field surveys by sight, calls, tracks, scat, and/or other sign. In addition to species observed, expected wildlife usage of the Project Area was determined based on known habitat preferences of regional wildlife species and knowledge of their relative distribution in the area. The focus of the faunal species survey was to identify potential habitat within and adjacent the proposed Project footprint for special status wildlife that may occur in the Project vicinity.

Floristic Botanical Field Survey

A floristic botanical field survey was also conducted by Jacobs's biologist Daniel Smith in June and July of 2022, a follow-up survey in July of 2023. In accordance with the CDFW's March 20, 2018, *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*, the survey was conducted during the appropriate time of year, when the target species were both evident and identifiable. The target species consisted of those state and/or federally listed plant species that have been documented in the Project vicinity (within approximately 3 miles), whose environmental requirements may be present within the Project Area. Target species included:

- Ash-gray paintbrush (*Castilleja cinerea*)
- Big Bear Valley sandwort (*Eremogone ursina*)
- Southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*)
- Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)
- San Bernardino Mountains bladderpod (*Physaria kingii* ssp. *bernardina*)
- San Bernardino blue grass (*Poa atropurpurea*)
- Bird-foot checkerbloom (*Sidalcea pedata*)
- California dandelion (*Taraxacum californicum*)
- Slender-petaled thelypodium (*Thelypodium stenopetalum*)

Prior to conducting the survey, Mr. Smith visited multiple reference sites within the Big Bear Valley area, where the target species are known to occur, to determine whether the target species were identifiable at the time of the survey and to obtain a visual image of the target species, associated habitat, and associated natural communities. The reference sites that were visited prior to survey included previously documented occurrences within the Big Bear Valley area, near the Aspen Glen Picnic Area (Big Bear Valley sandwort); the Eagle Point Rare Plant Preserve (ash-gray paintbrush, southern mountain buckwheat, bird-foot checkerbloom, California dandelion, and slender-petaled thelypodium); North Baldwin Meadow (San Bernardino blue grass); SBNF land northwest of the North Shore Drive/Division Drive intersection (Cushenbury buckwheat); and SBNF land in the vicinity of Holcomb Valley/Caribou Creek (San Bernardino Mountains bladderpod). All target species were evident and identifiable at the reference sites prior to the 2022 and 2023 survey visits. During the surveys, 100% visual coverage of the of the undeveloped aspects of the Project, as well as the road shoulder along the proposed conveyance pipeline alignments, was achieved by walking the proposed Project footprint and road shoulders, within and adjacent where Project related ground disturbance is expected to occur.

2.1.2 Survey Limitations

No private properties were accessed without landowner permission. No focused faunal surveys were conducted, and no small mammal trapping was performed. Approximately 350 LF of the Sand Canyon conveyance pipeline (Figure 5, Page 13) would be constructed between two houses, which would require an easement. Permission from the property owners of these two private residences was not obtained at the time of survey. Therefore, this section of the San Canyon conveyance pipeline alignment was not surveyed. Additionally, the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline (Figures 8a-8b, Pages 18-19) was not surveyed because the Project Proponent does not currently anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline. Additional surveys should be conducted prior to implementation of Project activities within either of these two potential alignments, to assess potential Project related impacts to special status species and habitats that may occur in these areas.

2.2 Jurisdictional Waters Assessment

In June of 2022, Mr. Smith also evaluated the Project Area for the presence of riverine/riparian/wetland habitat and jurisdictional waters, i.e., Waters of the U.S. (WOTUS), as regulated by the USACE and RWQCB, and/or jurisdictional streambed and associated riparian habitat as regulated by the CDFW. Prior to the field visits, aerial photographs of the Project Area were viewed and compared with the surrounding USGS 7.5-Minute Topographic Quadrangle maps to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The USFWS National Wetland Inventory and Environmental Protection Agency (EPA) Water Program "My Waters" Google Earth Pro data layer were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site. Similarly, the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed for soil types found within the Project Area to identify the soil series in the area and to check these soils to determine whether they are regionally identified as hydric soils. Upstream and downstream connectivity of surface waters (if present) were reviewed on Google Earth Pro aerial photographs and topographic maps to determine jurisdictional status. The lateral extent of potential USACE jurisdiction was measured at the Ordinary High Watermark (OHWM) in accordance with regulations set forth in 33CFR part 328 and the USACE guidance documents listed below:

- *USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), Wetlands Delineation Manual, Environmental Laboratory, 1987 (Wetland Delineation Manual).*
- *USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).*
- *USACE Jurisdictional Determination Form Instructional Guidebook, May 30, 2007 (JD Form Guidebook).*
- *USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), May 2010.*
- *USACE A Guide to Ordinary High-Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States, August 2014 (Delineation Manual).*

To be considered a *jurisdictional wetland* under the federal CWA, Section 404, an area must possess three (3) wetland characteristics: *hydrophytic vegetation*, *hydric soils*, and *wetland hydrology*.

- ▶ ***Hydrophytic vegetation:*** Hydrophytic vegetation is plant life that grows, and is typically adapted for life, in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 % of the dominant plant species from all strata (tree, shrub, and herb layers) is considered hydrophytic. Hydrophytic species are those included on the 2018 National Wetland Plant Lists for the Arid West Region (USACE 2018). Each species on the lists is rated with a wetland indicator category, as shown in Table 1 (below). To be considered hydrophytic, the species must have *wetland indicator status*, i.e., be rated as OBL, FACW or FAC.

Table 1. Wetland Indicator Vegetation Categories

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67 to 99%)
Facultative (FAC)	Equally likely to occur in wetlands and non-wetlands (estimated probability 34 to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)

- ▶ **Hydric Soil:** Soil maps from the USDA-NRCS Web Soil Survey (USDA 2021) were reviewed for soil types found within the Project Area. Hydric soils are saturated or inundated long enough during the growing season to develop anaerobic conditions that favor growth and regeneration of hydrophytic vegetation. There are several indirect indicators that may signify the presence of hydric soils including hydrogen sulfide generation, the presence of iron and manganese concretions, certain soil colors, gleying, and the presence of mottling. Generally, hydric soils are dark in color or may be gleyed (bluish, greenish, or grayish), resulting from soil development under anoxic (without oxygen) conditions. Bright mottles within an otherwise dark soil matrix indicate periodic saturation with intervening periods of soil aeration. Hydric indicators are particularly difficult to observe in sandy soils, which are often recently deposited soils of flood plains (entisols) and usually lack sufficient fines (clay and silt) and organic material to allow use of soil color as a reliable indicator of hydric conditions. Hydric soil indicators in sandy soils include accumulations of organic matter in the surface horizon, vertical streaking of subsurface horizons by organic matter, and organic pans.

The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the Munsell Soil Color Charts (Munsell 2000). Soil pits are dug (when necessary) to an approximate depth of 16-20 inches to evaluate soil profiles for indications of anaerobic and redoximorphic (hydric) conditions in the subsurface.

- ▶ **Wetland Hydrology:** The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE 1987 and USACE 2008).

Evaluation of CDFW jurisdiction followed guidance in the FGC. Specifically, CDFW jurisdiction would occur where a stream has a definite course with a distinguishable bed and bank showing evidence of where waters rise to their highest level and to the extent of associated riparian vegetation.

3. Results

3.1 Existing Biological and Physical Conditions

The proposed Project footprint is within both urban and natural/semi-natural environments. The East Neighborhoods, Meadow Lane, and West Neighborhoods conveyance pipeline alternatives and associated discharge outlets, as well as the Sand Canyon recharge conveyance pipeline and associated discharge outlet, Sand Canyon monitoring wells, and new 600 gpm pump station at the existing Ski Resort snowmaking pond are all situated in a residential development setting (Figure 5, Page 14; Figure 7, Page 18). These conveyance pipeline alignments are entirely within existing disturbed/developed areas including paved roadways. The North Airport Corridor conveyance pipeline alternative is within a public airport setting, surrounded by residential development (Figure 7, Page 18). The remaining monitoring wells, pump stations, and WWTP upgrades are situated within existing developed WWTP facilities (Figure 9, Page 21). The proposed solar energy facilities would be constructed on existing rooftops and adjacent previously disturbed/graded areas around the BBARWA WWTP (Figure 9, Page 21).

The Baldwin Lake conveyance pipeline alternative follows an existing unpaved trail alignment (West Baldwin Lake Trail) within montane meadow, shrubland, and temporarily to seasonally flooded lacustrine habitats (Figure 7, Page 18). The Shay Pond conveyance pipeline would be constructed within an existing unpaved road (Cascade Street) surrounded by rural residential development and montane meadow habitat (Figure 8b, Page 19). The proposed evaporation ponds would be constructed on BBARWA WWTP property, within a previously disturbed/graded section of Baldwin Lake consisting of temporarily to seasonally flooded lacustrine habitat (Figure 9, Page 21).

Disturbances in the Project Area consist mostly of vehicular traffic and pedestrian use associated with the existing roads and residential developments, as well as existing utility infrastructure (i.e., the BBARWA WWTP) and associated WWTP operations. Other disturbances include feral livestock grazing in the vicinity of Shay Pond, domestic livestock grazing on the BBARWA WWTP property, disturbances associated with ongoing airport maintenance and operations at the Big Bear City Airport, vegetation removal/weed abatement, and illegal dumping.

3.1.1 Habitat

Habitats present within and/or adjacent the Project Area include:

- *Pinus jeffreyi* Forest & Woodland Alliance (Jeffrey pine forest and woodland)
- *Juniperus grandis* Woodland Alliance (mountain juniper woodland)
- *Artemisia tridentata* Shrubland Alliance (big sagebrush)
- *Schoenoplectus acutus* Herbaceous Alliance (hardstem bulrush marsh)
- wet montane meadow habitat
- temporarily to seasonally flooded lake (Baldwin Lake)

Sand Canyon Recharge

The undeveloped SBNF adjacent the Sand Canyon recharge conveyance pipeline and associated discharge outlet, Sand Canyon monitoring wells, and new 600 gpm pump station at the existing Ski Resort snowmaking pond supports mixed Jeffrey pine forest and woodland and mountain juniper woodland habitats. The Jeffrey pine forest and woodland habitat is characterized by an open to continuous tree canopy, with a sparse to intermittent shrub layer and varied herbaceous layer (Sawyer et al. 2009). The mountain juniper woodland habitat is characterized by an open to intermittent tree canopy, with a sparse to intermittent shrub layer and sparse or

grassy herbaceous layer (Sawyer et al. 2009). Dominant or otherwise conspicuous species in these plant communities include Jeffrey pine (*Pinus jeffreyi*), Sierra juniper (*Juniperus grandis*), California black oak (*Quercus kelloggii*), white fir (*Abies concolor*), manzanita (*Arctostaphylos* spp.), common sagebrush (*Artemisia tridentata*), and desert mountain mahogany (*Cercocarpus ledifolius*).

Shay Pond

The habitat surrounding the Shay Pond conveyance pipeline alignment (Cascade Street) and discharge outlet consists of a mosaic of ruderal vegetation, big sagebrush, and wet montane meadow habitat. The big sagebrush habitat within this area is characterized by an open canopy, with a sparse to intermittent shrub layer dominated by common sagebrush (*Artemisia tridentata*) and an intermittent grassy herbaceous layer (Sawyer et al. 2009). The wet montane meadow habitat in this area is dominated by sedge (*Carex* spp.), rush (*Juncus* spp.), and beardless wild rye (*Elymus triticoides*). Non-native and ruderal vegetation within this area consists mostly of brome grasses (*Bromus* spp.), Russian thistle (*Salsola tragus*), and tumble mustard (*Sisymbrium altissimum*).

Baldwin Lake

The habitat surrounding the Baldwin Lake conveyance pipeline alternative consists of temporarily to seasonally flooded lake at the eastern end of the proposed alignment, transitioning to wet montane meadow habitat toward the middle of the alignment, and big sagebrush habitat near the western end of the alignment. Dominant species within these plant communities include fox tail barley (*Hordeum jubatum*), summer cypress (*Kochia scoparia*), prickly lettuce (*Lactuca serriola*), *Carex* spp., *Juncus* spp., beardless wild rye, and common sagebrush, respectively.

The proposed solar evaporation ponds would be constructed within a previously disturbed/graded section of Baldwin Lake consisting of temporarily to seasonally flooded lacustrine habitat. Plant communities in this area consist of hardstem bulrush marsh dominated by tule (*Schoenoplectus acutus*), wet montane meadow habitat dominated by *Carex* spp. and *Juncus* spp., and ruderal vegetation dominated by goosefoot (*Chenopodium chenopodioides*), fox tail barley, summer cypress, and prickly lettuce.

The proposed solar energy facilities would be constructed on existing rooftops and adjacent previously disturbed/graded areas around the BBARWA WWTP consisting of bare ground and ruderal vegetation dominated by *Bromus* spp., Coastal heron's bill (*Erodium cicutarium*), summer cypress, prickly lettuce, and tumble mustard.

Please refer to Appendix C for a complete list of all plant species observed on site during surveys.

3.1.2 Wildlife

The proposed Project footprint is mostly within existing residential and commercial developments and the only species expected to occur within these areas are those adapted to an urban environment. During the survey, special attention was focused on those Project components that are within or immediately adjacent undeveloped areas, where special status species are more likely to occur, including the Baldwin Lake conveyance pipeline alternative, the proposed evaporation ponds and solar energy facilities sites, the Shay Pond conveyance pipeline and discharge outlet site, and the Sand Canyon discharge outlet site.

Amphibians and Reptiles

The only amphibian species observed or otherwise detected within the Project Area during the reconnaissance level survey was the California toad (*Anaxyrus boreas halophilus*). Reptile species observed within the Project Area during survey included Skilton's skink (*Plestiodon skiltonianus skiltonianus*) and southern sagebrush lizard

(*Sceloporus graciosus vandenburgianus*). Other common herp species expected to occur within the Project Area include southern Pacific rattlesnake (*Crotalus oreganus helleri*), San Diego alligator lizard (*Elgaria multicarinata webbi*), San Diego gophersnake (*Pituophis catenifer annectens*), Great Basin fence lizard (*Sceloporus occidentalis longipes*), and mountain gartersnake (*Thamnophis elegans elegans*).

Birds

Birds were the most observed wildlife group during survey and species observed or otherwise detected in the Project Area during the reconnaissance level survey included:

- Red-winged Blackbird (*Agelaius phoeniceus*)
- Mallard (*Anas platyrhynchos*)
- Bufflehead (*Bucephala albeola*)
- Killdeer (*Charadrius vociferus*)
- Northern Flicker (*Colaptes auratus*)
- Common Raven (*Corvus corax*)
- Steller's Jay (*Cyanocitta stelleri*)
- Horned Lark (*Eremophila alpestris*)
- Brewer's Blackbird (*Euphagus cyanocephalus*)
- American Coot (*Fulica americana*)
- House Finch (*Haemorhous mexicanus*)
- Dark-eyed Junco (*Junco hyemalis*)
- American Wigeon (*Mareca americana*)
- Acorn Woodpecker (*Melanerpes formicivorus*)
- Brown-headed Cowbird (*Molothrus ater*)
- Ruddy Duck (*Oxyura jamaicensis*)
- Savannah Sparrow (*Passerculus sandwichensis*)
- Cliff Swallow (*Petrochelidon pyrrhonota*)
- Eared Grebe (*Podiceps nigricollis*)
- Pied-billed Grebe (*Podilymbus Podiceps*)
- Mountain Chickadee (*Poecile gambeli*)
- Western Bluebird (*Sialia mexicana*)
- Pygmy Nuthatch (*Sitta pygmaea*)
- Violet-green Swallow (*Tachycineta thalassina*)
- American Robin (*Turdus migratorius*)

Mammals

Mammal species observed or otherwise detected within the Project Area during the reconnaissance level survey included coyote (*Canis latrans*), California ground squirrel (*Otospermophilus beecheyi*), western gray squirrel (*Sciurus griseus*), Botta's pocket gopher (*Thomomys bottae*). Other common mammal species expected to occur within the Project Area include bobcat (*Lynx rufus*), Merriam's chipmunk (*Neotamias merriami*), mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), and American black bear (*Ursus americanus*). Additionally, numerous feral donkeys (*Equus asinus*) were observed during survey in the vicinity of Shay Pond and several domestic cattle were observed on Baldwin Lake at the BBARWA WWTP.

3.2 Special Status Species and Habitats

According to the CNDDDB, 102 special status species (73 plant species, 29 animal species) and two sensitive habitats have been documented in the *Big Bear Lake*, *Big Bear City*, *Fawnskin* and *Moonridge* USGS 7.5-Minute Series Quadrangles. This list of special status species and habitats includes any state and/or federally listed threatened or endangered species, California Fully Protected species, CDFW designated Species of Special Concern (SSC), and otherwise Special Animals. "Special Animals" is a general term that refers to all the taxa the CNDDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The CDFW considers the taxa on this list to be those of greatest conservation need.

The USFWS IPaC search identified three additional special status species as potentially occurring in the regional vicinity of the proposed Project. Of the 105 special status species identified by the CNDDDB and IPaC queries, 21 are state and/or federally listed or proposed for listing as threatened or endangered species. Table 2 (below) provides a list of all state and/or federally listed or proposed threatened and endangered species identified by the CNDDDB and IPaC queries, where they are found (locally, adjacent to the proposed Project footprint, or within the proposed Project footprint), if suitable habitat for that species exists within the Project Area and whether the Project may affect that species.

Table 2. Listed Species Documented in the Project Vicinity

Common Name	Scientific Name	Status	Found Locally	Found Adjacent	Found Within	Suitable Habitat	Project Affect
Plants:							
Cushenbury oxytheca	<i>Acanthoscyphus parishii</i> var. <i>goodmaniana</i>	FE	No	No	No	None	No effect
Cushenbury milk-vetch	<i>Astragalus albens</i>	FE	No	No	No	None	No effect
ash-gray paintbrush	<i>Castilleja cinerea</i>	FT	Yes	Yes	No	Yes	No effect
Big Bear Valley sandwort	<i>Eremogone ursina</i>	FT	Yes	No	No	None	No effect
Parish's daisy	<i>Erigeron parishii</i>	FT	No	No	No	None	No effect
southern mountain buckwheat	<i>Eriogonum kennedyi</i> var. <i>austromontanum</i>	FT	Yes	No	No	None	No effect
Cushenbury buckwheat	<i>Eriogonum ovalifolium</i> var. <i>vineum</i>	FE	Yes	No	No	None	No effect
San Bernardino Mountains bladderpod	<i>Physaria kingii</i> ssp. <i>bernardina</i>	FE	No	No	No	None	No effect

Common Name	Scientific Name	Status	Found Locally	Found Adjacent	Found Within	Suitable Habitat	Project Affect
San Bernardino blue grass	<i>Poa atropurpurea</i>	FE	Yes	Yes	No	Yes	No effect
bird-foot checkerbloom	<i>Sidalcea pedata</i>	FE/SE	Yes	Yes	Yes	Yes	May affect, and is likely to adversely affect
California dandelion	<i>Taraxacum californicum</i>	FE	Yes	Yes	No	Yes	No effect
slender-petaled thelypodium	<i>Thelypodium stenopetalum</i>	FE/SE	Yes	Yes	No	Yes	No effect
<u>Insects:</u>							
quino checkerspot butterfly	<i>Euphydryas editha quino</i>	FE	No	No	No	None	No effect
<u>Amphibians:</u>							
southern mountain yellow-legged frog	<i>Rana muscosa</i>	FE/SE	No	No	No	None	No effect
<u>Fish:</u>							
unarmored threespine stickleback	<i>Gasterosteus aculeatus williamsoni</i>	FE/SE	Yes	Yes	No	Adjacent	May affect, but not likely to adversely affect
steelhead - southern California DPS	<i>Oncorhynchus mykiss irideus</i> pop. 10	FE	No	No	No	None	No effect
<u>Birds:</u>							
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE/SE	No	No	No	None	No effect
bald eagle	<i>Haliaeetus leucocephalus</i>	FD/SE	Yes	Yes	No	Adjacent	May affect, but not likely to adversely affect
California spotted owl	<i>Strix occidentalis occidentalis</i>	FPE	No	No	No	None	No effect
<u>Reptiles:</u>							
southern rubber boa	<i>Charina umbratica</i>	ST	Yes	No	No	Yes	May affect, but not likely to adversely affect
Mojave desert tortoise	<i>Gopherus agassizii</i>	FT/ST	No	No	No	None	No effect

Notes:

FE = Federally Endangered
 FT = Federally Threatened

SE = State Endangered
 ST = State Threatened

FD = Federally Delisted

FPE = Federally Proposed Endangered

The aquatic habitats required by southern mountain yellow-legged frog are absent from the Project Area and this species is considered extirpated from the Big Bear Valley (USFWS 2019). Likewise, the Project Area is outside the current range of the southern California steelhead (NMFS 2023). Additionally, the habitats required by southwestern willow flycatcher (i.e., riparian) and Mojave desert tortoise (i.e., desert scrub/desert woodland) are absent from the Project Area and these species have not been documented in the Project vicinity (within approximately 3 miles). Therefore, no further discussion of these species is warranted.

Although not a state or federally listed species, the San Bernardino flying squirrel (*Glaucomys sabrinus californicus*) is a CDFW SSC and is considered a particularly sensitive species within the region. Furthermore, this species has been documented in the Project vicinity (within approximately 3 miles). Therefore, San Bernardino flying squirrel will be included in the discussion below, along with the state and/or federally listed species that have been documented in the Project vicinity.

An analysis of the likelihood for occurrence of all CNDDDB special status species documented in the *Big Bear Lake*, *Big Bear City*, *Fawnskin*, and *Moonridge* quads is provided in Appendix A. This analysis considers species' range as well as documentation within the vicinity of the Project Area and includes the habitat requirements for each species and the potential for their occurrence on site, based on required habitat elements and range relative to the current site conditions. A complete list of all special status species identified by the IPaC, CNDDDB, and CNPSEI databases as potentially occurring in the Project vicinity is provided in Appendix F.

3.2.1 Special Status Species

The only state and/or federally listed threatened or endangered species observed in the Project Area during survey was the state and federally listed as endangered bird-foot checkerbloom (see discussion below). However, there is habitat within the Project Area that is suitable to support several other listed species that have been documented in the Project vicinity.

3.2.1.1 Special Status Plants

Cushenbury Milk-vetch – Endangered (Federal)

The federally listed as endangered Cushenbury milk-vetch is a silvery-white (pubescent), short-lived perennial herb in the pea family (Fabaceae). The stems form loose, prostrate mats, up 30 centimeters (11.8 inches) wide. The leaves are pinnately compound with 5 to 9 leaflets. The spreading or reflexed inflorescences (flower clusters) support 5 to 14 pink-purple bilateral flowers that develop crescent shaped fruit pods (Wojciechowski Spellenberg 2012). This species is typically found in rocky, carbonate substrates along washes and slopes within pinyon woodland, pinyon-juniper woodland, Joshua tree woodland, and blackbush scrub habitats on the northern (desert) slopes of the San Bernardino Mountains at elevations between 1,185 and 1,950 meters (3,888 to 6,397 feet). Cushenbury milk-vetch is typically found on soils derived directly from decomposing limestone rock (USFWS 2009a). This species typically blooms from March through June (Calflora 2023).

Findings: According to the CNDDDB, the nearest documented Cushenbury milk-vetch occurrence (2021) is approximately 2.4 miles northeast of the BBARWA WWTP site. This occurrence is located along a ridge between Nelson ridge and Arrastre Creek, on soils derived from carbonate and quartz monzonite in open pinyon woodland habitat (CNDDDB 2023). There are no documented Cushenbury milk-vetch occurrences in the Big Bear Valley.

The USFWS lists the primary constituent elements (PCEs) for Cushenbury milk-vetch designated Critical Habitat as:

1. soils derived primarily from the upper and middle members of the Bird Spring Formation and Undivided Cambrian parent materials that occur on dry flats and slopes or along rocky washes with limestone outwash/deposits at elevations between 1,171 and 2,013 meters (3,864 and 6,604 feet).
2. soils with intact, natural surfaces that have not been substantially altered by land use activities (e.g., graded, excavated, re-contoured, or otherwise altered by ground-disturbing equipment).
3. associated plant communities that have areas with an open canopy cover and little accumulation of organic material (e.g., leaf litter) on the surface of the soil.

The associated plant communities (PCE 3) and carbonate or limestone substrates (PCE 1) Cushenbury milk-vetch requires do not occur within the proposed Project footprint. Furthermore, most of the proposed Project footprint has been previously disturbed and the soils on site are no longer intact, natural surfaces (PCE 2). Additionally, the Project Area is outside the known elevation range for this species, which has not been documented in the Big Bear Valley. Therefore, Cushenbury milk-vetch is presumed absent from the proposed Project footprint and the Project will not affect this species.

Ash-gray Paintbrush – Threatened (Federal)

The federally listed as threatened ash-gray paintbrush is a hemiparasitic, perennial herb in the broomrape family (Orobanchaceae), with several ascending to decumbent (trailing) grayish stems sprouting from the root crown. The stems are 1 to 2 decimeters (4 to 8 inches) tall (Munz 1974, p. 795). Ash-gray paintbrush is distinguished from other species of *Castilleja* within its range by its perennial nature, ashy-puberulent (covered with short hairs) stems and leaves, yellowish or reddish flowers, with calyx lobes of equal length (Wetherwax et al. 2012, p. 957). Host plants include *Eriogonum kennedyi* var. *austromontanum*, *Eriogonum kennedyi* var. *kennedyi*, *Eriogonum wrightii* var. *subscaposum*, *Artemisia tridentata* ssp. *tridentata*, *Artemisia nova*, and other *Artemisia* taxa (USFWS 2013a). However, because this species also possesses photosynthetic green leaves that can produce sugars, it is termed hemiparasitic and does not require a host plant species for its survival (USFWS 2013a). This species typically occupies the meadow/forest ecotone (transitional area of vegetation between two different plant communities) of the San Bernardino Mountains at elevations between 1,800 and 3,300 meters (5,905 to 10,827 feet.) and has been recorded in the following ecological communities: pebble plains, dry and wet forest meadows, mixed conifer forests, open pine forests, and pinyon-juniper woodlands (USFWS 2013a). However, the primary habitat for this species is pebble plains, supporting one or more of the host plant species for ash-gray paintbrush (USFWS 2013a). This species typically blooms from June through August (Calflora 2023).

Findings. According to the CNDDDB, the nearest documented ash-gray paintbrush occurrences are adjacent the southeast corner of the BBARWA WWTP (1999) and approximately 400 feet north of the Baldwin Lake conveyance pipeline alternative (2016), within big sagebrush habitat near the western end of this proposed alignment alternative (West Baldwin Lake Trail). There is suitable habitat for this species within the proposed Project footprint near the western end of the Baldwin Lake conveyance pipeline alternative and potential hostplant species (*Artemisia* spp.) are present in this area as well. However, ash-gray paintbrush was not observed within the proposed Project footprint during the floristic botanical field surveys conducted by Jacobs in June–July of 2022 and July of 2023. Therefore, ash-gray paintbrush is considered absent from the proposed Project footprint at the time of survey and the Project will not affect this species.

Suitable Habitat Locations in Program Area:

- BBARWA WWTP Upgrades
- Baldwin Lake Conveyance Pipeline Alternative

Big Bear Valley Sandwort – Threatened (Federal)

The federally listed as threatened Big Bear Valley sandwort is a low, tufted perennial herb in the pink family (Caryophyllaceae). Individual plants are green, with stems from 10 to 18 centimeters (3.9 to 7.1 inches) long. The leaves are opposite and 0.5 to 1 centimeter (0.2 to 0.39 inches) long. The flowers are white, five-petaled, and arranged in open cymes (clusters). The petals are 0.2 to 0.45 centimeters (0.1 to 0.18 inches) long (USFWS 2015a). This species is typically found in pebble plain habitat in the northeastern San Bernardino Mountains of southwest San Bernardino County at elevations between 1,950 and 2,100 meters (6,393 to 6,885 feet.) (USFWS 2015a). Pebble plains are a rare plant community that occur in treeless, open patches within pine forests and pinyon-juniper woodlands that are comprised of clay soil mixed with quartzite pebbles and gravel that are continually pushed to the surface through frost action (USFS 2002, pp. 12, 15). Big Bear Valley sandwort is typically found within pebble plain habitat and is one of three indicator plant species, along with *Eriogonum kennedyi* var. *austromontanum*, and *Ivesia argyrocoma* var. *argyrocoma* defining a pebble plain (USFWS 2015a). This species typically blooms from May through August (Calflora 2023).

Findings: According to the CNDDDB, the nearest documented Big Bear Valley sandwort occurrences are approximately 0.3 mile west (2021) and 0.5 mile north (1981) of the proposed Shay Pond conveyance pipeline alignment, within the Sawmill Pebble Plain Complex. However, there is no pebble plain or pebble plain-like habitat suitable for Big Bear Valley sandwort within the proposed Project footprint and this species was not detected during the floristic botanical field surveys conducted by Jacobs in June-July of 2022 and July of 2023. Therefore, Big Bear Valley sandwort is considered absent from the proposed Project footprint at the time of survey and the Project will not affect this species.

Parish's Daisy – Threatened (Federal)

The federally listed as endangered Parish's daisy is a small perennial herb (subshrub) in the aster family (Asteraceae). The vertically oriented stems are few-branched near the mid-stem, silvery-hairy, especially distally, and grow to 10 to 35 centimeters (3.9 to 13.8 inches) in height (Keil and Nesom 2012). The cauline leaves (sometimes absent by flowering) are linear and silvery-strigose. The composite flowers typically include 30 to 50 pink or white ray flowers (Keil and Nesom 2012). Parish's daisy typically occurs on rocky slopes, active washes, and outwash plains, in pinyon woodland, pinyon-juniper woodland, and blackbush scrub habitats along the northern (desert) slopes of the San Bernardino Mountains and Little San Bernardino Mountains at elevations between 1,050 and 2,245 meters (3,445 to 7,365 feet). This species is typically found on soils derived directly from decomposing limestone or dolomite (USFWS 2009b). Parish's daisy typically blooms from May through August (Calflora 2023).

Findings: According to the CNDDDB, the nearest documented Parish's daisy occurrence (1988) is approximately 1.8 miles northeast of the BBARWA WWTP site. This occurrence is located within a drainage along Nelson ridge, on soils derived from dolomite on carbonaceous rock in open pinyon and Joshua tree dominated woodland habitat (CNDDDB 2023). There are no documented Parish's daisy occurrences in the Big Bear Valley.

The USFWS lists the primary constituent elements (PCEs) for Parish's daisy designated Critical Habitat as:

1. soils derived primarily from upstream or upslope limestone, dolomite, or quartz monzonite parent materials that occur on dry, rocky hillsides, shallow drainages, or outwash plains at elevations between 1,171 and 1,950 meters (3,842 and 6,400 feet).
2. soils with intact, natural surfaces that have not been substantially altered by land use activities (e.g., graded, excavated, re-contoured, or otherwise altered by ground-disturbing equipment).
3. associated plant communities that have areas with an open canopy cover.

The associated plant communities (PCE 3) and limestone, dolomite, or quartz monzonite substrates (PCE 1) Parish's daisy requires do not occur within the proposed Project footprint. Furthermore, most of the proposed Project footprint has been previously disturbed and the soils on site are no longer intact, natural surfaces (PCE 2). Additionally, this species has not been documented in the Big Bear Valley. Therefore, Parish's daisy is presumed absent from the proposed Project footprint and the Project will not affect this species.

Southern Mountain Buckwheat – Threatened (Federal)

The federally listed as threatened southern mountain buckwheat is a woody-based, cushion-like, perennial plant in the buckwheat family (Polygonaceae). Individual plants are 8 to 15 centimeters (3.1 to 5.9 inches) tall, with stems forming loose, leafy mats, 14 to 36 centimeters (5.5 to 14.1 inches) wide. The leaves are oblanceolate (broadest above the middle and tapering toward the base) and 0.5 to 1 centimeter (0.2 to 0.4 inches) long, with dense white hair. The inflorescences (flower clusters) are 8 to 15 centimeters (3.2 to 5.9 inches) high, bearing head-like inflorescences. The perianth is white to rose and composed of inner and outer lobes that are similar in appearance (USFWS 2015b). This species is typically found in pebble plain habitat in the northeastern San Bernardino Mountains of southwest San Bernardino County at elevations between 2,000 and 2,200 meters (6,557 to 7,213 feet.) (USFWS 2015b). Southern mountain buckwheat is typically found within pebble plain habitat and is one of three indicator plant species, along with *Eremogone ursina*, and *Ivesia argyrocoma* var. *argyrocoma* defining a pebble plain (USFWS 2015b). This species typically blooms from June through September (Calflora 2023).

Findings. According to the CNDDDB, the nearest documented southern mountain buckwheat occurrences are approximately 0.3 mile west (2021) and 0.5 mile north (1981) of the proposed Shay Pond conveyance pipeline alignment, within the Sawmill Pebble Plain Complex. However, there is no pebble plain or pebble plain-like habitat suitable for southern mountain buckwheat within the proposed Project footprint and this species was not detected during the floristic botanical field surveys conducted by Jacobs in June–July of 2022 and July of 2023. Therefore, southern mountain buckwheat is considered absent from the proposed Project footprint at the time of survey and the Project will not affect this species.

Cushenbury Buckwheat – Endangered (Federal)

The federally listed as endangered Cushenbury buckwheat is a low, densely matted perennial in the buckwheat family (Polygonaceae) that reaches approximately 10 centimeters (4 inches) in height and forms a mat up to 51 centimeters (20 inches) in diameter (USFWS 2009c). This species is typically found within pinyon woodland, pinyon-juniper woodland, Joshua tree woodland, and blackbush scrub habitats on limestone or other carbonate soils at elevations between 1,400 and 2,400 meters (4,600 and 7,900 feet) in the San Bernardino Mountains (USFWS 2009c). This species typically blooms from May to August (Calflora 2023).

Findings: According to the CNDDDB, the nearest documented Cushenbury buckwheat occurrence (2021) is approximately 0.5 mile northwest of the Stanfield Marsh conveyance pipeline discharge outlet (Option 1) site, north of Stanfield Marsh, on limestone marble and dolomitic limestone soils (CNDDDB 2023).

The USFWS lists the primary constituent elements (PCEs) for Cushenbury buckwheat designated Critical Habitat as:

1. Soils derived primarily from the upper and middle members of the Bird Spring Formation and Bonanza King Formation parent materials that occur on hillsides at elevations between 4,600 to 7,900 feet (1,400 to 2,400 meters).
2. Soils with intact, natural surfaces that have not been substantially altered by land use activities (e.g., graded, excavated, re-contoured, or otherwise altered by ground-disturbing equipment).
3. Associated plant communities that have areas with an open canopy cover (generally less than 15 % cover) and little accumulation of organic material (e.g., leaf litter) on the surface of the soil (USFWS 1994).

The associated plant communities (PCE 3) and carbonate or limestone substrates (PCE 1) Cushenbury buckwheat requires do not occur within the proposed Project footprint. Furthermore, most of the proposed Project footprint has been previously disturbed and the soils on site are no longer intact, natural surfaces (PCE 2). Therefore, Cushenbury buckwheat is presumed absent from the proposed Project footprint and the Project will not affect this species.

San Bernardino Mountains bladderpod – Endangered (Federal)

The federally listed as endangered San Bernardino Mountains bladderpod is a silvery, short-lived perennial in the mustard family (Brassicaceae), that reaches approximately 5 to 15 centimeters (2 to 6 inches) in height (USFWS 2009d). The outer basal leaves are diamond-shaped to round, and the inner leaves are elliptic with petioles 2 to 5 centimeters (0.8 to 2 inches) long. The flower petals are yellow, and the fruits are spherical, pubescent, two-chambered, and contain 2 to 4 seeds per chamber (USFWS 2009d). This species is typically found within single leaf pinyon-mountain juniper and white fir forest on limestone and dolomite soils and gentle to moderate slopes at elevations between 2,098 and 2,700 meters (6,883 and 8,800 feet) in the San Bernardino Mountains (USFWS 2009d). This species typically blooms from May to June (Calflora 2023).

Findings: According to the CNDDDB, the nearest documented San Bernardino Mountains bladderpod occurrence (2019) is approximately 1,000 feet north of the Stanfield Marsh conveyance pipeline discharge outlet (Option 1) site. This occurrence is located in mixed single leaf pinyon, mountain juniper, and white fir forest habitat, on several carbonate hills situated just north of Big Bear Lake and Stanfield Marsh (CNDDDB 2023).

The USFWS lists the primary constituent elements (PCEs) for San Bernardino Mountains bladderpod designated Critical Habitat as:

1. Soils derived primarily from Bonanza King Formation and Undivided Cambrian parent materials that occur on hillsides or on large rock outcrops at elevations between 6,883 and 8,800 feet (2,098 and 2,700 meters).
2. Soils with intact, natural surfaces that have not been substantially altered by land use activities (e.g., graded, excavated, re-contoured, or otherwise altered by ground-disturbing equipment).

3. Associated plant communities that have areas with an open canopy cover and little accumulation of organic material (e.g., leaf litter) on the surface of the soil (USFWS 1994).

The associated plant communities (PCE 3) and limestone or dolomite soils (PCE 1) San Bernardino Mountains bladderpod requires do not occur within the proposed Project footprint. Furthermore, most of the proposed Project footprint has been previously disturbed and the soils on site are no longer intact, natural surfaces (PCE 2). Therefore, San Bernardino Mountains bladderpod is presumed absent from the proposed Project footprint and the Project will not affect this species.

San Bernardino Blue Grass – Endangered (Federal)

The federally listed as endangered San Bernardino blue grass is a rhizomatous, tufted, perennial herb in the grass family (Poaceae) that grows to approximately 10 to 55 centimeters (1.2 to 2.8 inches) tall. This species is dioecious and the unisexual flower inflorescences (flower clusters) are 3 to 7 centimeters (3.2 to 5.9 inches) long, with smooth, appressed branches and glabrous spikelets (Soreng 2012). San Bernardino blue grass occurs only in montane meadows at altitudes from 1,800 to 2,300 meters (5906 to 7546 feet) in San Bernardino and San Diego Counties (USFWS 2008). This species typically blooms from May through September (Calflora 2023).

Findings: San Bernardino blue grass has been documented within the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline. According to the CNDDDB, the next nearest documented San Bernardino blue grass occurrences (1981) are immediately adjacent the Shay Pond conveyance pipeline alignment and immediately adjacent the Stanfield Marsh conveyance pipeline discharge outlet (Option 2) site, respectively. There is also suitable montane meadow habitat for this species within the Baldwin Lake conveyance pipeline alternative, as well as the solar evaporation ponds components of the proposed Project. However, San Bernardino blue grass was not observed within the proposed Project footprint during the floristic botanical field surveys conducted by Jacobs in June–July of 2022 and July of 2023. Therefore, San Bernardino blue grass is considered absent from the proposed Project footprint at the time of survey and the Project, as currently described, will not affect this species. Should replacement of the existing pipeline to the new Shay Pond conveyance pipeline be required, additional surveys would be necessary prior to implementation of Project activities, to assess potential Project related impacts to San Bernardino blue grass and other special status species that may occur in this area.

Suitable Habitat Locations in Program Area:

- Possible Replacement Pipeline Alignment from the BBARWA WWTP
- Shay Pond Conveyance Pipeline Alignment
- Stanfield Marsh Conveyance Pipeline Discharge Outlets
- BBARWA WWTP Upgrades
- Baldwin Lake Conveyance Pipeline Alternative

Bird-foot Checkerbloom – Endangered (Federal/State)

The state and federally listed as endangered bird-foot checkerbloom is a perennial herb in the mallow family (Malvaceae), with erect stems that grow to approximately 20 to 40 centimeters (7 to 16 inches) from a fleshy, nonrhizomatous taproot. This species is gynodioecious, with up to 25-centimeter-long, spike-like inflorescences that produce either bisexual or pistillate flowers that are rose-pink to magenta in color with dark veins (Hill 2012). The basal, cauline leaves are ternate-dissected, palmately five to seven parted into narrow, three lobe divisions, which are further dissected into linear to oblong segments (USFWS 2011a). Bird-foot checkerbloom

occurs only in vernal moist meadows and sparsely vegetated, drier meadow sites at elevations from 1,600 to 2,500 meters (5,250 to 8,200 feet) in the Big Bear Valley of the San Bernardino Mountains in San Bernardino County (USFWS 2011a). This species typically blooms from May through August (Calflora 2023).

Findings. Bird-foot checkerbloom was observed within and adjacent the proposed Project footprint during the floristic botanical field surveys conducted by Jacobs in June-July of 2022 and July of 2023. Approximately 100+ individual bird-foot checkerbloom were observed within and adjacent the Baldwin Lake conveyance pipeline alternative alignment and the proposed evaporation ponds footprint at the BBARWA WWTP (Figure 11, Page 43). According to the CNDDDB, bird-foot checkerbloom was also documented within the proposed Baldwin Lake conveyance pipeline alternative alignment in 2019, near the west end of the alignment, as well as near the southeast corner of the BBARWA WWTP (2009). There is also suitable montane meadow habitat for this species within the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline, as well as immediately adjacent the Shay Pond conveyance pipeline alignment and Stanfield Marsh conveyance pipeline discharge outlet components of the proposed Project. Given that bird-foot checkerbloom is present within the proposed Project footprint, the Project may affect this species and construction of the Baldwin Lake conveyance pipeline alternative and proposed evaporation ponds, as currently described, is likely to adversely affect this species.

Suitable Habitat Locations in Program Area:

- Possible Replacement Pipeline Alignment from the BBARWA WWTP
- Shay Pond Conveyance Pipeline Alignment
- Stanfield Marsh Conveyance Pipeline Discharge Outlets
- BBARWA WWTP Upgrades
- Baldwin Lake Conveyance Pipeline Alternative

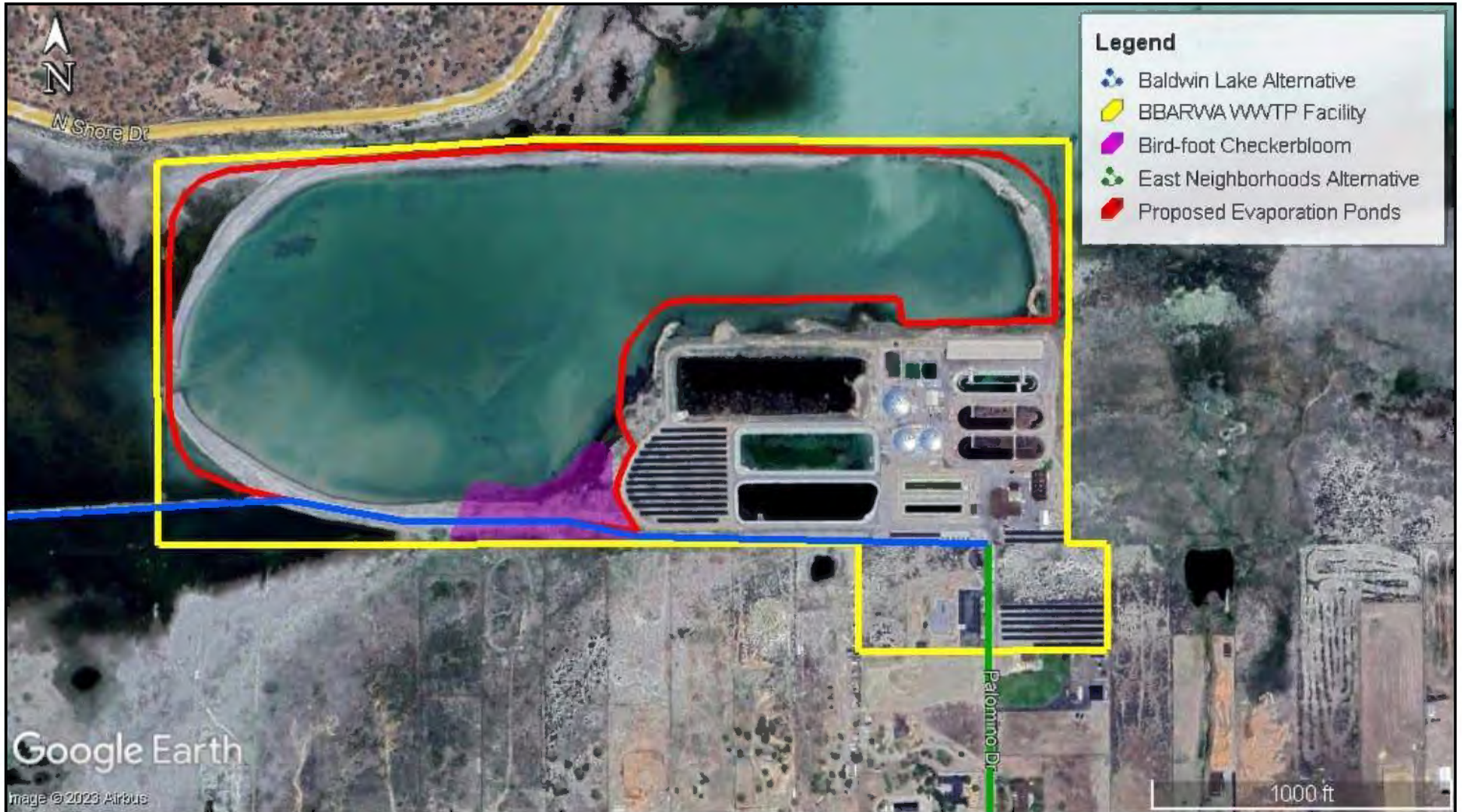


FIGURE 11

Bird-foot Checkerbloom (*Sidalcea pedata*) Observations
Replenish Big Bear Project

California Dandelion – Endangered (Federal)

The federally listed as endangered California dandelion is a perennial herb in the aster family (Asteraceae) with 10 to 20 basal, oblanceolate, generally toothed, or occasionally shallowly lobed leaves, that grows to approximately 5 to 20 centimeters (2 to 8 inches) tall. This species produces yellow composite flowers with erect outer phyllaries that are lance-ovate to widely ovate with hornless tips and rounded, generally hornless main phyllaries (Brouillet 2012). California dandelion can be distinguished from the sympatric, nonnative, common dandelion (*Taraxacum officinale*) by the sharply cut or recurved-lobed leaves and reflexed outer phyllaries observed in the flowering plant of the latter species (USFWS 2013b). California dandelion occurs only in the relatively open edges or margins of moist meadow habitats at altitudes from 2,000 to 2,800 meters (6,700 to 9,000 feet) in the San Bernardino Mountains in San Bernardino County (USFWS 2013b). This species typically blooms from May through August (Calflora 2023).

Findings. California dandelion has been documented within the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline. According to the CNDDDB, the next nearest documented California dandelion occurrences are immediately adjacent the southeast corner of the BBARWA WWTP site (2000) and approximately 1,000 feet north of the Baldwin Lake conveyance pipeline alternative alignment (2008), near the west end of the alignment, respectively. There is suitable montane meadow habitat for this species within the Baldwin Lake conveyance pipeline alternative, as well as the proposed solar evaporation ponds, immediately adjacent the Shay Pond conveyance pipeline alignment, and adjacent the Stanfield Marsh conveyance pipeline discharge outlet components of the proposed Project. However, California dandelion was not observed within the proposed Project footprint during the floristic botanical field surveys conducted by Jacobs in June–July of 2022 and July of 2023. Therefore, California dandelion is considered absent from the proposed Project footprint at the time of survey and the Project, as currently described, will not affect this species. Should replacement of the existing pipeline to the new Shay Pond conveyance pipeline be required, additional surveys would be necessary prior to implementation of Project activities, to assess potential Project related impacts to California dandelion and other special status species that may occur in this area.

Suitable Habitat Locations in Program Area:

- Possible Replacement Pipeline Alignment from the BBARWA WWTP
- Shay Pond Conveyance Pipeline Alignment
- Stanfield Marsh Conveyance Pipeline Discharge Outlets
- BBARWA WWTP Upgrades
- Baldwin Lake Conveyance Pipeline Alternative

Slender-petaled Thelypodium – Endangered (Federal)

The state and federally listed as endangered slender-petaled thelypodium is a glabrous (lacks hairs), biennial herb in the mustard family (Brassicaceae) with a rosette of wavy basal leaves and 30 to 90 centimeter (11.8 to 35.4 inch) tall, simple, or branched distally stems, which have mid-cauline sessile, sagittate to clasping, entire leaves. This species has small lavender or white flowers with narrow (0.3 to 0.5 millimeter wide) linear petals that are crinkled between the blade and claw (Al-Shehbaz 2012). Slender-petaled thelypodium produces narrow, linear fruits that are 3 to 5 centimeters (1.2 to 2 inches) long (USFWS 2011b). This species occurs on vernal moist alkaline meadows, alkaline flats, and lakeshores at altitudes from 1,600 to 2,500 meters (5,250 to 8,200 feet) in the Big Bear Valley of the San Bernardino Mountains in San Bernardino County (USFWS 2011b). All known populations of slender-petaled thelypodium are found on alkaline clay soils crossed by annually moist

seeps and streams, indicating that soil hydrology is an important factor in determining distribution (USFWS 2011b). This species is found towards the drier edges of moist meadows, or drier sparsely vegetated meadows, often growing up through sagebrush shrubs (USFWS 2011b). This species typically blooms from May through September (Calflora 2023).

Findings. Slender-petaled thelypodium has been documented within the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline. According to the CNDDDB, the next nearest documented slender-petaled thelypodium occurrence is immediately adjacent (to the north) the Baldwin Lake conveyance pipeline alternative (2019), within montane meadow and big sagebrush habitat near the western end of this proposed alignment alternative (West Baldwin Lake Trail). There is suitable montane meadow and big sagebrush habitat for this species within the Baldwin Lake conveyance pipeline alternative, as well as adjacent the Shay Pond conveyance pipeline components of the proposed Project. However, slender-petaled thelypodium was not observed within the proposed Project footprint during the floristic botanical field surveys conducted by Jacobs in June–July of 2022 and July of 2023. Therefore, slender-petaled thelypodium is considered absent from the proposed Project footprint at the time of survey and the Project, as currently described, will not affect this species. Should replacement of the existing pipeline to the new Shay Pond conveyance pipeline be required, additional surveys would be necessary prior to implementation of Project activities, to assess potential Project related impacts to slender-petaled thelypodium and other special status species that may occur in this area.

Suitable Habitat Locations in Program Area:

- Possible Replacement Pipeline Alignment from the BBARWA WWTP
- Shay Pond Conveyance Pipeline Alignment
- BBARWA WWTP Upgrades
- Baldwin Lake Conveyance Pipeline Alternative

3.2.1.2 Special Status Animals

Unarmored Threespine Stickleback – Endangered (Federal/State)

The state and federally listed as endangered UTS is a small (up to 6 centimeters [2.4 inches]) freshwater fish in the stickleback family (Gasterosteidae) that is distinguished from the other two threespine stickleback subspecies primarily in that it lacks any protective lateral plates (modified scales). UTS typically inhabit slow-moving streams or quiet-water microhabitats in swifter streams and rivers (USFWS 2009e). This species feeds on aquatic invertebrates and prefers aquatic refugia consisting of dense and abundant vegetation, algal mats, or barriers to swift water such as sand bars, floating vegetation, or low-flow road crossings. Although UTS reproduce year-round, breeding activity usually slows from October to January, and this species likely only lives for about 1 year (USFWS 2009e).

Historically, UTS occurred in many watersheds throughout southern California, including the headwaters of the Santa Clara River and low gradient parts of the Los Angeles River, San Gabriel River, and Santa Ana River in the Los Angeles Basin, the Santa Maria River drainage in San Luis Obispo County, and San Antonio Creek in Santa Barbara County (USFWS 2021). In 1970, the UTS was listed as endangered under the Endangered Species Preservation Act of 1966 as a result of population declines due to urbanization, eutrophication, stream channelization, water releases, groundwater removal, declining water quality, nonnative predators, disease, introgression, competition, and stochastic extinction. In the San Bernardino Mountains, UTS is currently considered extant at only three sites: Sugarloaf Meadow Pond, Juniper Springs Pond, the vicinity of Shay Creek

(USFWS 2021). The Shay Creek population at Shay Pond persists due to BBCCSD discharges of approximately 50 AFY of supplemental water into Shay Pond to prevent desiccation. The status of the remaining UTS population from the vicinity of Shay Creek, including those in Motorcycle Pond, Shay Creek, Weibe's Pond, and Baldwin Lake are considered intermittent or unknown (i.e., Weibe's Pond), primarily due to the ephemeral hydrologic regime within the Shay Creek system (USFWS 2021).

Findings. UTS have been documented within the Shay Creek system from Baldwin Lake at the downstream terminus of Shay Creek, to Shay Pond and Motorcycle Pond at the upstream extent of Shay Creek. The possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline extends through Shay Meadow, in the immediate vicinity of Shay Creek. Should replacement of the existing pipeline to the new Shay Pond conveyance pipeline be required, the Project could potentially result in adverse effects to UTS that intermittently inhabit this portion of Shay Creek. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline.

The goal of the Shay Pond conveyance pipeline and associated discharge outlet component of the proposed Project is to provide a more sustainable water source needed to maintain and enhance suitable UTS habitat conditions in Shay Pond. The Project would increase the amount of water supplied to Shay Pond from the current 50 ACY to an anticipated 80 ACY. The proposed Shay Pond conveyance pipeline would be constructed in an existing unpaved roadway and the discharge outlet would be constructed in an upland area immediately adjacent Shay Pond. Therefore, construction activities associated with the installation of the proposed conveyance pipeline and discharge outlet will not affect this species. The Project may affect UTS by causing a temporary change in water level and/or flow rate within Shay Pond, due to the increased discharge. However, the increased discharge would have a beneficial effect on UTS and UTS habitat at Shay Pond. Therefore, the Project may affect, but would not adversely affect this species.

Suitable Habitat Locations in Program Area:

- Possible Replacement Pipeline Alignment from the BBARWA WWTP
- Shay Pond Conveyance Pipeline Alignment

Quino Checkerspot Butterfly – Endangered (Federal)

The federally listed as endangered quino checkerspot butterfly is a butterfly in the checkerspot subfamily (Melitaeinae) of the brushfooted butterfly family (Nymphalidae) that occurs in Riverside and San Diego Counties and the northern areas of Baja California Norte, Mexico. This species occurs in patchy scrubland habitats characterized by mosaics of open areas and dense patches of shrubs (USFWS 2003). Host plants required by quino checkerspot larvae for food sources include *Plantago erecta*, *Plantago patagonica*, *Anterrhinum coulterianum*, and *Collinsia concolor* (USFWS 2003). Although quino checkerspot butterfly historically ranged throughout much of non-montane southern California, this species has been extirpated from more than 75 % of its former range (USFWS 2003). Due to dramatic declines resulting primarily from habitat loss, degradation, and fragmentation, the USFWS listed the quino checkerspot butterfly as endangered on January 16, 1997, and the USFWS issued an incidental take permit for this species to the Riverside County Habitat Conservation Agency under the MSHCP on June 22, 2004.

Findings. Although there is a single quino checkerspot butterfly historic collection (1969) from approximately 2.7 miles south/southeast of the Shay Pond conveyance pipeline Project component, the identity of this specimen is questionable (CNDDDB 2023). Furthermore, there are no other occurrences of this species documented in the Big Bear Valley and this species is considered extirpated in San

Bernardino County. Therefore, quino checkerspot butterfly is not likely to occur in the Project Area and the Project will not affect this species.

Bald Eagle – Delisted (Federal) / Endangered (State)

The bald eagle (BAEA) was a federally listed species until 2007 when it was delisted because of the increase in population. However, it remains a state listed endangered species and is covered under the federal Migratory Bird Treaty Act (MBTA) of 1918, as well as the Bald and Golden Eagle Protection Act of 1940, as amended in 1962. BAEA are distinguished by a white head and white tail feathers, are powerful, brown birds that may weigh 14 pounds and have a wingspan of 8 feet. Male eagles are smaller, weighing as much as 10 pounds and have a wingspan of 6 feet. Sometimes confused with Golden Eagles, BAEA are mostly dark brown until they are four to five years old and acquire their characteristic coloring. They live near rivers, lakes, and marshes where they can find fish, their staple food. BAEA will also feed on waterfowl, turtles, rabbits, snakes, and other small animals and carrion. BAEA require a good food base, perching areas, and nesting sites. Their habitat includes estuaries, large lakes, reservoirs, rivers, and some seacoasts (CDFW 2016). In winter, the birds congregate near open water in tall trees for spotting prey and night roosts for sheltering (CDFW 1999). They mate for life, choosing the tops of large trees to build nests, which they typically use and enlarge each year. In most of California, the breeding season lasts from about January through July or August (CDFW 2016). Nests may reach 10 feet across and weigh a half ton. They may also have one or more alternate nests within their breeding territory (CDFW 2016). The young eagles are flying within three months and are on their own about a month later.

Perches in the immediate vicinity of lakeshores form an essential habitat requirement for BAEA in the Big Bear Valley and the major threat to the continued existence of wintering BAEA in this area comes from development and modification of habitat near the shoreline (Walter and Garrett 1981).

Findings: The Forest Service conducts annual surveys for BAEA in the San Bernardino Mountains. Migrating BAEA have long been documented to overwinter at Big Bear Lake and Baldwin Lake. During a two-year study of the wintering BAEA population in the Big Bear Valley, it was estimated that about 30 individuals wintered in the Big Bear Valley. The wintering period for migrating BAEA in the Big Bear Valley area is generally December through March, with the first eagles arriving in mid-November and the last eagles leaving in early April (Walter and Garrett 1981). The highest numbers of wintering eagles in the area are in January and early February (Walter and Garrett 1981).

Since 2012, at least one resident pair has been documented in the Big Bear Valley, which first nested successfully in 2012 and 2015. These eagles typically nest to the west of Grout Bay in the Fawnskin area, approximately 5 miles west of the Stanfield Marsh conveyance pipeline discharge outlet locations.

Big Bear and Baldwin Lakes support overwintering migratory BAEA and the BBARWA WWTP site is within suitable BAEA foraging habitat and adjacent BAEA for perching habitat along the Baldwin Lake shoreline. However, this species is not known to nest in the Project Area and given the existing human disturbance adjacent the Project site, consisting mostly of residential development, BBARWA WWTP operations and maintenance, and Big Bear City Airport operations and maintenance, BAEA are not likely to nest within the Project Area. Furthermore, the proposed evaporation ponds and Baldwin Lake conveyance pipeline alternative would be constructed when those portions of Baldwin Lake are dry, and potential BAEA prey (i.e., fish, waterfowl.) are absent from the Project Area. Although BAEA may utilize lakeshore perches when Stanfield Marsh and Baldwin Lake are dry, the Project will not remove any of these trees and the only potential Project-related impacts to overwintering eagles would be if the construction disturbance alters their utilization of lakeshore perches for foraging on fish and waterfowl, which would not be the case when the lake are dry. Therefore, potential Project related effects due to construction disturbance

would likely be insignificant and although the Project may affect BAEA, it will not adversely affect this species.

Suitable Habitat Locations in Program Area:

- Stanfield Marsh Conveyance Pipeline Discharge Outlets
- BBARWA WWTP Upgrades
- Baldwin Lake Conveyance Pipeline Alternative

Southern Rubber Boa – Threatened (State)

The state listed as threatened southern rubber boa (rubber boa) is a small, rather stout-bodied snake with smooth scales and a blunt head and tail (Stewart et al. 2005). Adults grow to about 49.5–55.9 centimeters (19.5–22 inches) in length. Adult rubber boas are light brown or tan in dorsal color with an unmarked yellow venter; juveniles are pale without a distinct margin between dorsal and ventral coloration (Stewart et al. 2005). Rubber boas are primarily fossorial and are rarely encountered on the surface, except on days and nights of high humidity and overcast sky. During warm months, this snake is typically active at night and on overcast days. Rubber boas hibernate during the winter, usually in crevices in rocky outcrops. Other potential hibernacula for this species may include rotting stumps.

Typical southern rubber boa habitat is mixed conifer-oak forest or woodland dominated by two or more of the following species: Jeffrey pine (*Pinus jeffreyi*), yellow pine (*P. ponderosa*), sugar pine (*P. lambertiana*), incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), and black oak (*Quercus kelloggii*) (Stewart et al., 2005). Rubber boas are usually found near streams or wet meadows or within or under surface objects with good moisture retaining properties such as rotting logs (CDFW 2014). Much of the literature suggests that the rubber boa prefers moist conifer-oak forests and woodlands between 5,000 and 8,000 feet in elevation, especially in canyons and on cool, north facing slopes (CDFW 1987). However, the factors of overriding importance seem to be access to hibernation sites below the frost line and access to damp soil (Keasler 1982). In all habitat types, rock outcrops and surface materials (i.e., rocks, logs, and a well-developed duff layer) are important habitat components because they provide cover and maintain soil moisture (Loe 1985, as cited in Stewart et al. 2005).

Findings. According to the CNDDDB, the nearest documented rubber boa occurrence (2013) is approximately 0.5 mile north of the west end of the western end of the Baldwin Lake conveyance pipeline alternative, on the north side of East North Shore Drive (State Route 18 [SR 18]) (CDFW pers. comm.). There is some marginally suitable rubber boa habitat in the vicinity of the Baldwin Lake conveyance pipeline alternative consisting of mixed wet montane meadow and big sagebrush habitat, with scattered trees, large shrubs, and woody debris. Additionally, the Baldwin Lake conveyance pipeline alternative crosses an ephemeral stream (Caribou Creek) near the western end of the alignment. However, the mixed conifer-oak forest or woodland habitats that rubber boa typically occur in are absent from this area and there are no nearby rock outcrops, downed logs, or tree stumps that could provide potential rubber boa hibernacula.

There is suitable rubber boa habitat in the vicinity of the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline. Additionally, although the Sand Canyon discharge outlet and portions of the Sand Canyon conveyance pipeline are adjacent undeveloped areas of potentially suitable rubber boa habitat consisting of mixed Jeffrey pine forest and woodland and mountain juniper woodland habitats, there is no suitable rubber boa habitat within the proposed footprint of these Project components.

Due to the environmental conditions and existing disturbances within and adjacent the proposed Project footprint, as currently described, rubber boa is very unlikely to occur within the proposed Project footprint. Therefore, the proposed Project may affect, but is not likely to adversely affect this species.

Suitable Habitat Locations in Program Area:

- Possible Replacement Pipeline Alignment from the BBARWA WWTP
- Sand Canyon Conveyance Pipeline
- Sand Canyon Discharge Outlet

California Spotted Owl – SSC

The California spotted owl (SPOW) is considered an SSC by the CDFW and is listed as a Sensitive Species by the U.S. Forest Service. The SPOW breeds and roosts in forests and woodlands with large old trees and snags, high basal areas of trees and snags, dense canopies ($\geq 70\%$ canopy closure), multiple canopy layers, and downed woody debris (Verner et al. 1992a, as cited in Davis and Gould 2008). Large, old trees are the key component; they provide nest sites and cover from inclement weather and add structure to the forest canopy and woody debris to the forest floor. These characteristics typify old-growth or late-seral-stage habitats (Davis and Gould 2008). Because the SPOW selects stands that have higher structural diversity and significantly more large trees than those generally available, it is considered a habitat specialist (Moen and Gutiérrez 1997, as cited in Davis and Gould 2008). In southern California, SPOW principally occupy montane hardwood and montane hardwood-conifer forests, especially those with canyon live oak (*Quercus chrysolepis*) and bigcone Douglas-fir (*Pseudotsuga macrocarpa*), at mid to high elevations (Davis and Gould 2008).

SPOW prey on small mammals, particularly dusky-footed woodrats (*Neotoma fuscipes*) at lower elevations (oak woodlands and riparian forests) and throughout southern California (Verner et al. 1992a, as cited in Davis and Gould 2008). The SPOW breeding season occurs from early spring to late summer or fall. Breeding spotted owls begin pre-laying behaviors, such as preening and roosting together, in February or March and juvenile owl dispersal likely occurs in September and October (Meyer 2007). The SPOW does not build its own nest but depends on finding suitable, naturally occurring sites in tree cavities or on broken-topped trees or snags, on abandoned raptor or common raven (*Corvus corax*) nests, squirrel nests, dwarf mistletoe (*Arceuthobium* spp.) brooms, or debris accumulations in trees (Davis and Gould 2008). In the San Bernardino Mountains, platform nests predominate (59%) and were in trees with an average diameter at breast height (dbh) of 75 cm, whereas cavity nest trees and broken-top nest trees were significantly larger (mean dbh of 108.3 cm and 122.3 cm, respectively) (LaHaye et al. 1997, as cited in Davis and Gould 2008).

According to LaHaye and Gutierrez (2005), urbanization in the form of primary and vacation homes has degraded or consumed some forest in most mountain ranges. The results of spotted owl surveys conducted between 1987 and 1998 in the San Bernardino Mountains indicated that a large area of potentially suitable spotted owl habitat, enough to support 10-15 pairs, existed between Running Springs and Crestline (LaHaye and others 1999, as cited in LaHaye and Gutierrez 2005). However, only four pairs have been found in this area, and owls were found only in undeveloped sites. Thus, residential development within montane forests may preclude spotted owl occupancy, even when closed-canopy forest remains on developed sites (LaHaye and Gutierrez 2005).

Findings. According to the CNDDDB Spotted Owl Observations Database (2023), the nearest documented SPOW observation is a SPOW activity center (e.g., a roosting or nesting site) located approximately 1 mile southeast of the Sand Canyon conveyance pipeline alignment. However, the Project Area is within an existing urban and rural residential setting that is subject to a high level of human disturbance. Additionally, the Project Area does not support the old growth montane hardwood and montane

hardwood-conifer forests that SPOW typically occupy in the region. Therefore, SPOW are not likely to occur in the Project Area and the Project will not affect this species.

San Bernardino Flying Squirrel – SSC

The San Bernardino flying squirrel (flying squirrel) is considered an SSC by the CDFW and is listed as a Sensitive Species by the U.S. Forest Service. The flying squirrel is a nocturnally active, arboreal squirrel that is distinguished by the furred membranes extending from wrist to ankle that allow squirrels to glide through the air between trees at distances up to 91 meters (300 feet) (Wolf 2010). The San Bernardino flying squirrel is the most southerly distributed subspecies of northern flying squirrel (*Glaucomys sabrinus*) and is paler in color and smaller than most other northern flying squirrel subspecies. It inhabits high-elevation mixed conifer forests comprised of white fir, Jeffrey pine, and black oak between ~4,000 to 8,500 feet. It has specific habitat requirements that include associations with mature forests, large trees, and snags, closed canopy, downed woody debris, and riparian areas, and it is sensitive to habitat fragmentation. It specializes in eating truffles (e.g. hypogeous mycorrhizal sporocarps) buried in the forest floor as well as arboreal lichens in winter when truffles are covered with snow and unavailable (Wolf 2010). This flying squirrel historically occurred as three isolated populations in the San Gabriel, San Bernardino, and San Jacinto Mountain forests.

Flying squirrel populations are adversely affected by habitat fragmentation. Rosenberg and Raphael (1984) found that in northwestern California, the abundance of squirrels increased with stand size, they were generally absent in stands smaller than 20 hectares (ha), and approximately 75% of stands over 100 ha had flying squirrels. An additional problem with fragmented habitats is the constraints that open spaces pose to the movements of individuals and the colonization of unoccupied habitat patches. Mowrey and Zasada (1982) reported an average gliding distance of about 20 meters in *sabrinus*, with a maximum of 48 meters, and concluded that movements are unimpeded in areas with average openings of 20 meters and occasional openings of 30 to 40 meters (Bolster 1998).

Findings. The Flying Squirrels of Southern California is a project of the San Diego Natural History Museum (SDNHM), in collaboration with the U.S. Forest Service and the USFWS, to try to determine the distribution and habitat use of the flying squirrel in southern California. According to the SDNHM database, flying squirrel have been documented in the vicinity of the Sand Canyon conveyance pipeline alignment, as well as north of West North Shore Drive (State Route 38 [SR 38]), approximately 0.4 mile north of the Meadow Lane conveyance pipeline alternative alignment. Although the Project Area is situated in an urban and rural residential setting that is subject to a high level of existing human disturbance, this species has been documented in residential areas in the Big Bear Valley and elsewhere. Thus, there is a moderate potential for flying squirrel to occur in the Project Area and species-specific impacts avoidance and minimization measures are recommended.

Suitable Habitat Locations in Program Area:

- Sand Canyon Conveyance Pipeline
- Sand Canyon Discharge Outlet
- East Neighborhoods Conveyance Pipeline Alternative
- West Neighborhoods Conveyance Pipeline Alternative
- North Airport Corridor Conveyance Pipeline Alternative
- Meadow Lane Conveyance Pipeline Alternative

3.2.2 Special Status Habitats

Several special status habitats have been documented in the Project vicinity (within approximately 3 miles) including pebble plains, southern California threespine stickleback stream, and USFWS designated Critical Habitat for several federally listed threatened or endangered species. There is no pebble plain or pebble plain-like habitat within the proposed Project footprint. There is southern California threespine stickleback stream habitat within the Shay Pond conveyance pipeline alignment and possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline and the proposed footprint of the Shay Pond conveyance pipeline is entirely within existing unpaved roadway and upland. Additionally, the Project would increase the amount of water supplied to Shay Pond from the current 50 ACY to an anticipated 80 ACY, which would likely enhance UTS habitat conditions in Shay Pond and potentially, the downstream portion of Shay Creek. Therefore, the Project would not result in any loss or adverse modification pebble plains or southern California threespine stickleback stream.

The nearest USFWS designated Critical Habitat units are adjacent the east side of the BBARWA WWTP and adjacent the north side of the proposed Baldwin Lake conveyance pipeline alternative alignment, respectively. The Critical Habitat unit adjacent the east side of the BBARWA WWTP site consists of the North Shay Meadow USFWS designated Critical Habitat unit (Unit 6) for the federally listed as endangered California dandelion. The Critical Habitat unit adjacent the north side of the proposed Baldwin Lake conveyance pipeline alternative consists of the Pan Hot Springs Meadow USFWS designated Critical Habitat unit (Unit 1) for the federally listed as endangered San Bernardino blue grass and California dandelion. However, no portion of the proposed Project footprint is within these Critical Habitat units, or any other Critical Habitat. Therefore, the Project will not result in the loss or adverse modification of USFWS designated Critical Habitat.

3.3 Jurisdictional Waters Assessment

The Project Area is within the Bear Valley and Baldwin Hydrologic Sub-Areas (HSA 801.71 and 801.73). The Bear Valley HSA comprises a 34,333-acre drainage area, within the larger Santa Ana Watershed (HUC 18070203). The Baldwin HSA comprises a 22,789-acre drainage, also within the Santa Ana Watershed. This watershed is primarily within San Bernardino County and includes portions of Riverside and Orange Counties with a small portion of Los Angeles County. The Santa Ana Watershed is bound on the north by the Mojave and Southern Mojave Watersheds, on the southeast by the Whitewater River and San Jacinto Watersheds, and on the west by the San Gabriel, Seal Beach, Newport Bay, and Aliso-San Onofre Watersheds. The Santa Ana Watershed encompasses a portion of the San Gabriel and San Bernardino Mountains in the north and is approximately 3,000 square miles in area. The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. One of several tributaries to the Santa Ana River is Bear Creek, which outflows from Big Bear Lake from the Bear Valley Dam located at the westernmost (downstream) end of Big Bear Lake. Big Bear Lake is one of the head waters of the Santa Ana River Watershed.

Waters of the U.S.

The USACE has authority to permit the discharge of dredged or fill material in WOTUS under Section 404 of the CWA. The Environmental Protection Agency (EPA) and USACE currently define WOTUS as:

1. Waters used either currently, previously, or susceptible to future use in interstate or foreign commerce, the territorial seas, and interstate waters.
2. Impoundments of waters otherwise defined as WOTUS, except for impoundments of those WOTUS that are identified in 5 (below).

3. Relatively permanent, standing, or continuously flowing tributaries to the WOTUS described in 1 and 2 (above).
4. Wetlands that are adjacent to waters described in 1 (above), or relatively permanent, standing or continuously flowing bodies of water identified in 2 or 3 (above) that have a continuous surface connection with those waters.
5. Intrastate lakes and ponds not identified in 1 through 4 (above) that are relatively permanent, standing, or continuously flowing bodies of water with a continuous surface connection to the waters identified in 1 or 3 (above).

Findings: Given that the Santa Ana River is a relatively permanent tributary to the Pacific Ocean (a territorial sea) and Big Bear Lake has a continuous surface connection to the Santa Ana River via Bear Creek, it is likely that the EPA and USACE would consider Stanfield Marsh a wetland WOTUS. Therefore, the Stanfield Marsh discharge outlet component of the Project may result in temporary and/or permanent impacts to jurisdictional waters subject to regulation by the USACE and RWQCB under Sections 404/401 of the CWA, respectively.

State Lake/Streambed

Under Sections 1600 through 1607 of the California FGC, the CDFW has jurisdiction over lakes, rivers, streams, or other aquatic resources, stream-dependent wildlife resources, and riparian habitats. This jurisdiction can include, but is not limited to intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, USGS blue-line streams, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance that support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994).

Findings: Several aquatic features and habitats were identified in the Project Area that would likely be subject to regulation by the CDFW under Section 1602 of the FGC, as well as by the RWQCB under the Porter-Cologne Water Quality Control Act. Table 3 (below) provides a list of the aquatic features and habitats that were identified in the Project Area, as well as the Project component(s) that may impact those “waters of the State.”

Table 3. Potential Impacts to Waters of the State

Waters of the State	Project Component
Stanfield Marsh	Conveyance Pipeline Discharge Outlet
Baldwin Lake	Baldwin Lake Conveyance Pipeline Alternative; BBARWA WWTP Evaporation Ponds
Caribou Creek	Baldwin Lake Conveyance Pipeline Alternative
Shay Pond/Shay Creek	Shay Pond Discharge Outlet; Possible Replacement Pipeline from the BBARWA WWTP to the Shay Pond Conveyance Pipeline (not expected)
Sand Canyon Channel	Sand Canyon Discharge Outlet

Given that the Project is likely to result in temporary and/or permanent impacts to waters of the State, it is likely that FGC Section 1602 and/or RWQCB Waste Discharge Requirements (WDRs) permitting will be required.

4. Effects Analysis

The proposed Project may affect several state and/or federally listed species known to occur in the Project vicinity. Construction of the Baldwin Lake conveyance pipeline alternative and proposed new evaporation ponds at the BBARWA WWTP may affect and is likely to adversely affect the state and federally listed as endangered bird-foot checkerbloom. Potential Project related effects on the state and federally listed as endangered UTS may result due temporary changes in water level and/or flow rate. However, the Project is expected to have a beneficial effect on this species. Therefore, the Project may affect, but is not likely to adversely affect UTS. Any Project related effects on the state listed as endangered BAEA resulting from the construction of the proposed Baldwin Lake conveyance pipeline alternative and proposed new evaporation ponds at the BBARWA WWTP would likely be insignificant. Therefore, the Project may affect, but is not likely to adversely affect BAEA. Likewise, Project related effects on the state listed as threatened rubber boa resulting from the Baldwin Lake conveyance pipeline and Sand Canyon recharge Project components are unlikely to occur. Therefore, the Project may affect, but is not likely to adversely affect rubber boa.

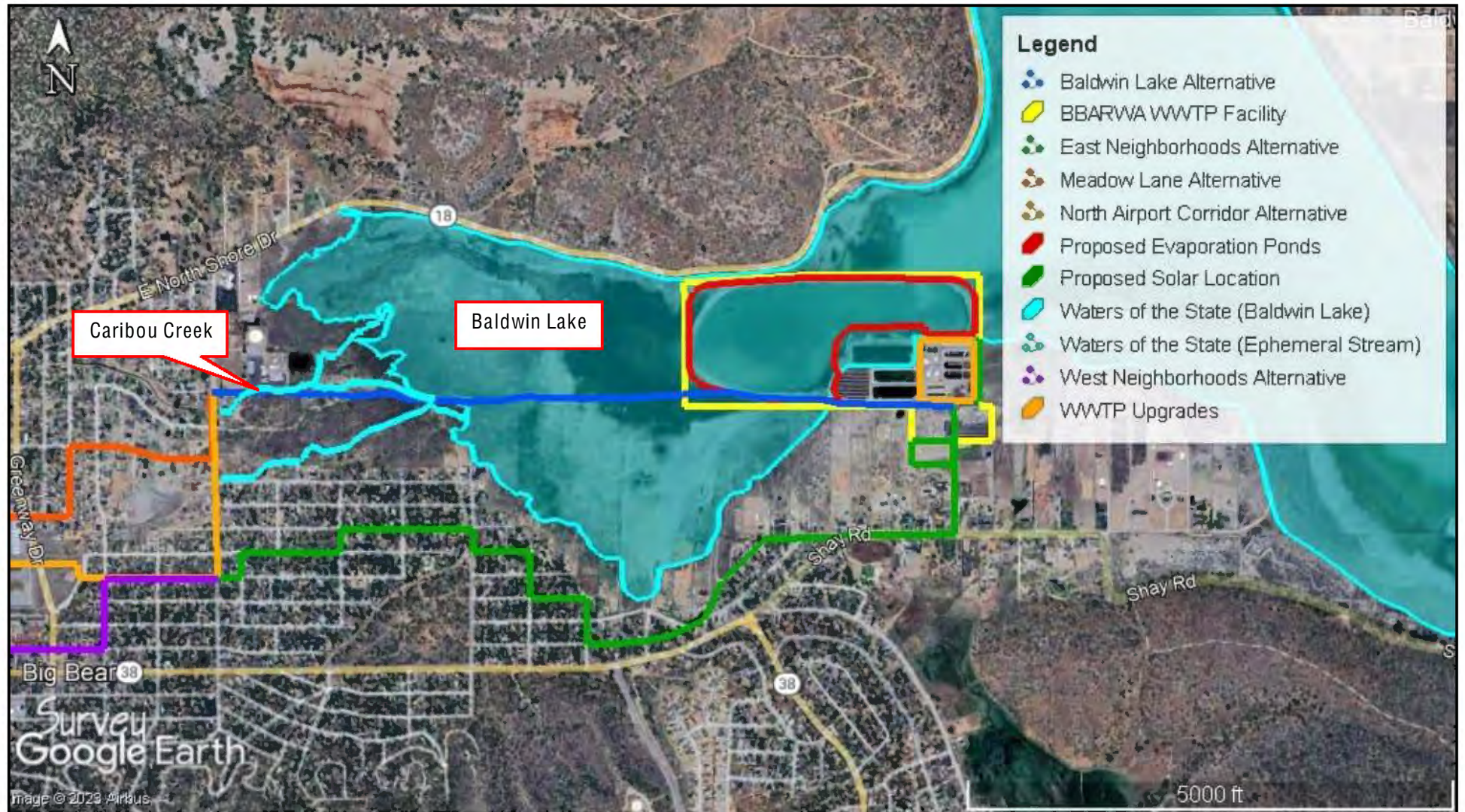
The proposed Project will not affect USFWS designated Critical Habitat. Furthermore, the proposed Project will not affect any resources protected under the Coastal Barriers Resources Act, Coastal Zone Management Act, Fish and Wildlife Conservation Act, Magnuson-Stevens Fishery Conservation and Management Act, the Protection of Wetlands – Executive Order 11990 or Wild and Scenic Rivers Act, respectively.

The proposed Project may impact state and/or federal jurisdictional waters potentially subject to regulation by the USACE under Section 404 of the CWA, the RWQCB under Section 401 of the CWA and Porter-Cologne Water Quality Control Act, or CDFW under Section 1602 of the California FGC, respectively. Figures 12a-12e on Pages 53-57 show the jurisdictional waters identified within the Project Area and their approximate extent in relation to the Project components that may affect them. Stanfield Marsh would likely be considered both a WOTUS and water of the State and any impacts to this jurisdictional water feature resulting from the construction of the Stanfield Marsh discharge outlet would likely require both CWA Section 404/401 and FGC Section 1602 permitting (Figure 12a, Page 53). Although not considered WOTUS, Baldwin Lake, Caribou Creek, Shay Pond/Shay Creek, and the Sand Canyon Channel are all waters of the State of California (Figures 12b-12e, Pages 54-57). Therefore, potential Project related impacts to these aquatic resources would likely require RWQCB issued WDRs, as well as CDFW issued Lake or Streambed Alteration Agreements (LSAs).



SOURCE: Google Earth

FIGURE 12a



SOURCE: Google Earth

FIGURE 12b



FIGURE 12c



SOURCE: Google Earth

FIGURE 12d



SOURCE: Google Earth

FIGURE 12e

Migratory Bird Treaty Act

There is vegetation, as well as man-made structures, within the Project Area that are suitable to support nesting birds, including shoreline nesting waterfowl and open ground nesters such as killdeer (*Charadrius vociferus*). Most native bird species and their active nests (i.e., with eggs or young) are protected from unlawful take by the federal Migratory Bird Treaty Act of 1918 (MBTA). Additionally, the State of California provides protection for native bird species and their nests in the FGC under Sections 3503, 3503.5, 3511, 3513, and 3800, respectively (Appendix D). Bird nesting protections in the FGC include the following (Sections 3503, 3503.5, 3511, 3513 and 3800):

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully Protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.
- Section 3800 prohibits the take of any any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

5. Conclusions and Recommendations

5.1 Special Status Biological Resources

A BRA and floristic botanical field surveys, which included 100% visual coverage of the undeveloped aspects of the Project, as well as the road shoulder along the proposed conveyance pipeline alternatives in the developed neighborhoods, was conducted by Jacobs in June and July of 2022 and July of 2023 to identify potential habitat for special status plant and wildlife species within the Project Area. The result of the BRA and floristic botanical field surveys was that the state and federally listed as endangered bird-foot checkerbloom was observed within and adjacent the proposed footprints for the Baldwin Lake conveyance pipeline alternative and the proposed solar evaporation ponds, within Baldwin Lake. Several other state and/or federally listed plant species have been documented within or adjacent the proposed Project footprint including the federally listed as threatened ash-gray paintbrush, the federally listed as endangered San Bernardino blue grass and California dandelion, as well as the state and federally listed as endangered slender-petaled thelypodium. However, none of these species were observed within the proposed Project footprint during the surveys. As identified in Appendix A, the Big Bear Valley milk-vetch (*Astragalus lentiginosus* var. *sierrae*) was also observed within and adjacent the proposed footprints for the Baldwin Lake conveyance pipeline alternative and the proposed solar evaporation ponds, within Baldwin Lake. However, this CNPS rare plant species is not state or federally listed as threatened or endangered.

No protocol level focused surveys were conducted for state and/or federally listed wildlife species known to occur in the Project vicinity and none were observed during the reconnaissance level BRA survey or floristic botanical field surveys. However, there is some potentially suitable habitat for the state listed as threatened southern rubber boa within and adjacent the Baldwin Lake conveyance pipeline alternative and possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline, as well as adjacent the Sand Canyon discharge outlet and portions of the Sand Canyon conveyance pipeline. Although, Big Bear and Baldwin Lakes are known to support overwintering migratory populations of the state listed as endangered (federally delisted) BAEA, the Project Area is not suitable to support nesting BAEA and the Project is not likely to adversely affect this species. Shay Pond supports a known population of the state and federally listed as endangered UTS. However, the Project is expected to benefit UTS and is not likely to adversely affect this species either.

The Project Area does not contain any USFWS designated Critical Habitat for federally listed species, and the Project will not result in any loss or adverse modification of Critical Habitat. Furthermore, the proposed Project will not affect any resources protected under the Coastal Barriers Resources Act, Coastal Zone Management Act, Fish and Wildlife Conservation Act, Magnuson-Stevens Fishery Conservation and Management Act, the Protection of Wetlands – Executive Order 11990 or Wild and Scenic Rivers Act, respectively.

According to accepted protocols and standard practices, the results of the surveys will remain valid for the period of one year, or until July 2024, after which time, if the site has not been disturbed in the interim, additional surveys may be warranted to determine the persisting absence of special status flora and fauna on-site. Regardless of survey results and conclusions given herein, the special status species identified in this report are protected by applicable state and/or federal laws, including but not exclusive to the federal ESA and CESA. As such, if a listed species is found on site during preconstruction surveys or work activities, all activities likely to affect the species should cease immediately and regulatory agencies should be contacted to determine appropriate management actions. Additionally, it should be noted that listed species may be handled only by a qualified biologist who has been given authorization by the appropriate agencies (i.e., USFWS and CDFW).

Project components that may affect federally listed threatened or endangered species would require ESA Section 7 Consultation (informal and/or formal) with the USFWS prior to implementation. Unavoidable Project related

impacts to state listed species would require an incidental take permit from the CDFW, in accordance with Section 2081(b) of the CESA. Therefore, it is recommended that the Project Proponent incorporate alternatives and specific precautionary measures and Best Management Practices (BMPs) into the Project design that would ensure potential Project related impacts to state and/or federally listed species are avoided. Specific precautionary avoidance measures are provided below.

Special Status Plant Species

Several special status plant species have been documented in the vicinity of the possible replacement pipeline alignment from the BBARWA WWTP to the Shay Pond conveyance pipeline including the federally listed as endangered San Bernardino blue grass and California dandelion, and the state and federally listed as endangered slender-petaled thelypodium. However, the Project Proponent does not anticipate utilizing this alignment to convey water to the new Shay Pond conveyance pipeline and this alignment was not included in the floristic botanical field surveys. Should replacement of the existing pipeline to the new Shay Pond conveyance pipeline be required, additional surveys would be necessary prior to implementation of Project activities, to assess potential Project related effects on San Bernardino blue grass, California dandelion, slender-petaled thelypodium, and other special status species that may occur in this area. Additionally, the following precautionary measures are recommended to avoid any potential Project related effects on the state and federally listed as endangered bird-foot checkerbloom:

- It is recommended that the Project Proponent avoid implementing the Baldwin Lake conveyance pipeline alternative, if feasible. Additionally, the proposed solar evaporation ponds should be designed to avoid areas where bird-foot checkerbloom are known to occur (Figure 11, Page 43).
- The Project disturbance limits should be clearly marked and limited to previously disturbed areas (e.g., previously graded areas), where feasible.
- Preconstruction clearance surveys should be conducted by a qualified biologist who is familiar with the local flora, to determine if any special status plant species are present within the proposed disturbance area prior to construction. Botanical surveys should be conducted during the appropriate time of year, when target species are both evident and identifiable.
- If any listed plant species are found within the proposed disturbance area(s), then orange construction fencing, or similarly visible material should be installed around the area where they are located, and this area should be completely avoided.

Special Status Wildlife

The Project may affect but is not likely to adversely affect the state and federally listed as endangered UTS, the state listed (federally delisted) as endangered BAEA, and the state listed as threatened southern rubber boa. Additionally, there is a moderate potential for the California SSC San Bernardino flying squirrel to occur in the Project Area. Therefore, the following precautionary measures are recommended to avoid or minimize any potential Project related effects on UTS, BAEA, rubber boa, and flying squirrel:

- All construction activities associated with the Shay Pond conveyance pipeline and discharge outlet should be restricted to the existing unpaved access road (Cascade Street) and adjacent upland areas. All disturbance within the wetted portions of Shay Pond/Shay Creek should be avoided.

- Appropriate BMPs (e.g., silt fence) should be implemented during construction to ensure that no sediment or pollutants enter Shay Pond/Shay Creek and potentially impact UTS and/or their habitat.
- It is recommended that all construction activities associated with the proposed solar evaporation ponds be conducted when the portion of Baldwin Lake where this Project component will occur is dry, to avoid or minimize potential Project related disturbance to BAEA.
- A preconstruction rubber boa survey is recommended that would provide 100% visual coverage of any undeveloped areas within the proposed Project footprint and would consist of a systematic ground search that would focus on moveable surface materials such as rocks, logs, duff, and man-made debris that may provide shelter for rubber boa.
- It is recommended that rubber boa exclusion fence (e.g., silt fence) be installed around the perimeter of the Sand Canyon discharge outlet construction site prior to commencement of any Project related ground disturbing activities in this area. All construction activities should be restricted to within the fenced disturbance limits to avoid potential harm to rubber boa that may be present in nearby habitat.
- A qualified biologist who is familiar with southern rubber boa and their habits should be present on site during initial ground disturbing activities within or adjacent any potential rubber boa habitat to monitor the clearing/removal of any surface objects that could potentially provide rubber boa refugia or hibernacula (e.g., rotting logs/stumps, duff layer). The biological monitor should visually inspect under any surface cover objects prior to their removal to ensure no rubber boa are harmed or killed.
- All open trenches should be backfilled or covered at the end of the day and ramped to allow rubber boa and other wildlife to escape.
- If a rubber boa is found during preconstruction presence/absence surveys or during construction activities, all Project activities shall be halted, CDFW shall be contacted, and a CESA Incidental Take Permit shall be obtained from CDFW prior to reinitiating Project activities.
- To ensure the Project does not impact flying squirrel, it is recommended that a preconstruction survey be conducted to identify potentially suitable cavity nesting sites and foraging habitat, prior to the removal of any trees or downed woody debris.
- If suitable flying squirrel cavity nesting sites are detected within the proposed Project footprint, then coordination with the CDFW would be necessary to determine appropriate minimization and mitigation measures to offset Project related impacts to this species.

Nesting Birds

Although BAEA and SPOW are not likely to nest in the Project Area due to existing disturbances within and adjacent the proposed Project footprint, the Project Area is suitable to support other nesting bird species. Most native bird species are protected from unlawful take by the MBTA (Appendix D). Additionally, the State of California provides protection for native bird species and their nests in the FGC (Appendix D). In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season, which is generally February 1st through August 31st. However, if all work cannot be conducted outside of nesting season, the following precautionary measures are recommended to ensure MBTA compliance:

- Vegetation removal, including any tree removal or pruning, and structure demolition should be conducted outside the typical nesting season (i.e., between September 1st and January 31st).
- To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist should conduct preconstruction nesting bird surveys prior to Project related disturbance to suitable nesting areas to identify any active nests. The nesting bird surveys should consist of a minimum of five (5) consecutive survey days and should include an additional three (3) consecutive nights of survey for nocturnal species. Nocturnal surveys should be conducted between the hours of 9:00 pm. and midnight, during appropriate weather conditions (e.g., no rain or winds).
- If no active nests are found, no further action would be required. If an active nest is found, the biologist should set appropriate no-work buffers around the nest which would be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity, and duration of disturbance. The nest(s) and buffer zones should be field checked weekly by a qualified biological monitor. The approved no-work buffer zone should be clearly marked in the field, within which no disturbance activity should commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

Lighting Impacts

To avoid potential impacts to nocturnal species such as SPOW and flying squirrel, due to light pollution, Project related night lighting (both temporary and permanent) should be directed away from adjacent areas to protect nocturnal species from direct night lighting. Shielding should be incorporated in Project designs to ensure ambient lighting in adjacent areas is not increased.

5.2 Jurisdictional Waters

In addition to the BRA field survey, Jacobs also assessed the proposed Project footprint for the presence of any state and/or federal jurisdictional waters. Stanfield Marsh is a jurisdictional wetland that is subject to the CWA and FGC under the jurisdictions of the USACE, RWQCB, and CDFW, respectively (Figure 12a, Page 53). Therefore, any proposed permanent or temporary impacts to Stanfield Marsh associated with the Stanfield Marsh conveyance pipeline discharge outlet may require CWA Sections 404/401 permits from the USACE and RWQCB, as well as a LSA Agreement from the CDFW. Baldwin Lake, Caribou Creek, Shay Pond/Shay Creek, and the Sand Canyon Channel are all waters of the State of California (Figures 12b-12e, Pages 54-57). Therefore, potential Project related impacts to these aquatic resources would likely require RWQCB issued WDRs, as well as a CDFW issued LSA. Prior to implementation of any Project components that may impact state and/or federal jurisdictional waters, a formal jurisdictional delineation should be conducted by a qualified delineation specialist to determine the extent of any potential Project related impacts to aquatic resources and the appropriate regulatory permitting (if any) required.

USACE 404 Permit

The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WOTUS are: a nation-wide permit (NWP) or an individual permit (IP). NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources. The discharge must not cause the loss of greater than ½ acre to WOTUS, including the loss of no more than 300 linear feet of streambed. Projects that would exceed these limits would likely require an IP.

The projects under this Program that may require CWA Section 404 permitting through the USACE are the following:

- Stanfield Marsh Conveyance Pipeline Discharge Outlet(s)

Regional Water Quality Control Board 401 Certification

The Project Area is within the jurisdiction of the Santa Ana RWQCB (Regional Board 8). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WOTUS does not violate state water quality standards. The RWQCB also regulates impacts to Waters of the State of California under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or WDRs, depending upon the level of impact and the waterway. In addition to the formal application materials and fee (based on area of impact), a copy of the appropriate CEQA documentation must be included with the application.

The projects under this Program that may require CWA Section 401 Water Quality Certification through the RWQCB are the following:

- Stanfield Marsh Conveyance Pipeline Discharge Outlet(s)

Additionally, the projects under this Program that may require WDRs issued by the RWQCB are the following:

- Baldwin Lake Conveyance Pipeline Alternative
- BBARWA WWTP Evaporation Ponds
- Sand Canyon Conveyance Pipeline Discharge Outlet
- Shay Pond Conveyance Pipeline Discharge Outlet
- Possible Replacement Pipeline from the BBARWA WWTP to the Shay Pond Conveyance Pipeline (not expected)

FGC Section 1602 Lake or Streambed Alteration Agreement

A FGC Section 1602 LSA Agreement is required for all activities that alter streams and lakes and their associated riparian habitat. In addition to the formal application materials and fee (based on cost of the Project), a copy of the appropriate CEQA documentation must be included with the application.

The projects under this Program that may require FGC Section 1602 LSA Agreement with the CDFW are the following:

- Stanfield Marsh Conveyance Pipeline Discharge Outlet(s)
- Baldwin Lake Conveyance Pipeline Alternative
- BBARWA WWTP Evaporation Ponds
- Sand Canyon Conveyance Pipeline Discharge Outlet
- Shay Pond Conveyance Pipeline Discharge Outlet
- Possible Replacement Pipeline from the BBARWA WWTP to the Shay Pond Conveyance Pipeline (not expected)

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Special Status Species Occurrence Potential Analysis

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Acanthoscyphus parishii</i> var. <i>cienegensis</i>	Cienega Seca oxytheca	None/ None	G4?T2; S2; CNPS: 1B.3	Upper montane coniferous forest, pinyon and juniper woodland, Joshua tree woodland. Dry gravelly banks and granitic sand. 1920-2560 m.	Some of the habitat this species is associated with is present in the Project vicinity, but this species has not been documented in the Big Bear Valley. Occurrence potential is low.
<i>Acanthoscyphus parishii</i> var. <i>goodmaniana</i>	Cushenbury oxytheca	Endangered/ None	G4?T1; S1; CNPS: 1B.1	Pinyon and juniper woodland. On limestone talus and rocky slopes. 1400-2350 m.	The pinyon-juniper woodland habitat this species is associated with is absent from the Project Area and the nearest documented occurrence for this species is approx. 4.1 miles NW of the site. Occurrence potential is low.
<i>Accipiter cooperii</i>	Cooper's hawk	None/ None	G5; S4; CDFW: WL	Woodland, chiefly of open, interrupted, or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	The only documented occurrence for this species in the 4-quad CNDDDB query is a historic collection (1886) from approx. 7.5 miles NW of the site. Occurrence potential is low.
<i>Anniella stebbinsi</i>	Southern California legless lizard	None/ None	G3; S3; CDFW: SSC	Generally, south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally, in moist, loose soil. They prefer soils with a high moisture content.	This species has not been documented in the Big Bear Valley since 1966. Occurrence potential is low.
<i>Antennaria marginata</i>	white-margined everlasting	None/ None	G4G5; S1; CNPS: 2B.3	Lower montane coniferous forest, upper montane coniferous forest. Dry woods. 2070-3355 m.	The habitats this species is associated with are absent from the proposed Project footprint. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Aquila chrysaetos</i>	golden eagle	None/ None	G5; S3; CDFW: FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	The site is situated in an urban/semi-urban setting and is subject to existing human disturbance. Furthermore, the nearest documented occurrence for this species is approx. 4.8 miles NW of the Project Area and this species has not been documented nesting in the Big Bear Valley area. Occurrence potential is low.
<i>Arenaria lanuginosa</i> var. <i>saxosa</i>	rock sandwort	None/ None	G5T5; S2; CNPS: 2B.3	Subalpine coniferous forest, upper montane coniferous forest. Mesic, sandy sites. 1920-2935 m.	Some of the habitat this species is associated with is present in the Project vicinity, but this species has not been documented in the Big Bear Valley. Occurrence potential is low.
<i>Astragalus albens</i>	Cushenbury milk-vetch	Endangered/ None	G1; S1; CNPS: 1B.1	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Sandy or stony flats, rocky hillsides, canyon washes, and fans, on carbonate or mixed granitic-calcareous debris. 1185-1950 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the Project Area.
<i>Astragalus bernardinus</i>	San Bernardino milk-vetch	None/ None	G3; S3; CNPS: 1B.2	Joshua tree woodland, pinyon and juniper woodland. Granitic or carbonate substrates. 290-2290 m.	The only documented occurrence for this species in the 4-quad CNDDDB query is a historic collection (1924) from approx. 1.4 miles NW of the site. Occurrence potential is low.
<i>Astragalus lentiginosus</i> var. <i>sierrae</i>	Big Bear Valley milk-vetch	None/ None	G5T2; S2; CNPS: 1B.2	Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest. Stony meadows and open pinewoods; sandy and gravelly soils in a variety of habitats. 1710-3230 m.	This species is present within the proposed Baldwin Lake conveyance pipeline alternative and BBARWA WWTP solar evaporation ponds components.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Astragalus leucolobus</i>	Big Bear Valley woollypod	None/ None	G2; S2; CNPS: 1B.2	Lower montane coniferous forest, pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Dry pine woods, gravelly knolls among sagebrush, or stony lake shores in the pine belt. 1460-2895 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Astragalus tidestromii</i>	Tidestrom's milk-vetch	None/ None	G4; S2; CNPS: 2B.2	Mojavean desert scrub. Washes, in sandy or gravelly soil. On limestone. 765-1575 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Atriplex parishii</i>	Parish's brittle scale	None/ None	G1G2; S1; CNPS: 1B.1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 4-1420 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Berberis fremontii</i>	Fremont barberry	None/ None	G5; S3; CNPS: 2B.3	Pinyon and juniper woodland, Joshua tree woodland. Rocky, sometimes granitic. 1140-1770 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the Project Area.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Boechera dispar</i>	pinyon rockcress	None/ None	G3; S3; CNPS: 2B.3	Joshua tree woodland, pinyon and juniper woodland, Mojavean desert scrub. Granitic, gravelly slopes and mesas. Often under desert shrubs which support it as it grows. 1005-2805 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Boechera lincolnsis</i>	Lincoln rockcress	None/ None	G4G5; S3; CNPS: 2B.3	Chenopod scrub, Mojavean desert scrub. On limestone. 880-2410 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Boechera parishii</i>	Parish's rockcress	None/ None	G2; S2; CNPS: 1B.2	Pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Generally found on pebble plains on clay soil with quartzite cobbles, sometimes on limestone. 1825-2805 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Boechera shockleyi</i>	Shockley's rockcress	None/ None	G3; S2; CNPS: 2B.2	Pinyon and juniper woodland. On ridges, rocky outcrops and openings on limestone or quartzite. 875-2515 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Bombus caliginosus</i>	obscure bumble bee	None/ None	G4?; S1S2	Coastal areas from Santa Barbara County to north to Washington state. Food plant genera include <i>Baccharis</i> , <i>Cirsium</i> , <i>Lupinus</i> , <i>Lotus</i> , <i>Grindelia</i> and <i>Phacelia</i> .	The Project Area is outside the current known range for this species and the food plants for this species are sparse within the Project Area. Occurrence potential is low.
<i>Bombus crotchii</i>	Crotch bumble bee	None/ Candidate Endangered	G3G4; S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	The food plants for this species are sparse within the Project Area and the nearest documented occurrence for this species (1999) is approx. 5.6 miles NE of the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Bombus morrisoni</i>	Morrison bumble bee	None/ None	G4G5; S1S2	From the Sierra-Cascade ranges eastward across the intermountain west. Food plant genera include <i>Cirsium</i> , <i>Cleome</i> , <i>Helianthus</i> , <i>Lupinus</i> , <i>Chrysothamnus</i> , and <i>Melilotus</i> .	The food plants for this species are sparse within the Project Area and the nearest documented occurrence for this species (1999) is approx. 4.9 miles NW of the Project Area. Occurrence potential is low.
<i>Botrychium crenulatum</i>	scalloped moonwort	None/ None	G4; S3; CNPS: 2B.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, lower montane coniferous forest, marshes, and swamps. Moist meadows, freshwater marsh, and near creeks. 1185-3110 m.	Some of the habitat this species is associated with is present in the Project vicinity, but the nearest documented occurrence is approx. 5.7 miles SE of the Project Area. Occurrence potential is low.
<i>Calochortus palmeri</i> var. <i>palmeri</i>	Palmer's mariposa-lily	None/ None	G3T2; S2; CNPS: 1B.2	Meadows and seeps, chaparral, lower montane coniferous forest. Vernal moist places in yellow-pine forest, chaparral. 195-2530 m.	Some of the habitat this species is associated with is present in the Project vicinity and the nearest documented occurrence is approx. 1.3 miles N of the Project Area. Occurrence potential is moderate.
<i>Calochortus plummerae</i>	Plummer's mariposa-lily	None/ None	G4; S4; CNPS: 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	Some of the habitat this species is associated with is present in the Project vicinity, but this species has not been documented in the Big Bear Valley area. Occurrence potential is low.
<i>Calochortus striatus</i>	alkali mariposa-lily	None/ None	G3?; S2S3; CNPS: 1B.2	Chaparral, chenopod scrub, Mojavean desert scrub, meadows, and seeps. Alkaline meadows and ephemeral washes. 70-1600m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Calyptidium pygmaeum</i>	pygmy pussypaws	None/ None	G1G2; S1S2; CNPS: 1B.2	Upper montane coniferous forest, subalpine coniferous forest. Sandy or gravelly sites. 2145-3415 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, the nearest documented occurrence for this species is approx. 2.8 miles N of the site. Occurrence potential is low.
<i>Carex occidentalis</i>	western sedge	None/ None	G4; S3; CNPS: 2B.3	Lower montane coniferous forest, meadows and seeps. 1645-2320 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Castilleja cinerea</i>	ash-gray paintbrush	Threatened/ None	G1G2; S1S2; CNPS: 1B.2	Pebble plains, upper montane coniferous forest, Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland. Endemic to the San Bernardino Mountains, in clay openings; often in meadow edges. 725-2860 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, this species was absent at the time of survey (June-July 2022; July 2023).
<i>Castilleja lasiorhyncha</i>	San Bernardino Mountains owl's-clover	None/ None	G2?; S2?; CNPS: 1B.2	Meadows and seeps, pebble plain, upper montane coniferous forest, chaparral, riparian woodland. Mesic to drying soils in open areas of stream and meadow margins or in vernal wet areas. 1140-2320 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Chaetodipus fallax pallidus</i>	pallid San Diego pocket mouse	None/ None	G5T34; S3S4; CDFW: SSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Charina umbratica</i>	southern rubber boa	None/ Threatened	G2G3; S2S3	Known from the San Bernardino and San Jacinto mtns; found in a variety of montane forest habitats. Snakes resembling <i>C. umbratica</i> reported from Mt. Pinos and Tehachapi mtns group with <i>C. bottae</i> based on mtDNA. Further research needed. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	There is some marginally suitable rubber boa habitat in the Project Area and the nearest documented rubber boa occurrence (2013) is approx. 0.5 mile N of the site. Occurrence potential is low-moderate.
<i>Claytonia peirsonii</i> ssp. <i>bernardinus</i>	San Bernardino spring beauty	None/ None	G2G3T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, upper montane coniferous forest. Rocky, talus slopes, carbonate, usually openings. 2360-2465 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
<i>Claytonia peirsonii</i> ssp. <i>californacis</i>	Furnace spring beauty	None/ None	G2G3T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, upper montane coniferous forest. Rocky, talus slopes, carbonate, usually openings. 2300 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/ None	G3G4; S2; CDFW: SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	There are no suitable roosting sites for this species in the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Cymopterus multinervatus</i>	purple-nerve cymopterus	None/ None	G4G5; S2; CNPS: 2B.2	Mojavean desert scrub, pinyon and juniper woodland. Sandy or gravelly places. 765-2195 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Drymocallis cuneifolia</i> var. <i>cuneifolia</i>	wedgeleaf woodbeauty	None/ None	G2T1; S1; CNPS: 1B.1	Upper montane coniferous forest, riparian scrub. Sometimes on carbonate. 1520-2220 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Dryopteris filix-mas</i>	male fern	None/ None	G5; S2; CNPS: 2B.3	Upper montane coniferous forest. In granite crevices. 1855-3075 m.	The habitats this species is associated with are absent from the Project Area and the only documented occurrence for this species in the 4-quad CNDDDB query is a historical collection (1882) and the site consists of graded/developed land. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Dudleya abramsii</i> ssp. <i>affinis</i>	San Bernardino Mountains dudleya	None/ None	G4T2; S2; CNPS: 1B.2	Pebble (pavement) plain, upper montane coniferous forest, pinyon and juniper woodland. Outcrops, granite, or quartzite, rarely limestone. 1200-2425 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Endangered/ Endangered	G5T2; S1	Riparian woodlands in Southern California.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.
<i>Ensatina eschscholtzii klauberi</i>	large-blotched salamander	None/ None	G5T2?; S3; CDFW: WL	Found in conifer and woodland associations. Found in leaf litter, decaying logs and shrubs in heavily forested areas.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Eremogone ursina</i>	Big Bear Valley sandwort	Threatened/ None	G1; S1; CNPS: 1B.2	Pebble plain, pinyon and juniper woodland, meadows and seeps. Mesic, rocky sites. 1795-2895 m.	The habitats this species is associated with are absent from the Project Area this species was absent at the time of survey (June-July 2022; July 2023).
<i>Erigeron parishii</i>	Parish's daisy	Threatened/ None	G2; S2; CNPS: 1B.1	Mojavean desert scrub, pinyon and juniper woodland. Often on carbonate; limestone mountain slopes; often associated with drainages. Sometimes on granite. 1050-2245 m.	The habitats this species is associated with are absent from the Project Area this species was absent at the time of survey (June-July 2022; July 2023).
<i>Eriogonum evanidum</i>	vanishing wild buckwheat	None/ None	G2; S1; CNPS: 1B.1	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland. Sandy sites. 975-2240 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, the nearest documented occurrence for this species is approx. 2.3 miles NW of the site. Occurrence potential is low.
<i>Eriogonum kennedyi</i> var. <i>alpigenum</i>	southern alpine buckwheat	None/ None	G4T3; S3; CNPS: 1B.3	Alpine boulder and rock fields, subalpine coniferous forest. Dry granitic gravel. 2500-3415 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i>	southern mountain buckwheat	Threatened/ None	G4T2; S2; CNPS: 1B.2	Pebble (pavement) plain, lower montane coniferous forest. Usually found in pebble plain habitats. 1765-3020 m.	The habitats this species is associated with are absent from the Project Area this species was absent at the time of survey (June-July 2022; July 2023).
<i>Eriogonum microthecum</i> var. <i>johnstonii</i>	Johnston's buckwheat	None/ None	G5T2; S2; CNPS: 1B.3	Subalpine coniferous forest, upper montane coniferous forest. Slopes and ridges on granite or limestone. 1795-2865 m	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Eriogonum microthecum</i> var. <i>lacus-ursi</i>	Bear Lake buckwheat	None/ None	G5T1; S1; CNPS: 1B.1	Lower montane coniferous forest, Great Basin scrub. Clay outcrops. 2000-2100 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, there is only one documented occurrence for this species (2003) in the 4-quad CNDDDB query and it is approx. 2.6 miles SW of the site. Occurrence potential is low.
<i>Eriogonum ovalifolium</i> var. <i>vineum</i>	Cushenbury buckwheat	Endangered/ None	G5T1; S1; CNPS: 1B.1	Mojavean desert scrub, pinyon and juniper woodland, Joshua tree woodland. Limestone mountain slopes. Dry, usually rocky places. 1430-2440 m.	The habitats this species is associated with are absent from the Project Area this species was absent at the time of survey (June-July 2022; July 2023).
<i>Erythranthe exigua</i>	San Bernardino Mountains monkeyflower	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. Seeps and sandy sometimes disturbed soil in moist drainages of annual streams; clay soils. 2060-2630 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Erythranthe purpurea</i>	little purple monkeyflower	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plain, upper montane coniferous forest. Dry clay or gravelly soils under Jeffrey pines, along annual streams or vernal springs and seeps. 2045-2290 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Euchloe hyantis andrewsi</i>	Andrew's marble butterfly	None/ None	G3G4T1; S1	Inhabits yellow pine forest near Lake Arrowhead and Big Bear Lake, San Bernardino Mtns, San Bernardino Co, 5,000-6,000 ft. Hostplants are <i>Streptanthus bernardinus</i> and <i>Arabis holboellii</i> var. <i>pinetorum</i> ; larval foodplant is <i>Descurainia richardsonii</i> .	The host and food plant species for this species are absent from the proposed Project footprint. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Euphydryas editha quino</i>	quino checkerspot butterfly	Endangered/ None	G5T1T2; S1S2	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants <i>Plantago erecta</i> , <i>P. insularis</i> , and <i>Orthocarpus purpurescens</i> .	The Project Area is outside the current known range of this species and there is no suitable habitat for this species within the Project Area. Occurrence potential is low.
<i>Gasterosteus aculeatus williamsoni</i>	unarmored threespine stickleback	Endangered/ Endangered	G5T1; S1; CDFW: FP	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (<24 C), clear water with abundant vegetation.	This species is presumed present within Shay Pond.
<i>Gentiana fremontii</i>	Fremont's gentian	None/ None	G4; S2; CNPS: 2B.3	Meadows and seeps, upper montane coniferous forest. Wet mountain meadows. 2400-2700 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
<i>Gilia leptantha</i> ssp. <i>leptantha</i>	San Bernardino gilia	None/ None	G4T2; S2; CNPS: 1B.3	Lower montane coniferous forest. Sandy or gravelly sites. 1520-2595 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, this species has not been documented in the Project vicinity since 1926. Occurrence potential is low.
<i>Glaucomys oregonensis californicus</i>	San Bernardino flying squirrel	None/ None	G5T1T2; S1S2; CDFW: SSC	Known from black oak or white fir dominated woodlands between 5,200 – 8,500 ft in the San Bernardino and San Jacinto ranges. May be extirpated from San Jacinto range. Needs cavities in trees/snags for nests and cover. Needs nearby water.	Although the site is situated in an urban/semi-urban setting and is subject to a high level of existing human disturbance, this species has been documented in residential areas and the nearest documented occurrence (2015) is approx. 0.4 miles N of the proposed Project footprint. Occurrence potential is moderate.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted/ Endangered	G5; S3; CDFW: FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	There is some shoreline habitat suitable to support wintering BAEA within the Project Area. Occurrence potential is moderate.
<i>Heuchera parishii</i>	Parish's alumroot	None/ None	G3; S3; CNPS: 1B.3	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest, alpine boulder and rock field. Rocky places. Sometimes on carbonate. 1340-3505 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Horkelia wilderae</i>	Barton Flats horkelia	None/ None	G1; S1; CNPS: 1B.1	Lower montane coniferous forest, upper montane coniferous forest, chaparral. On rocky, north aspects in openings that hold persistent snowdrifts. 1980-2895 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, this species has not been documented in the Big Bear Valley area. Occurrence potential is low.
<i>Hulsea vestita ssp. pygmaea</i>	pygmy hulsea	None/ None	G5T1; S1; CNPS: 1B.3	Alpine boulder and rock field, subalpine coniferous forest. Gravelly sites; on granite. 2860-3502 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Hydroporus simplex</i>	simple hydroporus diving beetle	None/ None	G1?; S1?	Known from aquatic habitats in Tuolumne and San Bernardino counties.	The aquatic habitats required by this species are present in the Project Area but the only documented occurrence for this species in the 4-quad CNDDDB query is from approx. 2.9 miles N of the site. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Icteria virens</i>	yellow-breasted chat	None/ None	G5; S3; CDFW: SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.
<i>Ivesia argyrocoma</i> var. <i>argyrocoma</i>	silver-haired ivesia	None/ None	G2T2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. In pebble plains and meadows with other rare plants. 1490-2960 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Lewisia brachycalyx</i>	short-sepaled lewisia	None/ None	G4; S2; CNPS: 2B.2	Lower montane coniferous forest, meadows and seeps. Dry to moist meadows in rich loam. 1400-2290 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Lilium parryi</i>	lemon lily	None/ None	G3; S3; CNPS: 1B.2	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. Wet, mountainous terrain; generally, in forested areas; on shady edges of streams, in open boggy meadows and seeps. 625-2930 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Linanthus killipii</i>	Baldwin Lake linanthus	None/ None	G1; S1; CNPS: 1B.2	Alkaline meadows, pebble plain, pinyon and juniper woodland, Joshua tree woodland. Usually on pebble plains with other rare species. 1645-2645 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Malaxis monophyllos</i> var. <i>brachypoda</i>	white bog adder's- mouth	None/ None	G4?T4; S1; CNPS: 2B.1	Meadows and seeps, bogs and fens, upper montane coniferous forest. Hillside bogs and mesic meadows. 2375-2560 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
<i>Myotis evotis</i>	long-eared myotis	None/ None	G5; S3	Found in all brush, woodland, and forest habitats from sea level to about 9,000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Some suitable habitat for this species exists in the Project vicinity. Occurrence potential is moderate.
<i>Myotis thysanodes</i>	fringed myotis	None/ None	G4; S3	In a wide variety of habitats, optimal habitats are pinyon- juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Some suitable habitat for this species exists in the Project vicinity. Occurrence potential is moderate.
<i>Myotis volans</i>	long-legged myotis	None/ None	G5; S3	Most common in woodland and forest habitats above 4,000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Some suitable habitat for this species exists in the Project vicinity. Occurrence potential is moderate.
<i>Myotis yumanensis</i>	Yuma myotis	None/ None	G5; S4	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Some suitable habitat for this species exists in the Project vicinity. Occurrence potential is moderate.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Navarretia peninsularis</i>	Baja navarretia	None/ None	G3; S2; CNPS: 1B.2	Lower montane coniferous forest, chaparral, meadows and seeps, pinyon and juniper woodland. Wet areas in open forest. 1150-2365 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Neotamias speciosus speciosus</i>	lodgpole chipmunk	None/ None	G4T2T3; S2S3	Summits of isolated Piute, San Bernardino, and San Jacinto mountains. Usually found in open-canopy forests. Habitat is usually lodgepole pine forests in the San Bernardino Mts and chinquapin slopes in the San Jacinto Mts.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.
<i>Oncorhynchus mykiss irideus</i> pop. 10	Steelhead – southern California DPS	Endangered/ None	G5T1Q; S1	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is presumed absent from the Project Area.
<i>Oreonana vestita</i>	woolly mountain-parsley	None/ None	G3; S3; CNPS: 1B.3	Subalpine coniferous forest, upper montane coniferous forest, lower montane coniferous forest. High ridges; on scree, talus, or gravel. 800-3370 m.	The habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Oxytropis oreophila</i> var. <i>oreophila</i>	rock-loving oxytrope	None/ None	G5T4T5; S2; CNPS: 2B.3	Alpine boulder and rock field, subalpine coniferous forest. Gravelly or rocky sites. 2615-3505 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the Project Area.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Packera bernardina</i>	San Bernardino ragwort	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. Mesic, sometimes alkaline meadows, and dry rocky slopes. 1615-2470 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
	Pebble Plains	None/ None	G1; S1.1		There is no pebble plain or pebble plain-like habitat within the proposed Project footprint and pebble plain indicator species are absent from the proposed Project footprint.
<i>Perideridia parishii</i> ssp. <i>parishii</i>	Parish's yampah	None/ None	G4T3T4; S2; CNPS: 2B.2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Damp meadows or along streambeds-prefers an open pine canopy. 1470-2530 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Phlox dolichantha</i>	Big Bear Valley phlox	None/ None	G2; S2; CNPS: 1B.2	Pebble plains, upper montane coniferous forest. Sloping hillsides, in shade under pines and <i>Quercus kelloggii</i> , with heavy pine litter; also, in openings. 1980-2805 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Phrynosoma blainvillii</i>	coast horned lizard	None/ None	G3G4; S3S4; CDFW: SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	This species has not been documented in the Big Bear Valley and the Project Area is likely outside the current range of this species. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Physaria kingii</i> ssp. <i>bernardina</i>	San Bernardino Mountains bladderpod	Endangered/ None	G5T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, lower montane coniferous forest, subalpine coniferous forest. Dry sandy to rocky carbonate soils. 1980-2590 m.	The habitats this species is associated with are absent from the Project Area this species was absent at the time of survey (June-July 2022; July 2023).
<i>Piranga rubra</i>	summer tanager	None/ None	G5; S1; CDFW: SSC	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts. Requires cottonwood-willow riparian for nesting and foraging; prefers older, dense stands along streams.	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.
<i>Poa atropurpurea</i>	San Bernardino blue grass	Endangered/ None	G2; S2; CNPS: 1B.2	Meadows and seeps. Mesic meadows of open pine forests and grassy slopes, loamy alluvial to sandy loam soil. 1255-2655 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, this species was absent at the time of survey (June-July 2022; July 2023).
<i>Poliomintha incana</i>	frosted mint	None/ None	G5; SH; CNPS: 2A	Lower montane coniferous forest. In boggy soil. 1600-1700 m.	The Project Area is outside the known elevation range for this species. Occurrence potential is low.
<i>Psychomastax deserticola</i>	desert monkey grasshopper	None/ None	G1G2; S1S2	Occurs in very arid environments in the vicinity of the San Bernardino Mtns. Known to occur on chamise (<i>Adenostoma fasciculatum</i>).	No suitable habitat for this species exists within the Project Area. Occurrence potential is low.
<i>Pyrrocoma uniflora</i> var. <i>gossypina</i>	Bear Valley pyrrocoma	None/ None	G5T1; S1; CNPS: 1B.2	Pebble plain, meadows and seeps. Meadows, meadow edges, and along streams in or near pebble plain habitat. 2040-2280 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Rana muscosa</i>	southern mountain yellow-legged frog	Endangered/ Endangered	G1; S1; CDFW: WL	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino mountains (southern DPS). Northern DPS was determined to warrant listing as endangered, Apr 2014, effective Jun 30, 2014. Always encountered within a few feet of water. Tadpoles may require 2 - 4 yrs. to complete their aquatic development.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is presumed absent from the Project Area.
<i>Rosa woodsii</i> var. <i>glabrata</i>	Cushenbury rose	None/ None	G5T1; S1; CNPS: 1B.1	Mojavean desert scrub. Springs. 1095-1220 m.	The Project Area is outside the known elevation range for this species and the habitats this species is associated with are absent from the Project Area. Therefore, this species is presumed absent from the proposed Project footprint.
<i>Saltugilia latimeri</i>	Latimer's woodland-gilia	None/ None	G3; S3; CNPS: 1B.2	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Rocky or sandy substrate; sometimes in washes, sometimes limestone. 120-2200 m.	Some of the habitat this species is associated with is present in the Project vicinity, but this species has not been documented in the Big Bear Valley. Occurrence potential is low.
<i>Sidalcea hickmanii</i> ssp. <i>parishii</i>	Parish's checkerbloom	None/ Rare	G3T1; S1; CNPS: 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest. Disturbed burned or cleared areas on dry, rocky slopes, in fuel breaks and fire roads along the mountain summits. 1095-2135 m.	The habitats this species is associated with are absent from the Project Area and this species has not been documented in the Big Bear Valley area. Therefore, this species is presumed absent from the proposed Project footprint.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Sidalcea malviflora</i> ssp. <i>dolosa</i>	Bear Valley checkerbloom	None/ None	G5T2; S2; CNPS: 1B.2	Meadows and seeps, riparian woodland, lower montane coniferous forest, upper montane coniferous forest. Known from wet areas within forested habitats. Affected by hydrological changes. 1575-2590 m.	Some of the habitat this species is associated with is present in the Project vicinity and this species has been documented nearby. Occurrence potential is moderate.
<i>Sidalcea pedata</i>	bird-foot checkerbloom	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Meadows and seeps, pebble plains. Vernal mesic sites in meadows or pebble plains. 1840-2305 m.	This species is present within the proposed Baldwin Lake conveyance pipeline alternative and BBARWA WWTP solar evaporation ponds components.
<i>Sisyrinchium longipes</i>	timberland blue-eyed grass	None/ None	G3G4; S1; CNPS: 2B.2	Meadows and seeps. Mesic areas in meadows; seeps. 2060 m.	Some of the habitat this species is associated with is present in the Project vicinity, but this species has not been documented in the Big Bear Valley. Occurrence potential is low.
	Southern California Threespine Stickleback Stream	None/ None	GNR; SNR		This aquatic habitat is present within the Project Area.
<i>Sphenopholis obtusata</i>	prairie wedge grass	None/ None	G5; S2; CNPS: 2B.2	Cismontane woodland, meadows and seeps. Open moist sites, along rivers and springs, alkaline desert seeps. 15-2625 m.	Some of the habitat this species is associated with is present in the Project vicinity, but this species has not been documented in the Big Bear Valley. Occurrence potential is low.
<i>Streptanthus bernardinus</i>	Laguna Mountains jewelflower	None/ None	G3G4; S3S4; CNPS: 4.3	Chaparral, lower montane coniferous forest. Clay or decomposed granite soils; sometimes in disturbed areas such as stream sides or roadcuts. 1440-2500 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, the nearest documented occurrence is approx. 6.2 miles W of the site. Occurrence potential is low.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Streptanthus campestris</i>	southern jewelflower	None/ None	G3; S3; CNPS: 1B.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland. Open, rocky areas. 605-2590 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, the only documented occurrence for this species is approx. 2.3 miles SW of the site. Occurrence potential is low.
<i>Streptanthus juneae</i>	June's jewelflower	None/ None	G2; S2 CNPS: 1B.2	Lower montane coniferous forest, chaparral (montane). Openings. 2155-2370 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, the only documented occurrence for this species is approx. 2.8 miles W of the site. Occurrence potential is low.
<i>Symphyotrichum defoliatum</i>	San Bernardino aster	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernal mesic grassland or near ditches, streams and springs; disturbed areas. 3-2045 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, there is only one documented occurrence for this species in the Big Bear Valley. Occurrence potential is low.
<i>Taraxacum californicum</i>	California dandelion	Endangered/ None	G1G2; S1S2; CNPS: 1B.1	Meadows and seeps. Mesic meadows, usually free of taller vegetation. 1620-2590 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, this species was absent at the time of survey (June-July 2022; July 2023).
<i>Thamnophis hammondi</i>	two-striped garter snake	None/ None	G4; S3S4; CDFW: SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	The aquatic habitats required by this species are absent from the Project Area. Therefore, this species is presumed absent from the Project Area.

Scientific Name	Common Name	Listing Status Federal/ State	Other Status	Habitat	Occurrence Potential
<i>Thelypodium stenopetalum</i>	slender-petaled thelypodium	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Meadows and seeps. Seasonally moist alkaline clay soils; associated with seeps and springs in the pebble plains. 2045-2240 m.	Some of the habitat this species is associated with is present in the Project vicinity. However, this species was absent at the time of survey (June-July 2022; July 2023).
<i>Viola pinetorum</i> ssp. <i>grisea</i>	grey-leaved violet	None/ None	G4G5T3; S3; CNPS: 1B.2	Subalpine coniferous forest, upper montane coniferous forest, meadows, and seeps. Dry mountain peaks and slopes. 1580-3700 m.	The only documented occurrence for this species is a 1886 collection from the "historic Bear Valley" area. Occurrence potential is low.

Coding and Terms

E = Endangered T = Threatened C = Candidate FP = Fully Protected SSC = Species of Special Concern R = Rare

State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor and owls are protected under section 3502.5 of the California Fish and Game code: "It is unlawful to take, possess or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the nest or eggs of any such bird."

State Fully Protected: The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Global Rankings (Species or Natural Community Level):

G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.

G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5 = Secure – Common; widespread and abundant.

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank) attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa*. The T-rank refers only to the global condition of ssp. *phaea*.

State Ranking:

S1 = Critically Imperiled – Critically imperiled in the State because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.

S2 = Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State.

S3 = Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the State.

S4 = Apparently Secure – Uncommon but not rare in the State; some cause for long-term concern due to declines or other factors.

S5 = Secure – Common, widespread, and abundant in the State.

California Rare Plant Rankings (CNPS List):

1A = Plants presumed extirpated in California and either rare or extinct elsewhere.

1B = Plants rare, threatened, or endangered in California and elsewhere.

2A = Plants presumed extirpated in California, but common elsewhere.

2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

3 = Plants about which more information is needed; a review list.

4 = Plants of limited distribution; a watch list.

Threat Ranks:

.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Appendix B. Site Photos



Photo 1. East Neighborhoods conveyance pipeline alternative; looking south along Palomino Drive from the BBARWA WWTP (2022).



Photo 2. Representative photo of the East Neighborhoods conveyance pipeline alternative; looking north along Pintail Drive from the intersection of Pintail Drive and E Mountain View Boulevard (2022).



Photo 3. Representative photo of the West Neighborhoods conveyance pipeline alternative; looking east along Aeroplane Boulevard from the intersection of Aeroplane Boulevard and Division Drive (2022).



Photo 4. Stanfield Marsh discharge outlet Alternative 2.



Photo 5. Baldwin Lake conveyance pipeline alternative; looking west along alignment from the east end of the alignment within the BBARWA WWTP (2023).



Photo 6. Baldwin Lake conveyance pipeline alternative; looking west along alignment from the east end of the alignment within the W Baldwin Lake Trail (2023).



Photo 7. Baldwin Lake conveyance pipeline alternative; looking west along alignment from the middle portion of the alignment within the W Baldwin Lake Trail (2023).



Photo 8. Baldwin Lake conveyance pipeline alternative; looking west along alignment from the west end of the alignment within the W Baldwin Lake Trail (2022).



Photo 9. Baldwin Lake conveyance pipeline alternative; looking east along alignment from the west end of the alignment at Paradise Way (2022).



Photo 10. Representative photo of the Meadow Lane conveyance pipeline alternative; looking south along Sequoia Drive from the intersection of Sequoia Drive and Arbor Lane (2022).



Photo 11. Representative photo of the North Airport Corridor conveyance pipeline alternative; looking west along the airport taxiway (2022).



Photo 12. Stanfield Marsh discharge outlet Alternative 1.



Photo 13. East end of proposed new solar evaporation ponds site, looking northeast (2023).



Photo 14. East end of proposed new solar evaporation ponds site, looking northwest (2023).



Photo 15. West end of proposed new solar evaporation ponds site, looking northwest (2023).



Photo 16. BBARWA WWTP Upgrades site (2022).



Photo 17.
Proposed solar
energy site
adjacent south side
of BBARWA admin
building (2023).



Photo 18.
Additional
proposed solar
energy site along
eastern end of
BBARWA WWTP
(2023).



Photo 19. New 4-inch Shay Pond conveyance pipeline alignment in Cascade Street; looking east from west end of alignment (2022).



Photo 20. Shay Pond (UTS habitat); looking southwest from potential discharge outlet location (2023).



Photo 21. New Sand Canyon Recharge booster pump station site (2022).



Photo 22. Representative Sand Canyon Recharge conveyance pipeline alignment in Moonridge neighborhood (2022).



Photo 23. Potential Sand Canyon Recharge conveyance pipeline discharge outlet to Sand Canyon location (2022).



Photo 23. Sand Canyon Recharge area (2022).

Appendix C. Plant Species List

List of Plant Species Observed within the Project Area

Scientific Name	Common Name	Life Form
Asteraceae		
Aster Family		
<i>Achillea millefolium</i>	common yarrow	perennial herb
<i>Artemisia dracunculus</i>	tarragon	perennial herb
<i>Artemisia ludoviciana</i>	silver wormwood	perennial herb
<i>Artemisia rothrockii</i>	Rothrock sagebrush	shrub
<i>Artemisia tridentata</i>	common sagebrush	shrub
<i>Chrysothamnus viscidiflorus</i>	yellow rabbitbrush	shrub
<i>Ericameria nauseosa</i>	rubber rabbitbrush	shrub
<i>Erigeron divergens</i>	diffuse daisy	biennial or perennial herb
<i>Gnaphalium palustre</i>	lowland cudweed	annual herb
<i>Lactuca serriola</i>	prickly lettuce	annual herb
<i>Symphotrichum ascendens</i>	western aster	perennial herb
<i>Taraxacum officinale</i>	common dandelion	perennial herb
<i>Tragopogon dubius*</i>	goat's beard*	perennial herb
Brassicaceae		
Mustard Family		
<i>Chorispota tenella*</i>	crossflower*	annual herb
<i>Descurainia sophia*</i>	herb sophia*	annual herb
<i>Erysimum capitatum</i>	western wallflower	perennial herb
<i>Lepidium virginicum</i>	Virginia pepperweed	annual herb
<i>Sisymbrium altissimum*</i>	tumble mustard*	annual herb
Boraginaceae		
Forget-Me-Not Family		
<i>Cryptantha</i> sp.	cryptantha	annual herb
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	alkali heliotrope	Perennial herb
Chenopodiaceae		
Goosefoot Family		
<i>Atriplex truncata</i>	wedgescale saltweed	annual herb
<i>Chenopodium chenopodioides*</i>	low goosefoot*	annual herb
<i>Kochia scoparia**</i>	common red sage**	annual herb
<i>Salsola tragus**</i>	Russian thistle**	annual herb
Cupressaceae		
cypress family		
<i>Juniperus grandis</i>	Sierra juniper	tree
Cyperaceae		
Sedge Family		
<i>Carex</i> spp.	sedges	perennial herb

Scientific Name	Common Name	Life Form
<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	tule	perennial herb
Fabaceae		
Legume Family		
<i>Astragalus lentiginosus</i> var. <i>sierrae</i>	Big Bear Valley milk vetch	perennial herb
<i>Lupinus lepidus</i> var. <i>confertus</i>	clustered tidy lupine	perennial herb
<i>Melilotus</i> sp.*	sweetclover*	annual herb
<i>Trifolium</i> sp.	clover	perennial herb
Fagaceae		
Beech Family		
<i>Quercus kelloggii</i>	black oak	tree
Geraniaceae		
Geranium Family		
<i>Erodium cicutarium</i>	coastal heron's bill	annual herb
Hydrophyllaceae		
Waterleaf Family		
<i>Phacelia hastata</i>	white leafed phacelia	perennial herb
Juncaceae		
Rush Family		
<i>Juncus</i> spp.	rushes	perennial herb
Malvaceae		
Mallow Family		
<i>Malva neglecta</i>	dwarf mallow	annual herb
<i>Sidalcea pedata</i>	bird-foot checkerbloom	perennial herb
Montiaceae		
Miner's Lettuce Family		
<i>Calyptidium umbellatum</i>	pussy toes	annual or perennial herb
Onagraceae		
Evening Primrose Family		
<i>Epilobium brachycarpum</i>	annual fireweed	annual herb
<i>Oenothera californica</i>	California evening primrose	perennial herb
Orobanchaceae		
Broomrape Family		
<i>Castilleja applegatei</i>	wavy leaf paintbrush	perennial herb
<i>Pedicularis semibarbata</i>	pinewoods lousewort	perennial herb
Pinaceae		
Pine Family		
<i>Abies concolor</i>	white fir	tree
<i>Pinus jeffreyi</i>	Jeffrey pine	tree
<i>Pinus ponderosa</i>	yellow pine	tree

Scientific Name	Common Name	Life Form
Plantaginaceae	Plantain Family	
<i>Collinsia parviflora</i>	few flowered blue eyed Mary	annual herb
<i>Penstemon caesius</i>	San Bernardino beardtongue	perennial herb
<i>Penstemon labrosus</i>	San Gabriel beardtongue	perennial herb
<i>Penstemon rostriflorus</i>	Bridge's penstemon	perennial herb
Poaceae	Grass Family	
<i>Bromus tectorum</i> **	cheatgrass**	annual grass
<i>Distichlis spicata</i>	salt grass	perennial grass
<i>Elymus elymoides</i>	squirrel tail grass	perennial grass
<i>Elymus triticoides</i>	beardless wild rye	perennial grass
<i>Hordeum jubatum</i>	fox tail barley	perennial grass
<i>Poa pratensis</i> **	Kentucky blue grass**	perennial grass
<i>Stipa</i> sp.	grass	perennial grass
Polygonaceae	Buckwheat Family	
<i>Eriogonum baileyi</i>	Bailey's buckwheat	annual herb
<i>Eriogonum davidsonii</i>	Davidson buckwheat	annual herb
<i>Eriogonum wrightii</i> var. <i>subscaposum</i>	Wright's buckwheat	perennial herb or shrub
<i>Rumex crispus</i> *	curly dock*	perennial herb
Rhamnaceae	Buckthorn Family	
<i>Ceanothus cordulatus</i>	mountain whitethorn	shrub
Rosaceae	Rose Family	
<i>Amelanchier utahensis</i>	pale leaved serviceberry	shrub
<i>Cercocarpus ledifolius</i>	desert mountain mahogany	tree or shrub
<i>Horkelia rydbergii</i>	Rydberg's horkelia	perennial herb
<i>Potentilla anserina</i>	silver weed cinquefoil	perennial herb
<i>Potentilla</i> spp.	cinquefoil	perennial herb
Salicaceae	Willow Family	
<i>Salix scouleriana</i>	Scouler willow	tree or shrub
Scrophulariaceae	Figwort Family	
<i>Verbascum thapsus</i> **	common mullein**	perennial herb

*Nonnative **Invasive, nonnative

Appendix D. Regulatory Framework

Federal Regulations

Clean Water Act

The purpose of the Clean Water Act (CWA) of 1977 is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" (WOTUS) without a permit from the United States Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3 7b). The U.S. Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; in California this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

Federal Endangered Species Act (ESA)

The federal Endangered Species Act (ESA) of 1973 protects plants and wildlife that are listed by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of the ESA (USA) prohibits the taking of endangered wildlife, where taking is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its Critical Habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species. The ESA specifies that the USFWS designate habitat for a species at the time of its listing in which are found the physical or biological features "essential to the conservation of the species," or which may require "special Management consideration or protection..." (16 USC § 1533[a][3].2; 16 USC § 1532[a]). This designated Critical Habitat is then afforded the same protection under the ESA as individuals of the species itself, requiring issuance of an Incidental Take Permit prior to any activity that results in "the destruction or adverse modification of habitat determined to be critical" (16 USC § 1536[a][2]).

Interagency Consultation and Biological Assessments

Section 7 of ESA provides a means for authorizing the "take" of threatened or endangered species by federal agencies, and applies to actions that are conducted, permitted, or funded by a federal agency. The statute requires federal agencies to consult with the USFWS or National Marine Fisheries Service (NMFS), as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of Critical Habitat for these species. If a Proposed Project "may affect" a listed species or destroy or modify Critical Habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the potential effect.

Habitat Conservation Plans

Section 10 of the federal ESA requires the acquisition of an Incidental Take Permit (ITP) from the USFWS by non-federal landowners for activities that might incidentally harm (or "take") endangered or threatened wildlife on

their land. To obtain a permit, an applicant must develop a Habitat Conservation Plan that is designed to offset any harmful impacts the proposed activity might have on the species.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667e et seq.) applies to any federal Project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) (1940), amended in 1962, was originally implemented for the protection of bald eagles (*Haliaeetus leucocephalus*). In 1962, Congress amended the Eagle Act to cover golden eagles (*Aquila chrysaetos*), a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than that of the bald eagle.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 implements international treaties between the United States and other nations created to protect migratory birds, any of their parts, eggs, and nests from activities, such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).

Executive Orders (EO)

Invasive Species – EO 13112 (1999): Issued on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.

Migratory Bird – EO 13186 (2001): Issued on January 10, 2001, promotes the conservation of migratory birds and their habitats and directs federal agencies to implement the Migratory Bird Treaty Act. Protection and Enhancement of Environmental Quality – EO 11514 (1970a), issued on March 5, 1970, supports the purpose and policies of the National Environmental Policy Act (NEPA) and directs federal agencies to take measures to meet national environmental goals.

Migratory Bird Treaty Reform Act

The Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447) amends the Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes. This list excluded two additional species commonly observed in the United States, the rock pigeon (*Columba livia*) and domestic goose (*Anser domesticus*).

Birds of Conservation Concern

Birds of Conservation Concern (BCC) is a USFWS list of bird species identified to have the highest conservation priority, and with the potential for becoming candidates for listing as federally threatened or endangered. The chief legal authority for BCC is the Fish and Wildlife Conservation Act of 1980 (FWCA). Other authorities include the FESA, the Fish and Wildlife Act of 1956, and the Department of the Interior U.S Code (16 U.S.C. § 701). The 1988 amendment to the FWCA (Public Law 100-653, Title VIII) requires the Secretary of the Interior, through the USFWS, to “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973” (USFWS, 2008a).

State Regulations

California Fish and Game Code Sections 1600 through 1607 of the CFGC

This section requires that a Streambed Alteration Application be submitted to the CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the applicant is the Streambed Alteration Agreement. Often, Projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

California Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is the principal law governing water quality in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. Unlike the federal CWA, Porter-Cologne applies to both surface water and ground water. Porter-Cologne designated the State Water Resources Control Board (State Board) as the statewide water quality planning agency, and also gave authority to the RWQCB. Beyond establishment of a state framework, this act has been revised to comply with the federal CWA.

The State Board is responsible for developing statewide water quality plans (e.g., Ocean Plan, Inland Surface Waters Plan), while the RWQCB is responsible for developing Regional Water Quality Plans (basin plans). The basin plans in turn are approved by the State Board and EPA. Amendments to basin plans, such as Total Maximum Daily Loads (TMDLs), must also be approved by the Office of Administrative Law. These plans, both statewide and basin, include the identification of beneficial uses, water quality objectives, and implementation plans. The RWQCB has the primary responsibility for implementing the provisions in both statewide and basin plans.

California Endangered Species Act

The California Endangered Species Act (CESA) (Sections 2050 to 2085) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats by protecting "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation." Animal species are listed by the CDFW as threatened or endangered, and plants are listed as rare, threatened, or endangered. However, only those plant species listed as threatened or endangered receive protection under the California ESA.

CESA mandates that state agencies do not approve a Project that would jeopardize the continued existence of these species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. There are no state agency consultation procedures under the California ESA. For Projects that would affect a species that is federally and state listed, compliance with ESA satisfies the California ESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with the CESA under Section 2080.1. For Projects that would result in take of a species that is state listed only, the Project sponsor must apply for a take permit, in accordance with Section 2081(b).

Fully Protected Species

Four sections of the California Fish and Game Code (CFGC) list 37 fully protected species (CFGC Sections 3511, 4700, 5050, and 5515). These sections prohibit take or possession "at any time" of the species listed, with few exceptions, and state that "no provision of this code or any other law will be construed to authorize the issuance of permits or licenses to 'take' the species," and that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.

Bird Nesting Protections

Bird nesting protections (Sections 3503, 3503.5, 3511, 3513 and 3800) in the CFGC include the following:

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

Section 3800 prohibits the take of any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

Native Plant Protection Act

The Native Plant Protect Act (NPPA) (1977) (CFGC Sections 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as endangered or rare and to

protect endangered and rare plants from take. CESA (CFG 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

Appendix E. Soil Map of the Project Area and Surrounding Vicinity

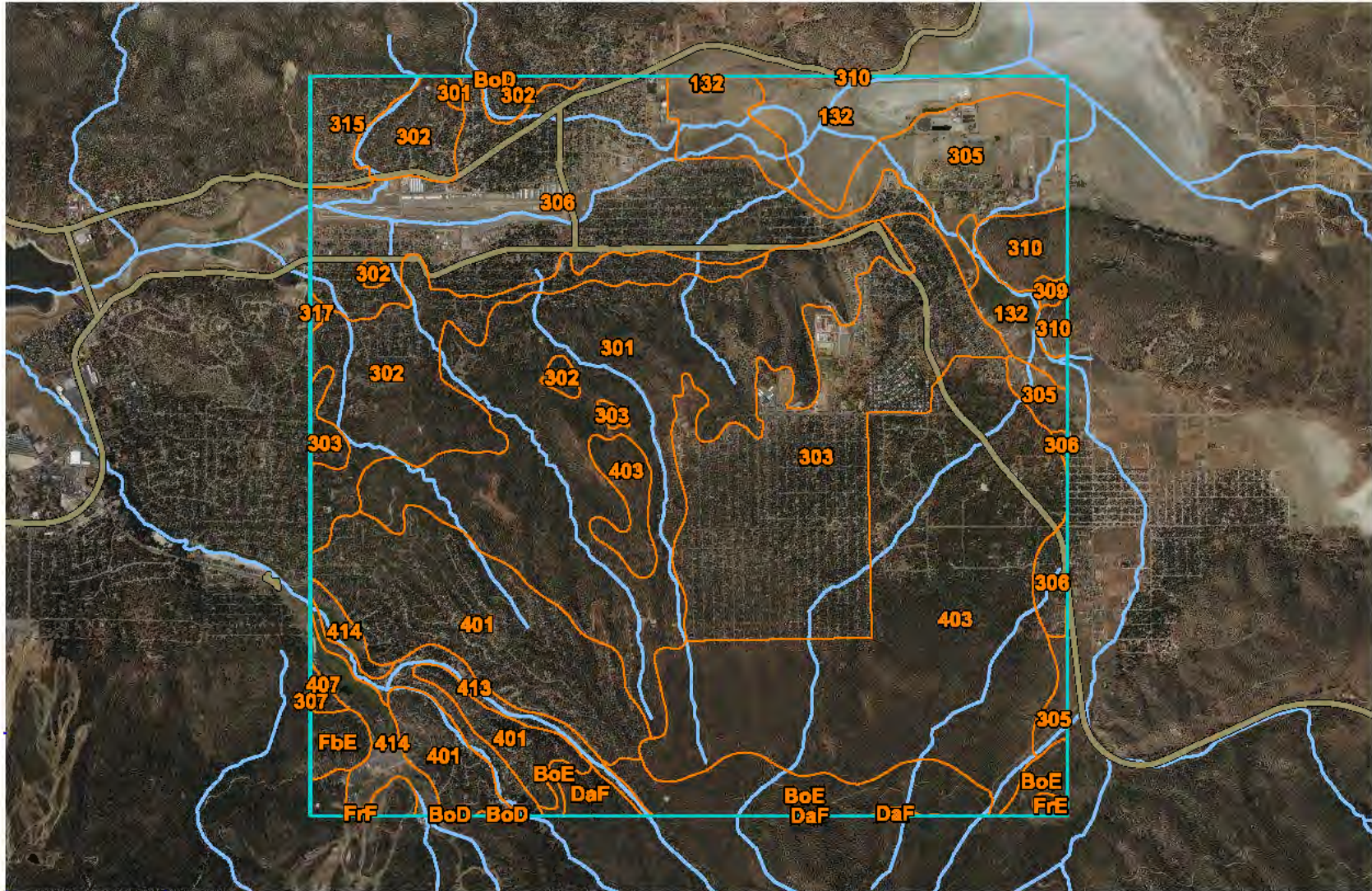
Soil Map—San Bernardino National Forest Area, California
(Replenish Big Bear Project)

116° 53' 24" W

116° 46' 59" W

34° 16' 37" N

34° 16' 37" N

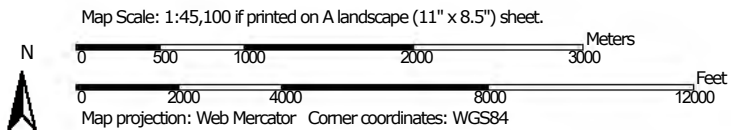


34° 13' 10" N

34° 13' 10" N

116° 53' 24" W

116° 46' 59" W




Soil Map—San Bernardino National Forest Area, California
(Replenish Big Bear Project)

MAP LEGEND




















Area of Interest (AOI)

Area of Interest (AOI)

Soils


-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino National Forest Area, California
Survey Area Data: Version 14, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 27, 2021—May 27, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
132	Aquents-Grunney complex, 0 to 4 percent slopes	296.8	4.1%
301	Garloaf-Cariboucreek complex, 15 to 30 percent slopes	1,204.9	16.8%
302	Garloaf-Cariboucreek-Urban land complex, 9 to 15 percent slopes	569.9	7.9%
303	Garloaf-Urban land complex, 4 to 9 percent slopes	892.6	12.4%
305	Moonridge-Shayroad-Cariboucreek complex, 0 to 4 percent slopes	452.0	6.3%
306	Moonridge-Cariboucreek-Urban land complex, 0 to 4 percent slopes	953.2	13.3%
307	Doble-Shayroad complex, 4 to 9 percent slopes	0.6	0.0%
309	Goldmountain-Deadmansridge-Deadpan complex, 15 to 30 percent slopes	9.8	0.1%
310	Goldmountain-Deadmansridge-Deadpan complex, 30 to 50 percent slopes	95.0	1.3%
315	Minnelusa-Cariboucreek complex, 9 to 15 percent slopes	95.4	1.3%
317	Pacifico-Groutcreek-Rock outcrop complex, 15 to 30 percent slopes	5.2	0.1%
401	Garloaf-Cariboucreek-Urban land complex, 15 to 30 percent slopes	672.0	9.3%
403	Garloaf very cobbly loam, 4 to 9 percent slopes	1,313.2	18.3%
407	Doble-Shayroad-Urban land complex, 4 to 9 percent slopes	11.5	0.2%
413	Aquents-Riverwash complex, 0 to 4 percent slopes	112.1	1.6%
414	Moonridge-Urban land complex, 4 to 9 percent slopes	120.4	1.7%
BoD	Morical, very deep-Hecker families complex, 2 to 15 percent slopes	4.0	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BoE	Morical, very deep-Hecker families complex, 15 to 30 percent slopes	249.5	3.5%
DaF	Pacifico-Wapi families complex, 30 to 50 percent slopes	42.3	0.6%
FbE	Merkel-Switchback families complex, 15 to 30 percent slopes	43.8	0.6%
FrE	Lizzant family-Lithic Xerorthents, calcareous association, 15 to 30 percent slopes	8.5	0.1%
FrF	Lithic Xerorthents, calcareous-Lazzant family association, 30 to 50 percent slopes	40.2	0.6%
Totals for Area of Interest		7,193.2	100.0%

Appendix F. USFWS IPaC, CNDDDB, & CNPS Species Lists

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Bernardino County, California



Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log In (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. **NOAA Fisheries**, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Spotted Owl <i>Strix occidentalis occidentalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2266	Proposed Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5749	Endangered

Reptiles

NAME	STATUS
Desert Tortoise <i>Gopherus agassizii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4431	Threatened

Fishes

NAME	STATUS
Unarmored Threespine Stickleback <i>Gasterosteus aculeatus williamsoni</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2002	Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9747	Candidate

Flowering Plants

NAME	STATUS
<p>Ash-grey Paintbrush <i>Castilleja chrysea</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/3792</p>	Threatened
<p>Bear Valley Sandwort <i>Arenaria ursina</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/7317</p>	Threatened
<p>California Taraxacum <i>Taraxacum californicum</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/7421</p>	Endangered
<p>Cushenbury Buckwheat <i>Eriogonum ovalifolium</i> var. <i>vineum</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/3852</p>	Endangered
<p>Cushenbury Milk-vetch <i>Astragalus albens</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/6252</p>	Endangered
<p>Cushenbury Oxytheca <i>Oxytheca parishii</i> var. <i>goodmaniana</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/5225</p>	Endangered
<p>Parish's Daisy <i>Erigeron parishii</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/8449</p>	Threatened

Pedate Checker-mallow *Sidalcea pedata* **Endangered**

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1340>**San Bernardino Bluegrass** *Poa atropurpurea* **Endangered**

Wherever found

There is final critical habitat for this species. Your location overlaps the critical habitat.

<https://ecos.fws.gov/ecp/species/4641>**San Bernardino Mountains Bladderpod** *Lesquerella kingii* **Endangered**
ssp. *bernardina*

Wherever found

There is final critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/809>**Slender-petaled Mustard** *Thelypodium stenopetalum* **Endangered**

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1658>**Southern Mountain Wild-budowheat** *Eriogonum kennedyi* **Threatened**
var. *austromontanum*

Wherever found

There is final critical habitat for this species. Your location overlaps the critical habitat.

<https://ecos.fws.gov/ecp/species/7201>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Ash-grey Paintbrush <i>Castilleja cinerea</i>	Final
https://ecos.fws.gov/ecp/species/5707#criticalhab	

Bear Valley Sandwort <i>Arenaria ursina</i> https://ecos.fws.gov/ecp/species/7317/#crittab	Final
California Taraxacum <i>Taraxacum californicum</i> https://ecos.fws.gov/ecp/species/7421/#crittab	Final
San Bernardino Bluegrass <i>Poa atropurpurea</i> https://ecos.fws.gov/ecp/species/4641/#crittab	Final
Southern Mountain Wild-buckwheat <i>Eriogonum kennedyi</i> var. <i>austromontanum</i> https://ecos.fws.gov/ecp/species/7201/#crittab	Final

Bald & Golden Eagles

Bald and golden eagles are protected under the [Bald and Golden Eagle Protection Act](#) and the [Migratory Bird Treaty Act](#).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidentals-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON

Bald Eagle: *Haliaeetus leucocephalus***Breeds Jan 1 to Aug 31**

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Golden Eagle: *Aquila chrysaetos***Breeds Jan 1 to Aug 31**

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1530>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ()

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the

probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

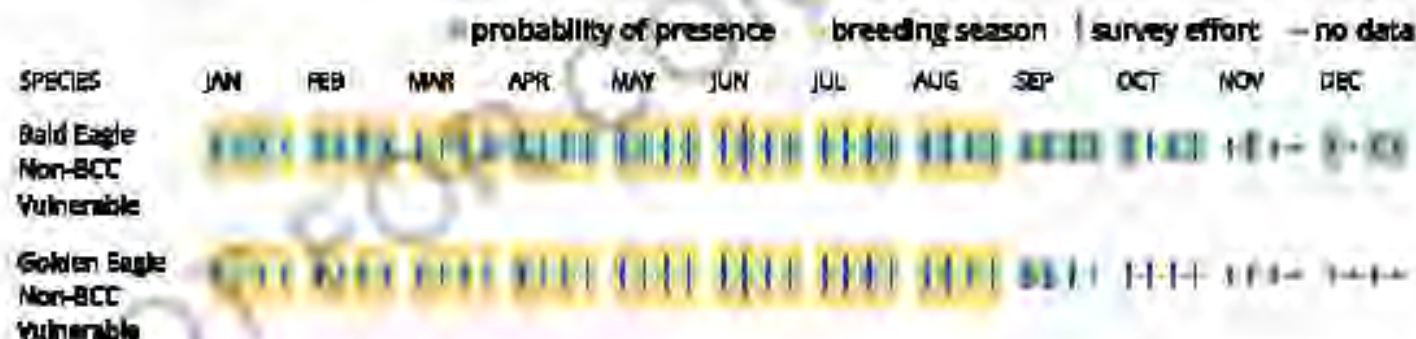
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (→)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Bald Avian Information Locator \(BAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act of 1918](#).
2. The [Bald and Golden Eagle Protection Act of 1940](#).

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date

range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Allen's Hummingbird <i>Selasphorus sasin</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/3637</p>	Breeds Feb 1 to Jul 15
<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Jan 1 to Aug 31
<p>Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA.</p> <p>https://ecos.fws.gov/ecp/species/3083</p>	Breeds Apr 1 to Aug 15
<p>Black Tern <i>Chlidonias niger</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/3083</p>	Breeds May 15 to Aug 20
<p>Black-chinned Sparrow <i>Spizella atrogularis</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/3447</p>	Breeds Apr 15 to Jul 31
<p>Bullock's Oriole <i>Icterus bullocki</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA.</p>	Breeds Mar 21 to Jul 25

California Gull *Larus californicus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 1 to Jul 31

California Thrasher *Toxostoma redivivum*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Jul 31

Cassin's Finch *Carpodacus cassinii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://www.fws.gov/ecp/species/9452>

Breeds May 15 to Jul 15

Common Yellowthroat *Geothlypis trichas sinuosa*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA.

<https://www.fws.gov/ecp/species/2084>

Breeds May 20 to Jul 31

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://www.fws.gov/ecp/species/1637>

Breeds Jan 1 to Aug 31

Lawrence's Goldfinch *Carduelis lawrencei*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://www.fws.gov/ecp/species/9454>

Breeds Mar 20 to Sep 20

Long-eared Owl *asio otus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://www.fws.gov/ecp/species/3531>

Breeds Mar 1 to Jul 15

Marbled Godwit *Limosa fedoa*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://www.fws.gov/ecp/species/9481>

Breeds elsewhere

Nuttall's Woodpecker *Picoides nuttallii***Breeds Apr 1 to Jul 20**

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA.

<https://ecos.fws.gov/ecp/species/9410>

Oak Titmouse *Baeolophus inornatus***Breeds Mar 15 to Jul 15**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9550>

Olive-sided Flycatcher *Contopus cooperi***Breeds May 20 to Aug 31**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9914>

Pinyon Jay *Gymnorhinus cyanocephalus***Breeds Feb 15 to Jul 15**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9420>

Short-billed Dowitcher *Limnodromus griseus***Breeds elsewhere**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9437>

Western Grebe *Aechmophorus occidentalis***Breeds Jun 1 to Aug 31**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/6743>

Willet *Tringa semipalmata***Breeds elsewhere**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit *Chamaea fasciata***Breeds Mar 15 to Aug 10**

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and

understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ()

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

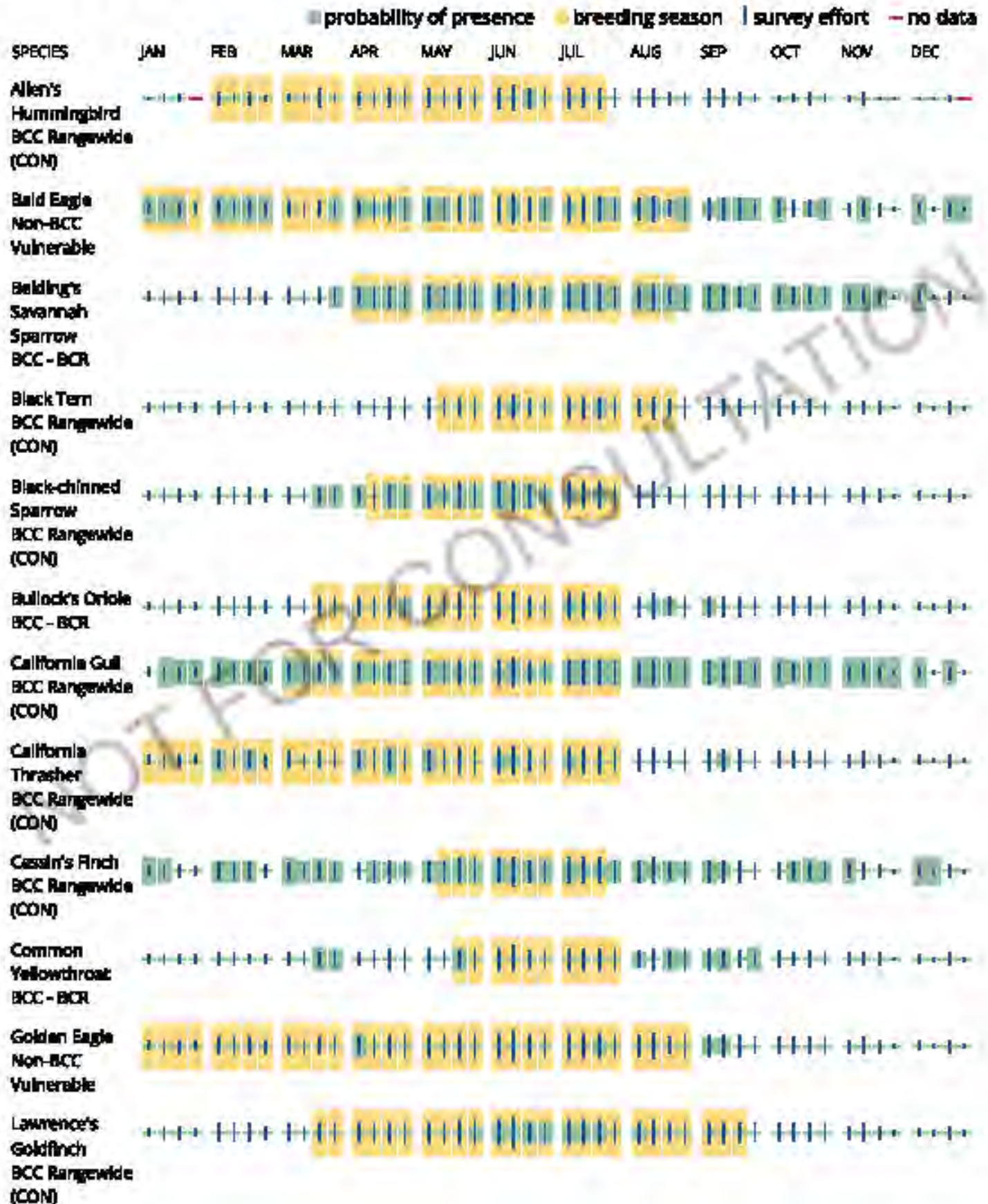
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

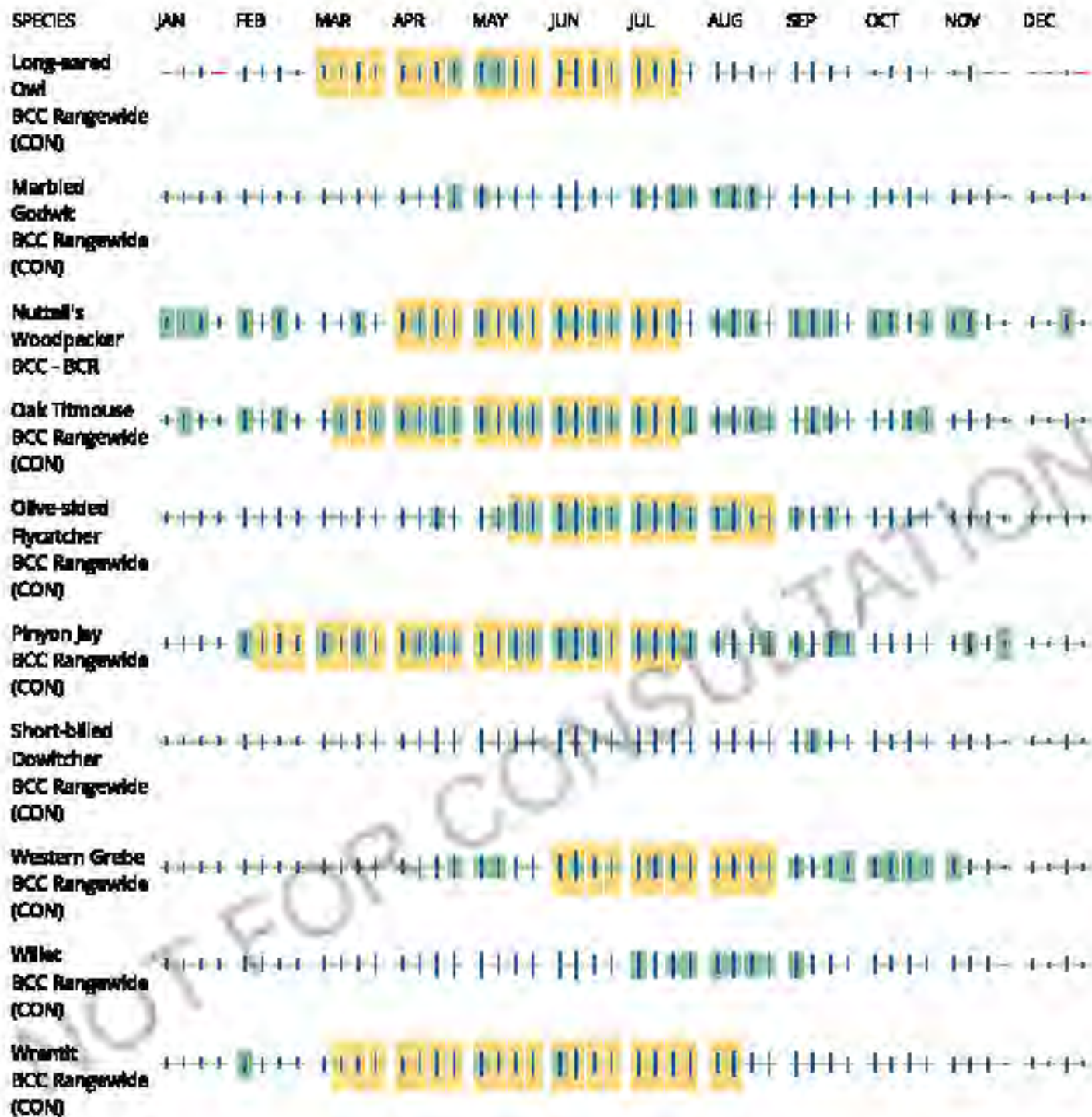
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the [Probability of Presence Summary](#). [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Bank Avian Information Locator \(BAI\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [BAI Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NECTOS Interactive Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Oceano Bird Study](#) and the [research studies](#) or contact [Caleb Solomon](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project, not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the Individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1R](#)
[PEM1Ch](#)
[PEM1Ar](#)
[PEM1Cr](#)

FRESHWATER FORESTED/SHRUB WETLAND

[P500](#)

PSSA**FRESHWATER POND**P1UHGP1USGP1USJP1USA**LAKE**L2USCL2USAL2ABKL2USJ**RIVERINE**R4SBCR2ABER5UBPR4SBAR5UBER4SBAR4SBCR3UBE

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does not replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data Limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

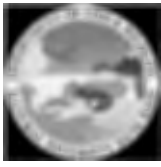
Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubefield worm reefs) have also been excluded from the Inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



Selected Elements by Scientific Name

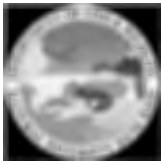
California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (Big Bear City (3411637) OR Big Bear Lake (3411628) OR Moonridge (3411627) OR Fawnskin (3411638))

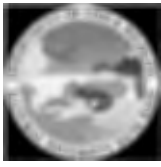
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Acanthoscyphus parishii</i> var. <i>cienegensis</i> Cienega Seca oxytheca	PDPGN0J042	None	None	G4?T2	S2	1B.3
<i>Acanthoscyphus parishii</i> var. <i>goodmaniana</i> Cushenbury oxytheca	PDPGN0J043	Endangered	None	G4?T1	S1	1B.1
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Anniella stebbinsi</i> Southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
<i>Antennaria marginata</i> white-margined everlasting	PDAST0H1G0	None	None	G4G5	S1	2B.3
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Arenaria lanuginosa</i> var. <i>saxosa</i> rock sandwort	PDCAR040E4	None	None	G5T5	S2	2B.3
<i>Astragalus albens</i> Cushenbury milk-vetch	PDFAB0F0A0	Endangered	None	G1	S1	1B.1
<i>Astragalus bernardinus</i> San Bernardino milk-vetch	PDFAB0F190	None	None	G3	S3	1B.2
<i>Astragalus lentiginosus</i> var. <i>sierrae</i> Big Bear Valley milk-vetch	PDFAB0FB9L	None	None	G5T2	S2	1B.2
<i>Astragalus leucolobus</i> Big Bear Valley woollypod	PDFAB0F4T0	None	None	G2	S2	1B.2
<i>Astragalus tidesstromii</i> Tidesstrom's milk-vetch	PDFAB0F8X0	None	None	G4	S2	2B.2
<i>Atriplex parishii</i> Parish's brittle scale	PDCHE041D0	None	None	G1G2	S1	1B.1
<i>Berberis fremontii</i> Fremont barberry	PDBER06060	None	None	G5	S3	2B.3
<i>Boechera dispar</i> pinyon rockcress	PDBRA060F0	None	None	G3	S3	2B.3
<i>Boechera lincolnensis</i> Lincoln rockcress	PDBRA061M3	None	None	G4G5	S3	2B.3
<i>Boechera parishii</i> Parish's rockcress	PDBRA061C0	None	None	G2	S2	1B.2
<i>Boechera shockleyi</i> Shockley's rockcress	PDBRA061V0	None	None	G3	S2	2B.2
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



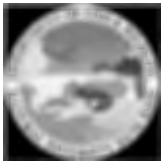
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
<i>Bombus morrisoni</i> Morrison bumble bee	IIHYM24460	None	None	G3	S1S2	
<i>Botrychium crenulatum</i> scalloped moonwort	PPOPH010L0	None	None	G4	S3	2B.2
<i>Calochortus palmeri var. palmeri</i> Palmer's mariposa-lily	PMLIL0D122	None	None	G3T2	S2	1B.2
<i>Calochortus plummerae</i> Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
<i>Calochortus striatus</i> alkali mariposa-lily	PMLIL0D190	None	None	G3	S2S3	1B.2
<i>Calyptridium pygmaeum</i> pygmy pussypaws	PDPOR09070	None	None	G1G2	S1S2	1B.2
<i>Carex occidentalis</i> western sedge	PMCYP039M0	None	None	G4	S3	2B.3
<i>Castilleja cinerea</i> ash-gray paintbrush	PDSCR0D0H0	Threatened	None	G1G2	S1S2	1B.2
<i>Castilleja lasiorhyncha</i> San Bernardino Mountains owl's-clover	PDSCR0D410	None	None	G2?	S2?	1B.2
<i>Chaetodipus fallax pallidus</i> pallid San Diego pocket mouse	AMAFD05032	None	None	G5T3T4	S3S4	SSC
<i>Charina umbratica</i> southern rubber boa	ARADA01011	None	Threatened	G2G3	S2	
<i>Claytonia peirsonii ssp. bernardinus</i> San Bernardino spring beauty	PDPOR03122	None	None	G2G3T1	S1	1B.1
<i>Claytonia peirsonii ssp. californacis</i> Furnace spring beauty	PDPOR03123	None	None	G2G3T1	S1	1B.1
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
<i>Cymopterus multinervatus</i> purple-nerve cymopterus	PDAP10U0Q0	None	None	G4G5	S2	2B.2
<i>Drymocallis cuneifolia var. cuneifolia</i> wedgeleaf woodbeauty	PDROS2D011	None	None	G2T1	S1	1B.1
<i>Dryopteris filix-mas</i> male fern	PPDRY0A0B0	None	None	G5	S2	2B.3
<i>Dudleya abramsii ssp. affinis</i> San Bernardino Mountains dudleya	PDCRA04013	None	None	G4T2	S2	1B.2
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S3	
<i>Ensatina eschscholtzii klauberi</i> large-blotched salamander	AAAAD04013	None	None	G5T2?	S3	WL



Selected Elements by Scientific Name
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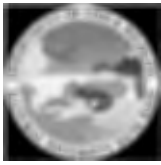
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Eremogone ursina</i> Big Bear Valley sandwort	PDCAR040R0	Threatened	None	G1	S1	1B.2
<i>Erigeron parishii</i> Parish's daisy	PDAST3M310	Threatened	None	G2	S2	1B.1
<i>Eriogonum evanidum</i> vanishing wild buckwheat	PDPGN08780	None	None	G2	S1	1B.1
<i>Eriogonum kennedyi var. alpigenum</i> southern alpine buckwheat	PDPGN083B1	None	None	G4T3	S3	1B.3
<i>Eriogonum kennedyi var. austromontanum</i> southern mountain buckwheat	PDPGN083B2	Threatened	None	G4T2	S2	1B.2
<i>Eriogonum microthecum var. johnstonii</i> Johnston's buckwheat	PDPGN083W5	None	None	G5T2	S2	1B.3
<i>Eriogonum microthecum var. lacus-ursi</i> Bear Lake buckwheat	PDPGN083WF	None	None	G5T1	S1	1B.1
<i>Eriogonum ovalifolium var. vineum</i> Cushenbury buckwheat	PDPGN084F8	Endangered	None	G5T1	S1	1B.1
<i>Erythranthe exigua</i> San Bernardino Mountains monkeyflower	PDSCR1B140	None	None	G2	S2	1B.2
<i>Erythranthe purpurea</i> little purple monkeyflower	PDSCR1B2B0	None	None	G2	S2	1B.2
<i>Euchloe hyantis andrewsi</i> Andrew's marble butterfly	IILEPA5032	None	None	G4G5T1	S2	
<i>Euphydryas editha quino</i> quino checkerspot butterfly	IILEPK405L	Endangered	None	G5T1T2	S1S2	
<i>Gasterosteus aculeatus williamsoni</i> unarmored threespine stickleback	AFCPA03011	Endangered	Endangered	G5T1	S1	FP
<i>Gentiana fremontii</i> Fremont's gentian	PDGEN060Y0	None	None	G4	S2	2B.3
<i>Gilia leptantha ssp. leptantha</i> San Bernardino gilia	PDPLM040W1	None	None	G4T2	S2	1B.3
<i>Glaucomys oregonensis californicus</i> San Bernardino flying squirrel	AMAFB09021	None	None	G5T1T2	S1S2	SSC
<i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
<i>Heuchera parishii</i> Parish's alumroot	PDSAX0E1F0	None	None	G3	S3	1B.3
<i>Horkelia wilderae</i> Barton Flats horkelia	PDROS0W0J0	None	None	G1	S1	1B.1
<i>Hulsea vestita ssp. pygmaea</i> pygmy hulsea	PDAST4Z077	None	None	G5T1	S1	1B.3
<i>Hydroporus simplex</i> simple hydroporus diving beetle	IICOL55050	None	None	G3G4	S3S4	



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California Department of Fish and Wildlife
California Natural Diversity Database



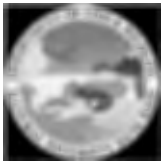
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Icteria virens</i> yellow-breasted chat	ABPBX24010	None	None	G5	S4	SSC
<i>Ivesia argyrocoma</i> var. <i>argyrocoma</i> silver-haired ivesia	PDROS0X021	None	None	G2T2	S2	1B.2
<i>Lewisia brachycalyx</i> short-sepaled lewisia	PDPOR04010	None	None	G4	S2	2B.2
<i>Lilium parryi</i> lemon lily	PMLIL1A0J0	None	None	G3	S3	1B.2
<i>Linanthus killipii</i> Baldwin Lake linanthus	PDPLM090N0	None	None	G1	S1	1B.2
<i>Malaxis monophyllos</i> var. <i>brachypoda</i> white bog adder's-mouth	PMORC1R010	None	None	G5T4T5	S1	2B.1
<i>Myotis evotis</i> long-eared myotis	AMACC01070	None	None	G5	S3	
<i>Myotis thysanodes</i> fringed myotis	AMACC01090	None	None	G4	S3	
<i>Myotis volans</i> long-legged myotis	AMACC01110	None	None	G4G5	S3	
<i>Myotis yumanensis</i> Yuma myotis	AMACC01020	None	None	G5	S4	
<i>Navarretia peninsularis</i> Baja navarretia	PDPLM0C0L0	None	None	G3	S2	1B.2
<i>Neotamias speciosus speciosus</i> lodgepole chipmunk	AMAFB02172	None	None	G4T3T4	S2	
<i>Oncorhynchus mykiss irideus</i> pop. 10 steelhead - southern California DPS	AFCHA0209J	Endangered	Candidate Endangered	G5T1Q	S1	
<i>Oreonana vestita</i> woolly mountain-parsley	PDAPI1G030	None	None	G3	S3	1B.3
<i>Oxytropis oreophila</i> var. <i>oreophila</i> rock-loving oxytrope	PDFAB2X0H3	None	None	G5T4T5	S2	2B.3
<i>Packera bernardina</i> San Bernardino ragwort	PDAST8H0E0	None	None	G2	S2	1B.2
<i>Pebble Plains</i> Pebble Plains	CTT47000CA	None	None	G1	S1.1	
<i>Perideridia parishii</i> ssp. <i>parishii</i> Parish's yampah	PDAPI1N0C2	None	None	G4T3T4	S2	2B.2
<i>Phlox dolichantha</i> Big Bear Valley phlox	PDPLM0D0P0	None	None	G2	S2	1B.2
<i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100	None	None	G4	S4	SSC
<i>Physaria kingii</i> ssp. <i>bernardina</i> San Bernardino Mountains bladderpod	PDBRA1N0W1	Endangered	None	G5T1	S1	1B.1



Selected Elements by Scientific Name
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<i>Piranga rubra</i> summer tanager	ABPBX45030	None	None	G5	S1	SSC
<i>Poa atropurpurea</i> San Bernardino blue grass	PMPOA4Z0A0	Endangered	None	G2	S2	1B.2
<i>Poliomintha incana</i> frosted mint	PDLAM1L020	None	None	G5	SH	2A
<i>Psychomastax deserticola</i> desert monkey grasshopper	IORT15010	None	None	G2G3	S1	
<i>Pyrocoma uniflora var. gossypina</i> Bear Valley pyrrocoma	PDASTDT0K1	None	None	G5T1	S1	1B.2
<i>Rana muscosa</i> southern mountain yellow-legged frog	AAABH01330	Endangered	Endangered	G1	S2	WL
<i>Rosa woodsii var. glabrata</i> Cushenbury rose	PDROS1J191	None	None	G5T1	S1	1B.1
<i>Saltugilia latimeri</i> Latimer's woodland-gilia	PDPLM0H010	None	None	G3	S3	1B.2
<i>Sidalcea hickmanii ssp. parishii</i> Parish's checkerbloom	PDMAL110A3	None	Rare	G3T1	S1	1B.2
<i>Sidalcea malviflora ssp. dolosa</i> Bear Valley checkerbloom	PDMAL110FH	None	None	G5T2	S2	1B.2
<i>Sidalcea pedata</i> bird-foot checkerbloom	PDMAL110L0	Endangered	Endangered	G1	S1	1B.1
<i>Sisyrinchium longipes</i> timberland blue-eyed grass	PMIRI0D0Y0	None	None	G3	S1	2B.2
<i>Southern California Threespine Stickleback Stream</i> Southern California Threespine Stickleback Stream	CARE2320CA	None	None	GNR	SNR	
<i>Sphenopholis obtusata</i> prairie wedge grass	PMPOA5T030	None	None	G5	S2	2B.2
<i>Streptanthus bernardinus</i> Laguna Mountains jewelflower	PDBRA2G060	None	None	G3G4	S3S4	4.3
<i>Streptanthus campestris</i> southern jewelflower	PDBRA2G0B0	None	None	G3	S3	1B.3
<i>Streptanthus juneae</i> June's jewelflower	PDBRA2G540	None	None	G2	S2	1B.2
<i>Symphotrichum defoliatum</i> San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
<i>Taraxacum californicum</i> California dandelion	PDAST93050	Endangered	None	G1G2	S1S2	1B.1
<i>Thamnophis hammondi</i> two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
<i>Thelypodium stenopetalum</i> slender-petaled thelypodium	PDBRA2N0F0	Endangered	Endangered	G1	S1	1B.1



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<i>Viola pinetorum ssp. grisea</i> grey-leaved violet	PDVIO04431	None	None	G4G5T3	S3	1B.2

Record Count: 104

CNPS Rare Plant Inventory

Search Results

83 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3411637:3411628:3411627:3411638], 1945 meters between Plant low elevation and high elevation, 2327 meters between Plant low elevation and high elevation

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS
Abronia nana var. covillei	Coville's dwarf abronia	Nyctaginaceae	perennial herb	None	None	G4T3	S3	4.2	Great Basin scrub, Joshua tree "woodland", Pinyon and juniper woodland, Subalpine coniferous forest, Upper montane coniferous forest	Carbonate, Sandy
Acanthoscyphus parishii var. cienegensis	Cienega Seca oxytheca	Polygonaceae	annual herb	None	None	G4?T2	S2	1B.3	Joshua tree "woodland", Pinyon and juniper woodland, Upper montane coniferous forest (granitic, sandy)	
Acanthoscyphus parishii var. goodmaniana	Cushenbury oxytheca	Polygonaceae	annual herb	FE	None	G4?T1	S1	1B.1	Pinyon and juniper woodland (carbonate, talus)	Carbonate, Sandy
Acanthoscyphus parishii var. parishii	Parish's oxytheca	Polygonaceae	annual herb	None	None	G4? T3T4	S3S4	4.2	Chaparral, Lower montane coniferous forest	Gravelly (sometimes), Sandy (sometimes)
Antennaria marginata	white-margined everlasting	Asteraceae	perennial stoloniferous herb	None	None	G4G5	S1	2B.3	Lower montane coniferous forest, Upper montane coniferous forest	
Arenaria lanuginosa var. saxosa	rock sandwort	Caryophyllaceae	perennial herb	None	None	G5T5	S2	2B.3	Subalpine coniferous forest, Upper montane coniferous forest	Mesic, Sandy
Astragalus albens	Cushenbury milk-vetch	Fabaceae	perennial herb	FE	None	G1	S1	1B.1	Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland	Carbonate (usually), Granitic (rarely)

Astragalus bernardinus	San Bernardino milk-vetch	Fabaceae	perennial herb	None	None	G3	S3	1B.2	Joshua tree "woodland", Pinyon and juniper woodland	Carbonate (often), Granitic (often)
Astragalus bicristatus	crested milk-vetch	Fabaceae	perennial herb	None	None	G3	S3	4.3	Lower montane coniferous forest, Upper montane coniferous forest	Carbonate (usually), Rocky (sometimes), Sandy (sometimes)
Astragalus lentiginosus var. sierrae	Big Bear Valley milk-vetch	Fabaceae	perennial herb	None	None	G5T2	S2	1B.2	Meadows and seeps, Mojavean desert scrub, Pinyon and juniper woodland, Upper montane coniferous forest	Gravelly (sometimes), Rocky (sometimes)
Astragalus leucolobus	Big Bear Valley woollypod	Fabaceae	perennial herb	None	None	G2	S2	1B.2	Lower montane coniferous forest, Pebble (Pavement) plain, Pinyon and juniper woodland, Upper montane coniferous forest	Rocky
Boechera dispar	pinyon rockcress	Brassicaceae	perennial herb	None	None	G3	S3	2B.3	Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland	Granitic, Gravelly
Boechera lincolnensis	Lincoln rockcress	Brassicaceae	perennial herb	None	None	G4G5	S3	2B.3	Chenopod scrub, Mojavean desert scrub	Carbonate
Boechera parishii	Parish's rockcress	Brassicaceae	perennial herb	None	None	G2	S2	1B.2	Pebble (Pavement) plain, Pinyon and juniper woodland, Upper montane coniferous forest	Carbonate (sometimes), Rocky
Boechera shockleyi	Shockley's rockcress	Brassicaceae	perennial herb	None	None	G3	S2	2B.2	Pinyon and juniper woodland (carbonate, gravelly, quartzite, rocky)	

Botrychium crenulatum	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	None	None	G4	S3	2B.2	Bogs and fens, Lower montane coniferous forest, Marshes and swamps (freshwater), Meadows and seeps, Upper montane coniferous forest	
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	Liliaceae	perennial bulbiferous herb	None	None	G3T2	S2	1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps	Mesic
Calyptridium pygmaeum	pygmy pussypaws	Montiaceae	annual herb	None	None	G1G2	S1S2	1B.2	Subalpine coniferous forest, Upper montane coniferous forest	Gravelly (sometimes), Sandy (sometimes)
Carex occidentalis	western sedge	Cyperaceae	perennial rhizomatous herb	None	None	G4	S3	2B.3	Lower montane coniferous forest, Meadows and seeps	
Castilleja cinerea	ash-gray paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	FT	None	G1G2	S1S2	1B.2	Meadows and seeps, Mojavean desert scrub, Pebble (Pavement) plain, Pinyon and juniper woodland, Upper montane coniferous forest (clay, openings)	
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	None	None	G2?	S2?	1B.2	Chaparral, Meadows and seeps, Pebble (Pavement) plain, Riparian woodland, Upper montane coniferous forest	Mesic
Castilleja montigena	Heckard's paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	None	None	G3	S3	4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest	

Castilleja plagiotoma	Mojave paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	None	None	G4	S4	4.3	Great Basin scrub (alluvial), Joshua tree "woodland", Lower montane coniferous forest, Pinyon and juniper woodland	
Cleomella brevipes	short-pedicelled cleomella	Cleomaceae	annual herb	None	None	G4	S3	4.2	Marshes and swamps, Meadows and seeps, Playas	Alkaline
Cordylanthus eremicus ssp. eremicus	desert bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	None	None	G3T3	S3	4.3	Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland	
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur	Ranunculaceae	perennial herb	None	None	G4T4	S4	4.3	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland	
Diplacus johnstonii	Johnston's monkeyflower	Phrymaceae	annual herb	None	None	G4	S4	4.3	Lower montane coniferous forest (disturbed areas, gravelly, roadsides, rocky, scree)	
Drymocallis cuneifolia var. cuneifolia	wedgeleaf woodbeauty	Rosaceae	perennial herb	None	None	G2T1	S1	1B.1	Riparian scrub, Upper montane coniferous forest	Carbonate (sometimes)
Dudleya abramsii ssp. affinis	San Bernardino Mountains dudleya	Crassulaceae	perennial herb	None	None	G4T2	S2	1B.2	Pebble (Pavement) plain, Pinyon and juniper woodland, Upper montane coniferous forest	Carbonate (sometimes), Granitic (sometimes)
Eremogone ursina	Big Bear Valley sandwort	Caryophyllaceae	perennial herb	FT	None	G1	S1	1B.2	Meadows and seeps, Pebble (Pavement) plain, Pinyon and juniper woodland	Mesic, Rocky
Erigeron parishii	Parish's daisy	Asteraceae	perennial herb	FT	None	G2	S2	1B.1	Mojavean desert scrub, Pinyon and juniper woodland	Carbonate (usually), Granitic (sometimes)
Eriogonum evanidum	vanishing wild buckwheat	Polygonaceae	annual herb	None	None	G2	S1	1B.1	Chaparral, Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland	Gravelly (sometimes), Sandy (sometimes)

<i>Eriogonum kenedyi</i> var. <i>austromontanum</i>	southern mountain buckwheat	Polygonaceae	perennial herb	FT	None	G4T2	S2	1B.2	Lower montane coniferous forest (gravelly), Pebble (Pavement) plain	
<i>Eriogonum microthecum</i> var. <i>johnstonii</i>	Johnston's buckwheat	Polygonaceae	perennial deciduous shrub	None	None	G5T2	S2	1B.3	Subalpine coniferous forest, Upper montane coniferous forest	Rocky
<i>Eriogonum ovalifolium</i> var. <i>vineum</i>	Cushenbury buckwheat	Polygonaceae	perennial herb	FE	None	G5T1	S1	1B.1	Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland	Carbonate
<i>Eriogonum umbellatum</i> var. <i>minus</i>	alpine sulfur-flowered buckwheat	Polygonaceae	perennial herb	None	None	G5T4	S4	4.3	Subalpine coniferous forest, Upper montane coniferous forest	Gravelly
<i>Eriophyllum lanatum</i> var. <i>obovatum</i>	southern Sierra woolly sunflower	Asteraceae	perennial herb	None	None	G5T4	S4	4.3	Lower montane coniferous forest, Upper montane coniferous forest	Loam, Sandy
<i>Erythranthe exigua</i>	San Bernardino Mountains monkeyflower	Phrymaceae	annual herb	None	None	G2	S2	1B.2	Meadows and seeps, Pebble (Pavement) plain, Upper montane coniferous forest	Clay, Mesic
<i>Erythranthe purpurea</i>	little purple monkeyflower	Phrymaceae	annual herb	None	None	G2	S2	1B.2	Meadows and seeps, Pebble (Pavement) plain, Upper montane coniferous forest	
<i>Frasera neglecta</i>	pine green-gentian	Gentianaceae	perennial herb	None	None	G4	S4	4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest	
<i>Fritillaria pinetorum</i>	pine fritillary	Liliaceae	perennial bulbiferous herb	None	None	G4	S4	4.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest, Upper montane coniferous forest	Granitic (sometimes), Metamorphic (sometimes)
<i>Galium angustifolium</i> ssp. <i>gabrielense</i>	San Antonio Canyon bedstraw	Rubiaceae	perennial herb	None	None	G5T3	S3	4.3	Chaparral, Lower montane coniferous forest	Granitic, Rocky (sometimes), Sandy (sometimes)

Galium jepsonii	Jepson's bedstraw	Rubiaceae	perennial rhizomatous herb	None	None	G3	S3	4.3	Lower montane coniferous forest, Upper montane coniferous forest	Granitic, Gravelly (sometimes), Rocky (sometimes)
Galium johnstonii	Johnston's bedstraw	Rubiaceae	perennial herb	None	None	G4	S4	4.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland, Riparian woodland	
Gilia leptantha ssp. leptantha	San Bernardino gilia	Polemoniaceae	annual herb	None	None	G4T2	S2	1B.3	Lower montane coniferous forest (gravelly, sandy)	
Gilia leptantha ssp. pinetorum	pine gilia	Polemoniaceae	annual herb	None	None	G4T4	S4	4.3	Lower montane coniferous forest (rocky, sandy)	
Heuchera caespitosa	urn-flowered alumroot	Saxifragaceae	perennial rhizomatous herb	None	None	G3	S3	4.3	Cismontane woodland, Lower montane coniferous forest, Riparian forest (montane), Upper montane coniferous forest	Rocky
Heuchera parishii	Parish's alumroot	Saxifragaceae	perennial rhizomatous herb	None	None	G3	S3	1B.3	Alpine boulder and rock field, Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest	Carbonate (sometimes), Rocky
Horkelia wilderae	Barton Flats horkelia	Rosaceae	perennial herb	None	None	G1	S1	1B.1	Chaparral (edges), Lower montane coniferous forest, Upper montane coniferous forest	
Hulsea vestita ssp. parryi	Parry's sunflower	Asteraceae	perennial herb	None	None	G5T4	S4	4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest	Carbonate (sometimes), Granitic (sometimes), Openings, Rocky
Ivesia argyrocoma var. argyrocoma	silver-haired ivesia	Rosaceae	perennial herb	None	None	G2T2	S2	1B.2	Meadows and seeps (alkaline), Pebble (Pavement) plain, Upper montane coniferous forest	

Juncus duranii	Duran's rush	Juncaceae	perennial rhizomatous herb	None	None	G3	S3	4.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Mesic
Lewisia brachycalyx	short-sepaled lewisia	Montiaceae	perennial herb	None	None	G4	S2	2B.2	Lower montane coniferous forest, Meadows and seeps	Mesic
Lilium parryi	lemon lily	Liliaceae	perennial bulbiferous herb	None	None	G3	S3	1B.2	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest	Mesic
Linanthus killipii	Baldwin Lake linanthus	Polemoniaceae	annual herb	None	None	G1	S1	1B.2	Joshua tree "woodland", Meadows and seeps (alkaline), Pebble (Pavement) plain, Pinyon and juniper woodland	
Malaxis monophyllos var. brachypoda	white bog adder's-mouth	Orchidaceae	perennial bulbiferous herb	None	None	G5T4T5	S1	2B.1	Bogs and fens, Meadows and seeps, Upper montane coniferous forest	Mesic
Muilla coronata	crowned muilla	Themidaceae	perennial bulbiferous herb	None	None	G3	S3	4.2	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland	
Navarretia peninsularis	Baja navarretia	Polemoniaceae	annual herb	None	None	G3	S2	1B.2	Chaparral (openings), Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland	Mesic
Oreonana vestita	woolly mountain- parsley	Apiaceae	perennial herb	None	None	G3	S3	1B.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest	Gravelly (sometimes), Talus (sometimes)

Packeria bernardina	San Bernardino ragwort	Asteraceae	perennial herb	None	None	G2	S2	1B.2	Meadows and seeps (mesic, sometimes alkaline), Pebble (Pavement) plain, Upper montane coniferous forest
Packeria ionophylla	Tehachapi ragwort	Asteraceae	perennial herb	None	None	G4	S4	4.3	Lower montane coniferous forest, Upper montane coniferous forest
Perideridia parishii ssp. parishii	Parish's yampah	Apiaceae	perennial herb	None	None	G4T3T4	S2	2B.2	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest
Phacelia exilis	Transverse Range phacelia	Hydrophyllaceae	annual herb	None	None	G4Q	S4	4.3	Lower montane coniferous forest, Meadows and seeps, Pebble (Pavement) plain, Upper montane coniferous forest
Phacelia mohavensis	Mojave phacelia	Hydrophyllaceae	annual herb	None	None	G4Q	S4	4.3	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland
Phlox dolichantha	Big Bear Valley phlox	Polemoniaceae	perennial herb	None	None	G2	S2	1B.2	Pebble (Pavement) plain, Upper montane coniferous forest (openings)
Physaria kingii ssp. bernardina	San Bernardino Mountains bladderpod	Brassicaceae	perennial herb	FE	None	G5T1	S1	1B.1	Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest
Poa atropurpurea	San Bernardino blue grass	Poaceae	perennial rhizomatous herb	FE	None	G2	S2	1B.2	Meadows and seeps (mesic)
Pyrocoma uniflora var. gossypina	Bear Valley pyrocoma	Asteraceae	perennial herb	None	None	G5T1	S1	1B.2	Meadows and seeps, Pebble (Pavement) plain

Rupertia rigida	Parish's rupertia	Fabaceae	perennial herb	None	None	G4	S4	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pebble (Pavement) plain, Valley and foothill grassland
Sedum niveum	Davidson's stonecrop	Crassulaceae	perennial rhizomatous herb	None	None	G3	S3	4.2	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
Sidalcea hickmanii ssp. parishii	Parish's checkerbloom	Malvaceae	perennial herb	None	CR	G3T1	S1	1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest
Sidalcea malviflora ssp. dolosa	Bear Valley checkerbloom	Malvaceae	perennial herb	None	None	G5T2	S2	1B.2	Lower montane coniferous forest (meadows, seeps), Meadows and seeps, Riparian woodland, Upper montane coniferous forest (meadows, seeps)
Sidalcea pedata	bird-foot checkerbloom	Malvaceae	perennial herb	FE	CE	G1	S1	1B.1	Meadows and seeps (mesic), Pebble (Pavement) plain
Sidotheca caryophylloides	chickweed oxytheca	Polygonaceae	annual herb	None	None	G4	S4	4.3	Lower montane coniferous forest (sandy)
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	None	None	G5	S2	2B.2	Cismontane woodland, Meadows and seeps
Streptanthus berardinus	Laguna Mountains jewelflower	Brassicaceae	perennial herb	None	None	G3G4	S3S4	4.3	Chaparral, Lower montane coniferous forest
Streptanthus campestris	southern jewelflower	Brassicaceae	perennial herb	None	None	G3	S3	1B.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland

<u><i>Streptanthus juneae</i></u>	June's jewelflower	Brassicaceae	perennial herb	None	None	G2	S2	1B.2	Chaparral (montane), Lower montane coniferous forest	Openings
<u><i>Symphotrichum defoliatum</i></u>	San Bernardino aster	Asteraceae	perennial rhizomatous herb	None	None	G2	S2	1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, Meadows and seeps, Valley and foothill grassland (vernally mesic)	Streambanks
<u><i>Taraxacum californicum</i></u>	California dandelion	Asteraceae	perennial herb	FE	None	G1G2	S1S2	1B.1	Meadows and seeps (mesic)	
<u><i>Thelypodium stenopetalum</i></u>	slender-petaled thelypodium	Brassicaceae	perennial herb	FE	CE	G1	S1	1B.1	Meadows and seeps (mesic, alkaline)	
<u><i>Trichostema micranthum</i></u>	small-flowered bluecurls	Lamiaceae	annual herb	None	None	G4	S3	4.3	Lower montane coniferous forest, Meadows and seeps	Mesic
<u><i>Viola pinetorum</i></u> <u><i>ssp. grisea</i></u>	grey-leaved violet	Violaceae	perennial herb	None	None	G4G5T3	S3	1B.2	Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest	

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Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 25 July 2023].