

**DOCKETED**

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## MEMORANDUM

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**To:** Renee Robin, Compass Energy Storage LLC  
**From:** Sharon Zarate, Biologist, Dudek  
**Subject:** Compass BESS Project – Burrowing Owl and Crotch’s Bumble Bee Survey Results  
**Date:** September 6, 2024  
**cc:** Tommy Molioo, Sr. Biologist, Dudek

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This memorandum documents the results of a survey for burrowing owl (*Athene cunicularia*) and Crotch’s bumble bee (*Bombus crotchii*) individuals and suitable burrows, in support of the Compass Battery Energy Storage Project (project). The survey was conducted within areas of the project site that could potentially provide suitable habitat for either species. Specifically, the survey focused on the previously tilled agricultural land on site and the surrounding floristic resources within coastal sage scrub habitat on the adjacent hillsides.

## Site Description

The project site is located within a valley between the Santa Ana Mountains to the northeast and the Laguna Woods to the west at an elevation of approximately 185 to 210 feet above mean sea level. Vegetation communities and land covers within the study area include *Populus fremontii*–*Salix lasiolepis* association, mulefat thickets, ornamentals, upland mustards, urban/developed, and agricultural lands. Suitable habitat for burrowing owl and Crotch’s bumble bee occurs primarily within the agricultural lands and surrounding scrub habitats.

## Burrowing Owl

Burrowing owl is a California Species of Special Concern and is currently under consideration by the California Fish and Wildlife Commission to be a candidate species for listing as endangered or threatened. Their decision is expected in September 2024, and candidate species are given the same protections as listed species until the final decision is made.

With a relatively wide-ranging distribution throughout the west, burrowing owls are considered to be habitat generalists (Lantz et al. 2004). In California, burrowing owls are year-round residents of open, dry grassland and desert habitats and grass, forb, and open shrub stages of pinyon–juniper and ponderosa pine habitats (Zeiner et al. 1990). Their preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Poulin et al. 2011).

The presence of burrows is the most essential component of burrowing owl habitat because burrows (typically 11 centimeters or larger) are required for nesting, roosting, cover, and caching prey. In California, burrowing owl most commonly lives in burrows created by California ground squirrels (*Spermophilus [Otospermophilus] beecheyi*).

Burrowing owls may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse), usable burrows are available, and foraging habitat occurs in close proximity (Gervais et al. 2008). In addition, debris piles, riprap, culverts, and pipes can be used for nesting and roosting, and burrowing owls may take up residence in these areas at any time of the year.

## Crotch's Bumble Bee

Crotch's bumble bee is not threatened or endangered in California; however, it is a candidate species for listing under the California Endangered Species Act. This species occurs almost exclusively in California, where it inhabits open grassland and scrub habitats from southern to central California. Most bumble bees, including Crotch's bumble bee, nest in the ground in cavities such as abandoned rodent burrows, holes in building foundations, or stacks of woody debris. Bumble bees, including Crotch's bumble bee, are generalist foragers and have been reported visiting a wide variety of flowering plants. Crotch's bumble bee has a very short tongue and is therefore best suited to forage at open flowers with short corollas. Nectar plants known to be visited by Crotch's bumble bee include the genera *Acmispon*, *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia* (Xerces 2023; Williams et al. 2014), but it is assumed flowering plants in other genera could also support foraging by this species.

Mated gynes (future founding queens) overwinter in soil cavities (Xerces 2023; CDFW 2023) emerge in the early spring to begin new colonies, provisioning their young with pollen and nectar. As the spring season progresses, workers (small female non-reproductive bees) are produced with increasing numbers and escalate the provisioning of the colony, which continues to grow until in early to mid-summer when new males (from unfertilized eggs) are produced along with the new generation of future queens. Workers and males live for only a few weeks. Thus, overall Crotch's bumble bee numbers are highest (include workers and males) in late spring through mid-summer seasons, very low in fall and early spring (gynes only), and virtually undetectable during the overwintering season (when dormant underground).

## Methods

### Literature Review

Prior to beginning the focused surveys, a literature review was conducted to identify special-status biological resources present or potentially present in the vicinity of the study area using the California Natural Diversity Database (nine-quad search) (CDFW 2024) and the U.S. Fish and Wildlife Service Critical Habitat and Occurrence Database (USFWS 2024) including the U.S. Geological Survey 7.5-minute San Juan Capistrano quadrangle and the five surrounding 7.5-minute U.S. Geological Survey quadrangles (USGS 2021). According to the California Natural Diversity Database, there are no on-site occurrence records of burrowing owl or Crotch's bumble bee.

### Burrowing Owl Surveys

Late breeding season burrowing owl surveys were conducted to determine if any owls are currently occupying the site and surrounding 500-foot buffer and identify any suitable burrows to support nesting owls. The burrowing owl surveys were conducted in accordance with the Staff Report on Burrowing Owl Mitigation Appendix D (CDFG 2012). Two passes were conducted in July and August 2024 by Dudek biologists Sharon Zarate and Dahlia Serrato during the burrowing owl breeding season (March 1–August 31). The surveys were conducted when conditions were

suitable for detecting owls (no rain, high winds [greater than 20 miles per hour], dense fog, or temperatures over 90°F). Survey date and conditions are listed in Table 1.

**Table 1. Survey Conditions**

Date	Hours	Survey	Biologist	Conditions (Temperature, Cloud Cover, Wind Speed)
07/31/2024	0716-1038	BUOW/CBB Survey No. 1	SZ, DS	60°F-71°F, 0% cc, 0-4 mph
08/26/2024	0845-1008	BUOW/CBB Survey No. 2	SZ	70°F-76°F, 0% cc, 0-2 mph

**Survey Personnel:** SZ = Sharon Zarate; DS = Dahlia Serrato.

**Notes:** BUOW = burrowing owl; CBB = Crotch's bumble bee; °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour.

## Crotch's Bumble Bee Surveys

As requested by the California Energy Commission, Dudek conducted two protocol level surveys for Crotch's bumble bee within suitable habitat on site and a surrounding 100-foot buffer (Table 1). Survey areas were determined by walking the project site to find plants in bloom, specifically focused on finding areas with suitable floral habitat. Surveys occurred after sunrise and were not conducted during wet conditions (e.g., foggy, raining, or drizzling) or windy conditions (i.e., sustained winds greater than 8 miles per hour). The surveys were conducted during optimal conditions when there were sunny to partly sunny skies and temperatures greater than 60°F.

On-site nectar resources were moderate, but most were past their bloom periods during the surveys, so methods consisted of finding existing blooming nectar/pollen resources. Biologists walked wandering transects through these resources with the goal of observing bumble bees in passing and looking for bumble bee nest sites associated with small mammal burrows or other appropriate cavities. When a bumble bee was observed, photos were collected of the bumble bee in order to allow for identification. Every bumble bee observed during the surveys was identified to species and caste (whenever feasible). Floral species visited by each bumble bee observed were recorded during the foraging bumble bee surveys.

## Results

### Burrowing Owl Survey Results

During focused burrow surveys conducted by Dudek, suitable habitat for burrowing owl was detected: one small field of non-native grassland to the west of the site that consists of low vegetation cover including narrowleaf plantain (*Plantago lanceolata*), common evening primrose (*Oenothera biennis*), and puncturevine (*Tribulus terrestris*).

Vegetation on the project site is characterized as primarily non-native grassland, agricultural, and developed/disturbed habitat. There is a small field of non-native grassland on the eastern portion of site that consists of tall and dense vegetation cover including bristly oxtongue (*Helminthotheca echioides*), prostrate knotweed (*Polygonum aviculare*), and black mustard (*Brassica nigra*). During each of the two surveys, the vegetation in the non-native grassland was very tall and dense, likely due to the abundance of precipitation received

during the winter and early spring months, and was found to be unsuitable for burrowing owls as they prefer open areas with dry habitats and low vegetation.

No burrowing owl or signs of burrowing owl (including feathers, whitewash, or pellets) were observed within the review site, including the suitable habitat on the western portion of the site.

## Crotch's Bumble Bee Survey Results

During focused bumble bee surveys conducted by Dudek, suitable floral habitat was detected on site. No Crotch's bumble bees were observed during the two focused surveys in July and August 2024. No bumble bees, including Crotch's bumble bee, were observed during the August 26, 2024, survey. Table 2 includes a summary of the bumble bees observed, caste, and plant species they were foraging on.

The bumble bee species observed on site include Vosnesensky bumble bee (*Bombus vosnesenskii*), yellow bumble bee (*Bombus fervidus* spp. *californicus*), and Sonoran bumble bee (*Bombus pensylvanicus* spp. *sonorus*). All three species of bumble bee were found foraging on cardoon (*Cynara cardunculus*), found primarily on the eastern portion of the site.

**Table 2. Bumble Bee Results Summary**

Date	Species	Caste	Behavior/Plant Species
07/31/2024	Sonoran bumble bee ( <i>Bombus pensylvanicus</i> spp. <i>sonorus</i> )	Worker	Foraging on cardoon ( <i>Cynara cardunculus</i> )
07/31/2024	Vosnesensky bumble bee ( <i>Bombus vosnesenskii</i> )	Worker	Foraging on cardoon ( <i>Cynara cardunculus</i> )
07/31/2024	Yellow bumble bee ( <i>Bombus fervidus</i> spp. <i>californicus</i> )	Worker	Foraging on cardoon ( <i>Cynara cardunculus</i> )

## Summary

No burrowing owl or burrowing owl signs were observed on the project site and associated buffer during breeding season surveys. Additionally, no Crotch's bumble bee were observed on the project site and associated buffer during the focused surveys. A few burrows were observed on site during the survey; however, these burrows showed no sign of previous or active occupancy by either species.

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