Appendix C.3

Focused Crotch's Bumblebee Report

ROCKS
BIOLOGICAL CONSULTING





ROCAS GRANDES II PROJECT – FOCUSED CROTCH'S BUMBLEBEE SURVEY REPORT

Moreno Valley, California

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1 SUMMARY

This report is a summary of the results of protocol surveys for Crotch's bumble bee (*Bombus crotchii*, CBB) that Rocks Biological Consulting (RBC) conducted for the Rocas Grandes II Project (project) in Moreno Valley, Riverside County, California. No CBB, or any other *Bombus* species were documented within the survey area during protocol surveys.

2 INTRODUCTION

2.1 PROJECT LOCATION & PROPOSED ACTIVITY

The approximately 18-acre project site is in the City of Moreno Valley, Riverside County, California (Figure 1). The project site is located north of the future extension of Brodiaea Avenue, south of Alessandro Boulevard, east of the future extension of Darwin Drive, and west of vacant land and the future Morrison Street. The project proposes the development of a 460-unit multi-family residential development. The area surrounding the project site is mix of developed and agricultural lands, with residential uses to the north and west, and vacant land formerly used for agriculture to the east and south. The project site occurs within Township 03S, Range 03W, Section 16 on the U.S. Geological Survey (USGS) 7.5-minute Sunnymead quadrangle map (Figure 1).

2.2 CROTCH'S BUMBLE BEE STATUS & NATURAL HISTORY

CBB has experienced sharp population declines over the past decade and is currently a candidate for listing under the California Endangered Species Act (CESA) based on a 2018 petition submitted by the Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety (CDFW 2022). Historically, CBB occurred from northern California south to Baja Mexico and from the coast to the central valley and southwestern desert, with some records as far as Nevada. However, since the early 2000s a change in extent has been observed, with current range size estimated to be approximately of 75% of historic range and the northern populations now extinct. In addition, the species persistence within its extant range is estimated be approximately 20% of historic occupancy (Hatfield 2015). Though CBB is relatively tolerant of fragmented and/or semi-urban environments, habitat loss, climate change, and pesticide use are considered imminent threats to populations (Williams et al. 2014; CDFW 2022).

Suitable habitat for this species includes a variety of open shrub and grassland vegetation communities that support significant stands of nectar sources, mostly in the form of flowering annuals. CBB's primary nectar sources include *Medicago*, *Lupinus*, *Chaenactis*, *Asclepias*, *Phacelia*, and *Salvia*, which have an easily accessible nectar that accommodates CBB's relatively short tongue (Williams et al. 2014).

CBB has been recorded within five miles of the project site near the Box Springs Mountain Reserve (i.e., north of the intersection of Cattail Lane and Blue Lupine Lane), and just over five miles to the east near the Moreno Knolls development (i.e., along McGehee Dr north of Gilman Springs Rd, and south of the Alessandro Rd and Gilman Springs Rd intersection; CDFW 2024). The project site and surrounding area support scrub habitat and nectar sources appropriate for CBB; therefore, the potential for this species to occur is moderate.

3 METHODS

3.1 SURVEY METHODS

Based on the presence of suitable habitat within the survey area (e.g., the project site), RBC biologists Alec Goodman, David Faulkner, Hannah Swarthout, and Kelsey Woldt conducted focused protocol surveys in accordance with the California Department of Fish and Wildlife's (CDFW) *Survey Considerations for CESA Candidate Bumble Bee Species* (CDFW 2023). Surveys were performed at least two to four weeks apart between April and August when detection of CBB is greatest. Surveys were conducted by walking transects through the survey area focusing on areas where ample nectar sources were present, with a minimum of one person-hour of searching per three acres of suitable habitat. All observed insects and potential nectar sources were identified and recorded during the survey. Surveyors were prepared to record the location of any observed CBB, along with population size and nesting status, and to collect non-lethal photo vouchers captured at various angles to confirm accurate identification.

3.2 SURVEYOR QUALIFICATIONS

Mr. Faulkner is a senior entomologist with over 50 years of experience. He holds a Master of Science degree in systematic entomology and a Bachelor of Arts degree in invertebrate zoology. Mr. Goodman is a wildlife biologist with over seven years of professional experience and a Bachelor of Science degree in environmental science. Ms. Swarthout is a wildlife biologist with over four years of professional experience and a Bachelor of Arts degree in environmental studies. Ms. Woldt is a wildlife biologist with five years of professional experience and holds a Master of Science degree in biology and a Bachelor of Science degree in ecology, animal behavior, and evolutionary biology. All surveyors are experienced at conducting CBB surveys and are familiar with the identifying characteristics, behavior, and nectar sources for CBB. Additionally, the biologists have taken, and in Mr. Faulkner's case taught, courses that include bumblebee identification.

4 RESULTS

4.1 EXISTING CONDITIONS & HABITAT ASSESSMENT

The survey area is composed entirely of disturbed habitat, which was formerly used for agriculture and is still occasionally tilled, likely as a form of weed abatement. During the surveys the site was dominated by common barley (*Hordeum vulgare*), common fiddleneck (*Amsinckia menziesii*), red brome (*Bromus rubens*), short-pod mustard (*Hirschfeldia incana*), and slender wild oat (*Avena barbata*). Developed land occurs immediately adjacent to the site and consists of Alessandro Boulevard, Darwin Drive, and a single-family residential development. At the time of the surveys, there was active construction north and south of Alessandro Boulevard in the western buffer of the survey area. Representative site photographs are presented in Appendix A.

Many of the weedy herbaceous plants present on site are potential nectar sources for CBB. Though the survey area is dominated by non-native grasses and shortpod mustard, a variety of other potential nectar sources also occur such as brittlebush (*Encelia farinosa*), cheeseweed (*Malva*

parviflora), red stemmed filaree (*Erodium cicutarium*), and common fiddleneck. A complete list of observed potential nectar sources is presented in Appendix B.

4.2 FOCUSED CROTCH'S BUMBLE BEE SURVEY RESULTS

RBC conducted three focused CBB surveys during the breeding season between April 30 and June 5, 2024. Survey dates, conditions, and personnel are presented in Table 1, below.

No CBB or other Bombus species were observed within the survey area. However, many other invertebrates were observed during the surveys. A complete list of invertebrates observed is presented as Appendix C, and complete field notes are provided in Appendix D.

Table 1. Crotch's Bumble Bee Survey Dates/Conditions

Survey Round	Date	Surveyor(s)	Time (Start-End)	Temperature (F) (Start-End)	Cloud Cover (%) (Start-End)	Wind Speed (mph) (Start; End)
1	4/30/24	DF, HS. KW	0800–1000	63-77	0-0	0–2; 0–1
2	5/22/24	AG, DF, HS	0800–1030	64-69	100-0	0–2; 0–2
3	6/5/24	AG, DF, HS	0800-1015	67-78	0-0	2–4; 5–8
Surveyors: AG=Alec Goodman; DF=David Faulkner; HS=Hannah Swarthout; KW=Kelsey Woldt						

5 CROTCH'S BUMBLE BEE AVOIDANCE & MINIMIZATION

Pursuant to the CDFW *Survey Considerations for CESA Candidate Bumble Bee Species*, all project sites that support suitable habitat within the range of CBB should conduct pre-construction surveys, regardless of CBB presence/absence during previous focused surveys. The pre-construction surveys will be conducted in accordance with CDFW recommendations. As such, the following avoidance and minimization measure is required to avoid potential direct impacts on CBB:

> Within one year of any ground disturbance or vegetation clearing, a focused species survey for CBB shall be conducted by a qualified biologist. Survey methodology shall follow CDFW's 2023 *Survey Considerations for CESA Candidate Bumble Bee Species*. Surveys shall take place when detection of the focal species is greatest (April through August), when feasible. CBB surveys shall be conducted for a minimum of one person-hour of searching (excluding time spent capturing, photographing, identifying, and releasing specimen) per three acres of suitable habitat. Surveillance shall be focused where ample nectar sources are present, and non-lethal photo vouchers of focal species shall be captured at various angles to confirm accurate identification (CDFW 2023).
>
> If CBB is documented on the project site, the project proponent shall notify CDFW within five working days of the observation. If necessary, site-specific avoidance and minimization measures shall be implemented to avoid take of CBB. If take avoidance is not feasible, an ITP shall be obtained from CDFW.

6 CONCLUSIONS

No CBB were documented within the survey area for the Rocas Grandes II project during protocol surveys conducted between April 30 and June 5, 2024. The focused survey results reported herein are valid for one year. Due to habitat suitability and site location, CBB pre-construction surveys are required within one year of construction activity initiation in order to confirm species absence and ensure impact avoidance.

7 REFERENCES

California Department of Fish and Wildlife (CDFW). (2022). *California Department of Fish and Wildlife News room*. Retrieved from https://wildlife.ca.gov/News/cdfw-seeks-public-comment-related-to-crotchs-bumble-bee-franklins-bumble-bee-suckleys-cuckoo-bumble-bee-and-western-bumble-bee#gsc.tab=0.

__. (2023). *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. Retrieved July 2023, from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213150&inline.

__. (2024). California Department of Fish and Game Natural Diversity Database – Electronic Format. Retrieved on 30 June 2024.

Hatfield, R., S. Jepsen, R. W. Thorp, L. Richardson, and S. Colla. (2015). *Crotch bumble bee, Bombus crotchii. The IUCN Red List of Threatened Species 2015*. Retrieved on 25 July 2024, from https://www.iucnredlist.org/ja/species/44937582/46440211.

NatureServe. (2023). NatureServe Explorer. *Bombus crotchii: Crotch's Bumble Bee*. Retrieved June 2023, from https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.834085/Bombus_crotchii.

Thorp, R. W., D. S. Horning, and L. L. Dunning. (1983). *Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae)*. Bulletin of the California Insect Survey 23: viii+79 pp.

Williams, P., R. W. Thorp, L. Richardson, and S. Colla. (2014). *Bumble Bees of North America: An identification guide*. Princeton University Press.

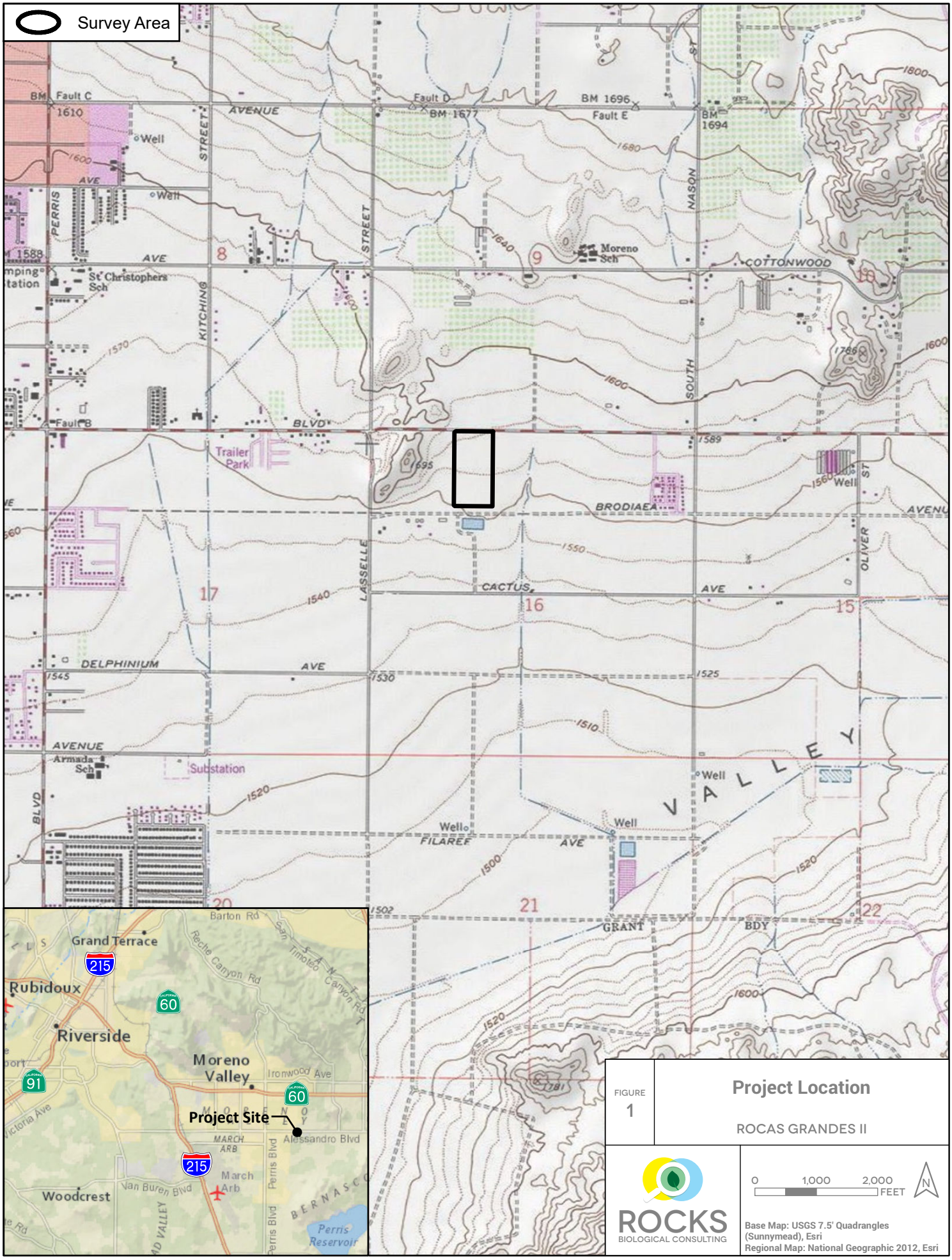


FIGURE 1

Project Location

ROCAS GRANDES II

ROCKS BIOLOGICAL CONSULTING

0 1,000 2,000 FEET

N

Base Map: USGS 7.5' Quadrangles (Sunnymead), Esri
Regional Map: National Geographic 2012, Esri


Sequoia St
Alessandro Blvd
Darwin Dr
Brodiaea Ave
Survey Area
Vegetation
Disturbed Habitat
FIGURE
2
Survey Area
ROCAS GRANDES II
ROCKS
BIOLOGICAL CONSULTING
0
100
200
FEET
N
Aerial Photo: Nearmap 2024

APPENDIX A

SITE PHOTOGRAPHS

Appendix A

Site Photographs



Photo 1. View of survey area from the northwest corner facing southeast. Representative view of disturbed habitat with herbaceous regrowth after recent tilling. May 22, 2024.



Photo 2. View of the survey area from the northern site boundary, facing south. View of dense patch of shortpod mustard (*Hirschfeldia incana*), a potential nectar source. May 22, 2024.



Photo 3. View of the northern portion of the survey area facing east. View of disturbed habitat dominated by non-native grasses and shortpod mustard. June 5, 2024.



Photo 4. View of the central portion of the survey area facing south. View shows lack of vegetation due to recent tilling. June 5, 2024.

APPENDIX B

POTENTIAL NECTAR SOURCES OBSERVED

Appendix B

Potential Nectar Sources Observed

Family	Scientific Name	Common Name
Asteraceae	*Encelia farinosa*	Brittlebush
Asteraceae	*Oncosiphon pilulifer*	Stinknet
Asteraceae	*Sonchus oleraceus*	Common sow thistle
Boraginaceae	*Amsinckia menziesii*	Small flowered fiddleneck
Brassicaceae	*Hirschfeldia incana*	Shortpod mustard
Brassicaceae	*Raphanus sativus*	Wild radish
Brassicaceae	*Sisymbrium irio*	London rocket
Convolvulaceae	*Calystegia* sp.	Morning glory species
Convolvulaceae	*Convolvulus arvensis*	Field bindweed
Euphorbiaceae	*Euphorbia albomarginata*	Rattlesnake sandmat
Geraniaceae	*Erodium cicutarium*	Red stemmed filaree
Malvaceae	*Malva parviflora*	Cheeseweed

APPENDIX C

INVERTEBRATES OBSERVED

Appendix C

Invertebrates Observed

Family	Scientific Name	Common Name
Acrididae	*Trimerotropis pallidipennis*	Pallid-winged grasshopper
Agelenidae	*Agelenopsis* sp.	Grass spider
Apidae	*Apis mellifera*	European honeybee
Apidae	*Diadasia* sp.	Digger bee
Apidae	*Melissodes* sp.	Long-horned bee
Apidae	*Nomada* sp.	Cuckoo bee
Apidae	*Xylocopa californica*	California carpenter bee
Bombyliidae	*Exoprosopa* sp.	Bee fly
Carabidae	*Harpalus* sp.	Ground beetle
Chrysomelidae	*Diabrotica* undecimpunctata	Cucumber beetle
Coccinellidae	*Coccinella septempunctata*	Seven spotted lady beetle
Coccinellidae	*Hippodamia convergens*	Convergent lady beetle
Coenagrionidae	*Enallagma* sp.	Bluet damselfly
Forficulidae	*Forficula auricularia*	European earwig
Formicidae	*Pogonomyrmex sp.*	Red harvester ant
Gryllidae	*Gryllus* sp.	Field cricket
Halictidae	*Agapostemon texanus*	Green sweat bee
Hesperiidae	*Heliopetes ericetorum*	Northern white skipper
Hesperiidae	*Pyrgus albescens*	White checkered skipper
Libellulidae	*Epiprocta* sp.	Dragonfly
Lycaenidae	*Strymon melinus*	Gray hairstreak
Melyridae	*Collops* sp.	Soft winged Flower beetle
Myrmicinae	*Pogonomyrmex occidentalis*	Red harvester ant
Nymphalidae	*Junonia coenia*	Common buckeye
Nymphalidae	*Vanessa annabella*	West coast lady
Nymphalidae	*Vanessa cardui*	Painted lady
Pentatomidae	*Chlorochroa sayi*	Say's stinkbug
Pieridae	*Colias eurytheme*	Orange Sulphur
Pieridae	*Pieris rapae*	Cabbage white
Pieridae	*Pontia protodice*	Checkered white
Pompilidae	*Auplopus* sp.	Spider wasp
Pyrrhocoridae	*Scantius aegyptius*	Mediterranean red bug
Sphecidae	*Ammophila* sp.	Thread-waisted wasp
Syrphidae	*Eristalis tenax*	Syrphid flower fly
Tachinidae	*Gymnosoma* sp.	Tachinid fly
Tenebrionidae	*Eleodes* sp.	Darkling beetle

APPENDIX D

SURVEYOR FIELD NOTES

CROTCH IS SURVEY W/ DAVID

	TIME	TEMP	WIND	CC
START	8:00AM	63	0-2	0%
END	10:00AM	77	0-1	0%

FLOWERING PLANTS:

HIBINC, AMSMEN, ERO C, C, CNCDIL, PHACELIA, ~~STSCRE~~, RANBUC, CONARV,

NOTES:

POTENTIAL FOR NESTING IS VERY LOW. NOW WE WILL LIKELY SEE QUEEN LOOKING FOR NESTING SITE, NOT LOOKING FOR NECTAR IF YOU SEE A BEE ON A FLOWER, LIKELY ♂ SITTING

NOT GOING TO BE IN AN ACTIVE BURROW

SPECIES:

DARKLING GROUND BEETLE,
CABBAGE WHITE, WHITE CHECKERED SKIPPER
NOMADA SP. (PARASITIC TRUE BEE)

NOTES (CONTINUED)

BOMBUS CALIFORNICUS MORE COASTAL
*TWO COHA OBSERVED SOARING OVER BUFFER
LMS SUBATTY SMALLER THAN WHITE CHECKERED SKIPPER AND DARKER ORICE FIRST EMERGE

SPECIES (CONTINUED)

CARRABID BEETLE, VANAUN
HONEYBEE & TARANTULA HAWK (HUNTING) FOR SPIDERS)
MALE CHECKERED WHITE W/ ONE SQUARE CHECKER ON FOREWING

AREAS RECENTLY BURNED - DEC / JAN

PIN-IT

4/30 ROCAS GRANDE CROTCH

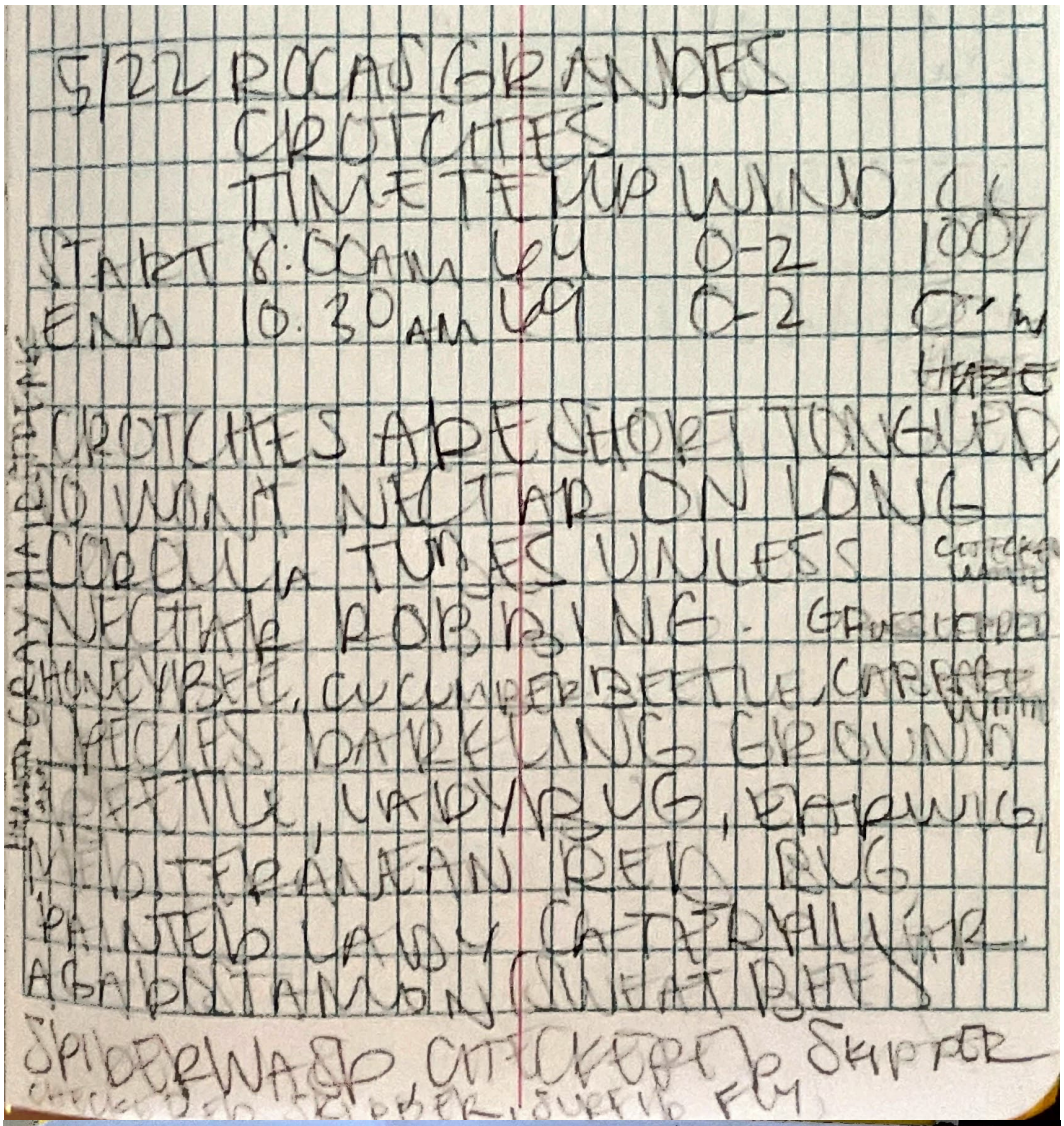
0800	63°	0-2	0
1000	77°	0-2	0

Barney bees
Tarantula hawk
Darkling beetles
Cabbage white
Checkered skipper
Harvester ants
Nomada bee (parasitic)
Corabid beetle (predaceous ground beetle)
Grasshoppers (3 species)
Damselflies
Western painted lady
Dragonflies

Ladybugs
Tunnel spider
Checkered whites

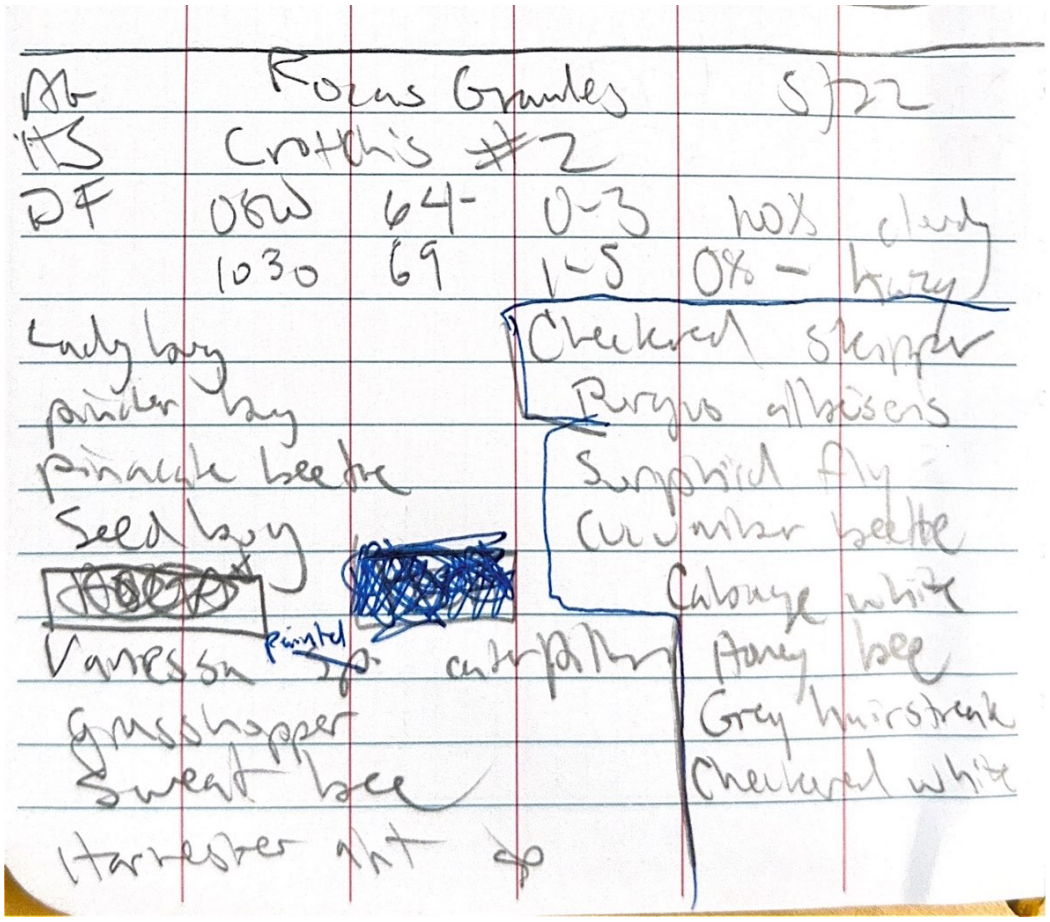
NECTAR SOURCES: HIRNC
AMSMEN ONCPIL EROCIC
MALPAR SISIRI CONARV
SONOLE

* Entomological supplies → Pin-it



5/22 ROCKS GRANITES
CROTCHETS
TIME TO WAKE UP
START 6:00 AM 40-2 100%
END 10:30 AM 40-2 CLOUDY
CROTCHETS ARE SHORT TONGUED
DO WANT NECTAR ON LONG
COCCULUS TONGUES UNLESS
NECTAR ROBBING. GRASSHOPPER
GRANIVORE, CUCUMBER BEETLE, CARPENTER
FECHES DARKLING GROUND
BEETLE, WAXWORM, EARWIG,
WEEVIL, MEALWORM, RED RUG
PANTRY LADY CENTRAL VAC
ASSAULT ANIMAL (WEATHERS
SPIDERWASP CRICKET SKIPPER
CRICKET SUFFIX FLY

FLOWER
AMSMEN, HIBING, ENGFAR
RAPRUG, EUPHORBIA SP.,
EPOCIC, JONOLE, SISIRI,
CALESTIGIA,


Rocks Granules
Crotch's #2
OBW 64- 0-3 10% dark
1030 69 1-5 0% - heavy
Lady bug
Checkered skipper
pirate beetle
Syrphid fly
Seed bug
Cabbage white
Honey bee
Grey hairstreak
Checkered white
Harvester ant

Richtung
Hirschfeldia incana
Steinkraut
Aussichten sp.
Silene flos-cuculi
Lychnis nigrescens (radicula)
Euphorbia sp.
Garten Ackerwinde
Sonchus oleraceus
Taraxacum sect.
Ackerkratzdistel sp.
Sw

*2 Species of each bee
*Spider wasp

4 HRS 15 MINS

6/5 ROCAS GRANDES CROTCH #3

6:00AM - 5:00PM

	TIME	TEMP	WIND	CC
START	8:00AM	67	2-4	0%
END	10:15AM	78	5-8	0%

WILDLIFE:

CLOROCHTERA SAYI (GREEN SHIELD STINK BUG),
CABBAGE WHITE, DARKLING GROUND BEETLE (UNK SPECIES MATTE BLACK, SMALLER)
ELIODES (BIG, COMMON DARKLING BEETLE), HONEY BEE,
CHECKERED SKIPPER, LADY BUG,
GRASSHOPPER, GREY HAIRSTREAK,
BUCKEYE, XYLOCOPA (CARPENTER BEE) (NO YELLOW), SWEAT BEE (METALLIC ON CONAPU)
SCAPHIDA SCANTIUS AEGYPTIUS (MEDITERRANEAN RED BUG)
HARVESTER ANTS, MELISSODES (LONG HORNED BEETLE)? ← ORANGE
PAINTED LADY (WEST COAST) TWO
DARKWING (PINCHER BUG)
BEE FLY (2 WINGS),
BUMBLE BEE FAMILY)

CONVERGENT LADY BIRD BEETLE
(NATIVE LADY BUG) (SMALLER THAN 2-SPOT)

FLOWERS:
AMSMEN, HIKING, RABBIT
SONCHUS ASPER, SISYR1,
ONOPIL, CONARV, EUPALB

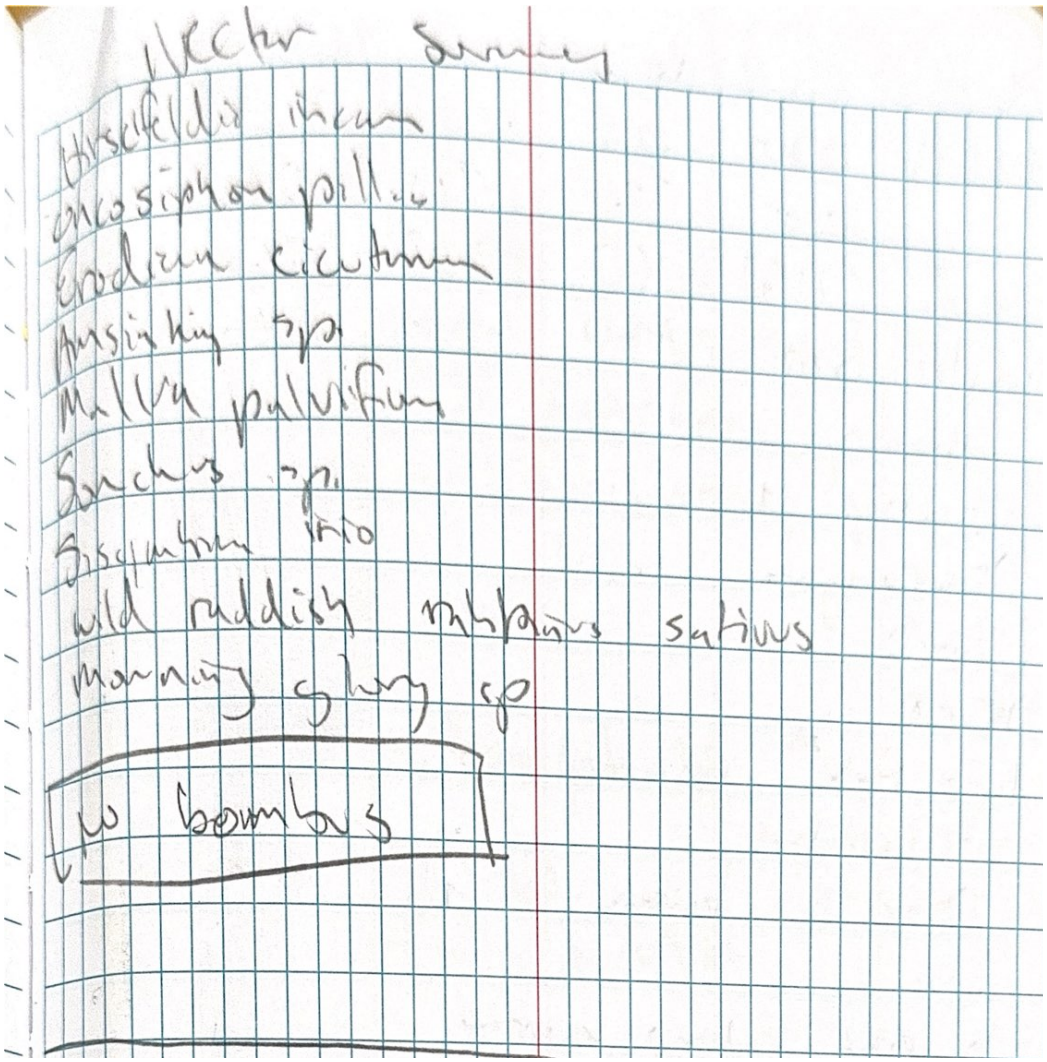
NOTES: JAPANESE WASP EATING FUCK WINGS
CURVED BILL MALES HAVE LONGER ANTENNAE & FEMALES HAVE PARA

EASTERN RUFFED MOUSE
SINCE LAST VISIT

MIDGES
SAND FLY
PSORANDROGOMYIA
NOSEEUMS

WILDLIFE CONT
FEMALE CHECKERED WHITE
(HEAVILY MARKED. MALES
HAVE ONE CHECKER ON FOREWING)
HELIOPTES (GREAT NORTHERN
SKIPPER. LARGER THAN
CHECKERED, MOSTLY WHITE
UNDERNEATH, 7 SPOTTED LADY
BUG (INTRODUCED) (MORE
OVAL (ROUNDED)
PAINTED LADY (NO ORANGE TIP)
WHITE TIP
COLLOPES (PREDATORY SOFT WING
BEETLE. LOOKS LIKE PIGTAIL
ANTENNAE), DAINTY YELLOW
DRAGON FLY, SULPHUR
SOUTHWESTERN CLOUDLESS SULPHUR

At HS Rocus Granley 6/5
OP Crotches Sing
0800 70 2-4 0%
1015 78 1-5 0% LEGO
Chlorocuum sm y/i - greenish striken
Cabbage white
grand darkling beetle
Darkling beetle
Ladybug Colops beetle
Honey bee Thread waist wasp
Checked skipper spider wasp
grass hopper tachinid fly
Grey hairstreak Hoverfly - dragonfly
Bumbeys
Xylocopa (carpenter bee) Semi silver
Sweat bee
cricket
earwig
Mediterranean red boy
H. ants
Melissoides - long horn bee
Pain West coast Indy
Beefly
Damselfly
Northern white skipper (Heliopetes
Painted lady
Mallow bee


Hedge Survey
Arisaema ihera
Arisaema pill...
Erodium cicutarium
Anisantha sp
Malva pulvifera
Sonchus sp.
Brassicaceae indet
wild radish Raphanus sativus
morning glory sp
Bombus