

# Management Strategic Plan (MSP) 2021 Rare Plant Discovery Surveys & Yearly Rare Plant Monitoring

Summary of 2021 Discover Survey effort for:

*Dudleya blochmaniae*, *Erysimum ammophilum*, and  
*Dicranostegia orcuttiana*

Conducted by: AECOM and CBI

Presented by: Diana Brand Ramirez (AECOM)

# Overview

## – Discovery Surveys

- 2021 Target Species
- Survey Areas
- Survey Methods
- Survey Results
- 2022 Target Species

## – 2021 Rare Plant Monitoring Update

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## 2021 Discovery Surveys Target Species

The following species were selected by SDMMP for 2021 Discovery Surveys effort:

- Aphanisma (*Aphanisma blitoides*)\*\*
- Orcutt's birds-beak (*Dicranostegia orcuttiana*)
- Blochman's dudleya (*Dudleya blochmaniae*)
- Coast wallflower (*Erysimum ammophilum*)

\*\*Aphanisma was removed from survey effort; growing conditions in the past year were not optimal for the species (ongoing drought).



Credit: Margie Mulligan



Credit: Margie Mulligan



Credit: Jessie Vinje



Credit: Jenna Hartsook

# Survey Areas - Overview

## Coast wallflower

- Carmel Mountain Preserve
- Carmel Valley
- City of Oceanside Open Space
- Crest Canyon
- Gonzalez Canyon
- Kate Sessions Park
- La Costa Canyon
- La Jolla Natural Park
- Overlook Park
- Cabrillo National Monument
- San Elijo Ecological Reserve
- Soledad Natural Park
- Sorrento Hills
- Torrey Pines State Natural Reserve *and surrounding open space*

## Blochman's Dudleya

- Caltrans
- Carlsbad Fenton Raceway
- Carlsbad Highland Reserve
- City of Carlsbad Municipal Golf Course
- City of Oceanside Open Space
- La Costa Canyon
- Myers Preserve
- San Onofre State Beach
- Taylor Preserve
- Tijuana Rive Valley
- Vista Del Valle

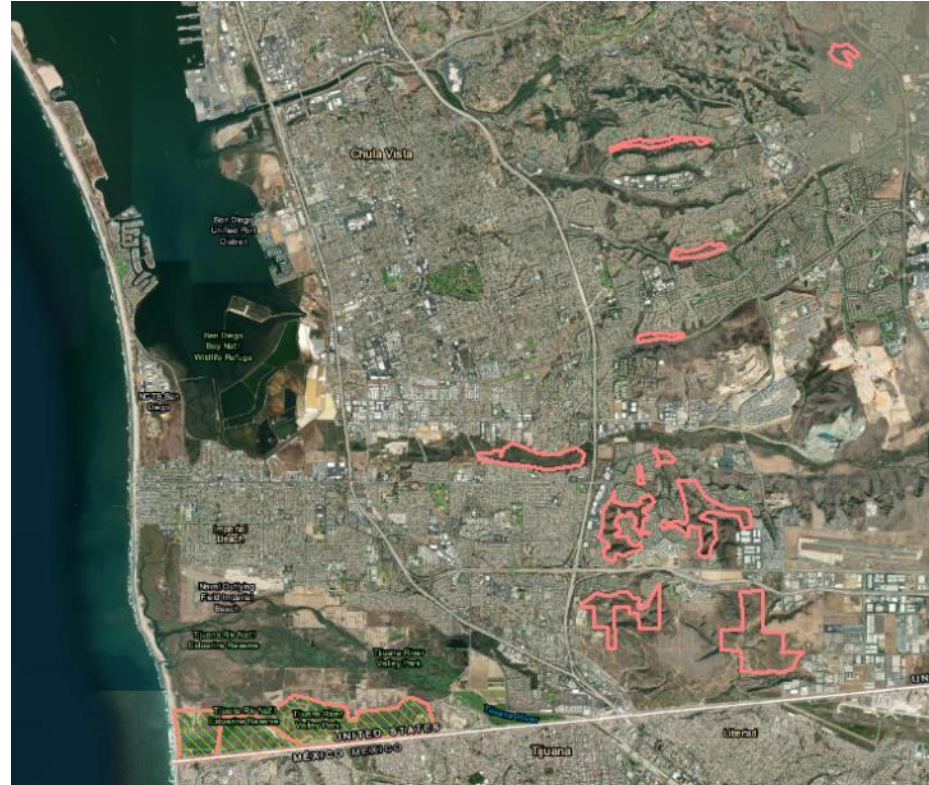


Above: Blochman's dudleya survey areas (North County) shown above in green outline.

# Survey Areas – Overview *continued*

## Orcutt's birds-beak

- Bonita Meadows
- Dennery Ranch
- Furby North
- Lower Otay Lake
- Otay Mesa
- Otay Valley Regional Park
- Rice Canyon
- Tijuana River Valley



Above: Orcutt's birds-beak survey areas shown above in pink outline; one Blochman's dudleya survey area shown in green hatch.



Above: One coast wallflower survey area shown above in yellow outline.

# Discovery Survey Methods



Above: Survey areas (yellow outline) for Coast wallflower and survey points (red dots).



Above: Close up of survey areas (yellow outline) for Coast wallflower and survey points (red dots) with notes.

- Survey areas designated by referencing historic data, voucher collections, and species expert input.
- “Bread Crumb” method implemented to track surveyor path through suitable habitat by dropping points in Collector in real-time. Notes were included with individual points, as needed.
- If target species were found and no monitoring plot existed, sample plot was established (per IMG) and extent was mapped.
- Points were not collected if the species was already known to occur there (i.e., documented by IMG). However, if additional extent was found, it was mapped.

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# Discovery Survey Results – New Occurrences Summary

## Orcutt's birds-beak

- 1 Occurrences Established:
  - East Otay Mesa (COOR7\_3EOTM012): ~700 plants
- Additional Extent Mapped:
  - Dennerly Ranch East (COOR7\_3DREA007)
  - Otay Valley Regional Park (COOR7\_3OVRP011)
  - Tijuana River Valley Park (COOR7\_1SMGU006, COOR7\_1TIRI009)

## Coast wallflower

- 3 Occurrences Established:
  - San Elijo Ecological Reserve (ERAM4\_7SELA008): ~99 plants
  - Torrey Pines State Natural Reserve (ERAM4\_7TPSR006): ~600 plants
  - Carmel Valley/Sorrento Hills Open Space (ERAM4\_6SDJA007): > ~800 plants
- Additional Extent Mapped:
  - Crest Canyon (ERAM4\_6DEMA001)

## Blochman's dudleya

- 0 Occurrences established
- Additional Extent Mapped:
  - Vista del Valle, Oceanside (DUBLB\_6VDLV004)
    - >14,000 additional plants (estimate)

# Discovery Survey Results – New Occurrences Established

## Coast wallflower

- 3 Occurrences Established:
  - San Elijo Ecological Reserve (ERAM4\_7SELA008) - 99 individuals counted
  - Torrey Pines State Natural Reserve (ERAM4\_7TPSR006)
  - Carmel Valley/Sorrento Hills Open Space (ERAM4\_6SDJA007)



Left: Aerial view of plot center (red dot) and mapped extent (red outline).



Above: West-facing view toward plot center (red arrow).



# Discovery Survey Results – New Occurrences Established

## Coast wallflower

- 3 Occurrences Established:
  - San Elijo Ecological Reserve (ERAM4\_7SELA008)
  - Torrey Pines State Natural Reserve (ERAM4\_7TPSR006) – ~600 individuals counted
  - Carmel Valley/Sorrento Hills Open Space (ERAM4\_6SDJA007)



Left: Aerial view of plot center (yellow arrow) and mapped extent (red outline).

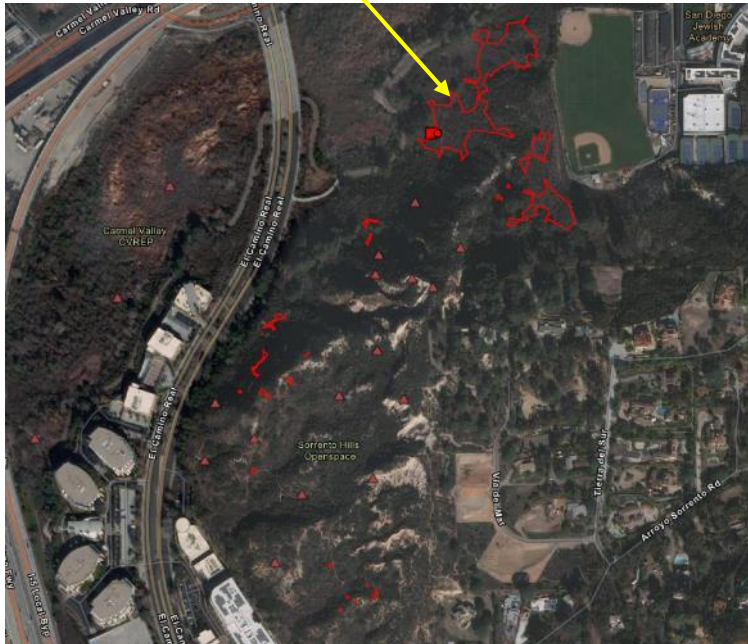


Above: Northeast-facing view toward plot center (red arrow).

# Discovery Survey Results – New Occurrences Established

## Coast wallflower

- 3 Occurrences Established:
  - San Elijo Ecological Reserve (ERAM4\_7SELA008)
  - Torrey Pines State Natural Reserve (ERAM4\_7TPSR006)
  - Carmel Valley/Sorrento Hills Open Space (ERAM4\_6SDJA007) - >800 individuals estimated



Left: Aerial view of plot center (yellow arrow) and mapped extent (red outline).

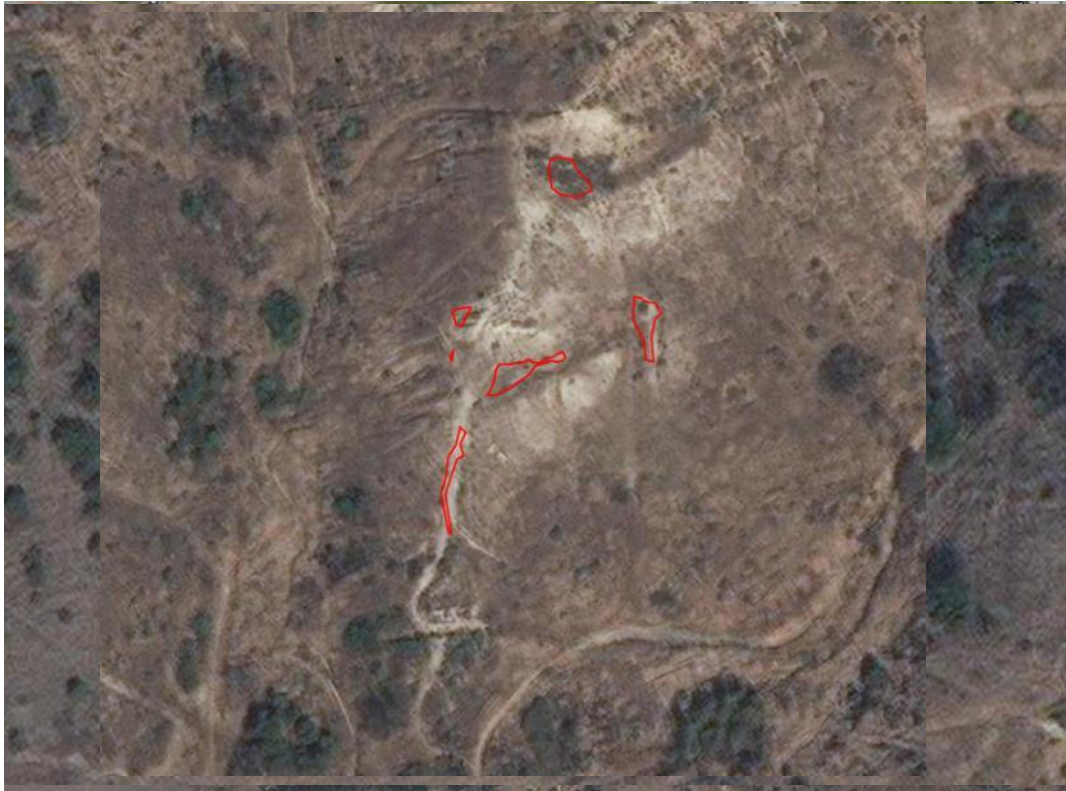


Above: East-facing view toward plot center (red arrow). Plants can be seen throughout and circled in yellow.

# Discovery Survey Results – New Occurrences Established

## Orcutt's birds-beak

- 1 Occurrences Established:
  - East Otay Mesa  
(COOR7\_3EOTM012) - ~700 individuals counted



Above: Aerial view of plot center (yellow arrow) and mapped extent (red outline).



Above: Southeast-facing view toward plot center (red arrow). Plants can be seen within old tire track (circled in yellow).

# 2022 Discovery Surveys Target Species

- *Cryptantha wigginsii* – Wiggin’s cryptantha
- *Aphanisma blitoides* - Aphanisma
- *Heterotheca sessiliflora* var. *echiodes* – False goldenstar
- *Corethrogyne filaginifolia* var. *linifolia* - Del Mar sand aster
- *Sphenopholis interrupta* ssp. *californica* - Baja California oatgrass
- *Ambrosia pumila* – San Diego ambrosia



Credit: Jenna Hartsook



Credit: Margie Mulligan



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Credit: Ron Vanderhoff (2016)  
Source: Calflora.org



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Credit: Keir Morse (2008)  
Source: Calflora.org

# 2021 IMG Update

## 2021 Rare Plant Monitoring – Target Species:

“Sentinel species” are listed in blue.

- *Acanthomintha ilicifolia* (San Diego thornmint)
- *Acmispon prostratus* (Nuttall’s acmispon)
- *Agave shawii* var. *shawii* (Shaw’s agave)
- *Aphanisma blitoides* (Aphanisma)
- *Atriplex parishii* (Parish brittle scale)
- *Baccharis vanessae* (Encinitas baccharis)
- *Bloomeria clevelandii* (San Diego goldenstar)
- *Brodiaea filifolia* (Thread-leaved brodiaea)
- *Brodiaea orcuttii* (Orcutt’s brodiaea)
- *Chloropyron maritimum* ssp. *maritimum* (Salt marsh bird’s-beak)
- *Chorizanthe orcuttiana* (Orcutt’s spineflower)
- *Deinandra conjugens* (Otay tarplant)
- *Dicranostegia orcuttiana* (Orcutt’s birds-beak)
- *Dudleya blochmaniae* (Blochman’s dudleya)
- *Dudleya brevifolia* (Short-leaved dudleya)
- *Erysimum ammophilum* (Coast wallflower)
- *Monardella stoneana* (Jennifer’s monardella)
- *Monardella viminea* (Willow monardella)
- *Rosa minutifolia* (Small-leaved rose)
- *Spenopholis interrupta* ssp. *californica* (Baja California oatgrass)



Year	# Species Monitored	# Target Occurrences	# Occurrences Monitored <sup>1</sup>	Percent Completed
2014	15/25	301	59	20%
2015	19/25	301	80	27%
2016	25/25	301	235	78%
2017	17/17	258	205	79%
2018	15/15	222	227	102%
2019	16/16	223	183	82%
2020	9/9	196	160	82%
2021	19/20	251	264	105%

<sup>1</sup>Includes occurrences established as a result of 2021 Discovery Surveys.

Left: Closeup of *Atriplex parishii* at Ramona Grasslands.

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# Resource Agencies and Utilities

Bureau of Land Management (Joel Miner)

California Department of Fire and Forestry Protection (Patrick Lewis)

California Department of Fish and Wildlife (Meredith Osborne, Kyle Rice, Greg Bluffin, Jennifer Blackhall, Holly Smit Kicklighter, Jessie Lane)

California Department of Parks and Recreation (Darren Smith, Cara Stafford)

California Department of Transportation (Sue Scatolini, Michael Galloway)

Otay Water District (Lisa Coburn-Boyd)

SANDAG (Keith Greer, Kim Smith)

The Port Authority (Eileen Maher, Robert Patton, Tim Barrett)

United States Fish and Wildlife Service, Refuges (Jill Terp, John Martin, Brian Collins, Dwane Binns, Debby Good)

United States Forest Service, Cleveland NF (Lauren Quon, Kirsten Winter)

**Thank You!!**

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## Cities and County

City of Carlsbad (Rosanne Humphrey)

City of Oceanside (Pamela LaBruyere)

City of Poway (Linda Shields)

City of San Diego Parks and Recreation Department (Sara Allen, Mark Berninger, Paula Birdwell, Erik Stamm, & City rangers)

City of San Diego Public Utilities Department (Niki McGinnis, Brian Swanson)

City of Santee (Sam Rensberry)

County of San Diego (Ian Hodgson, Jennifer Price, Ashley Dulaney, Anne Baldwin, Cynthia Curtis)

**Thank You!!**

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## Military, Consulting Firms, & Private

Naval Base's Coronado and Point Loma (Michelle Cox, Michelle Maley, Bryan Munson, Chris Gillespie, Jose Roldan)

AECOM (Jenna Hartsook, Diana Brand Ramirez, Bonnie Hendricks, Tom Oberbauer, Terressa Whitaker, Rachel Chen, Kalli Kilmer, Alexandra Fowler, Peter Augello)

Artemis Environmental, Inc. (Jasmine Bakker)

Helix Environmental, Inc. (Amy Mattson, Mandy Matthews)

ICF (Linnea Spears-Lebrun, Courtney Casey)

Recon Environmental, Inc. (Kayo Valenti, Jonathan Mercado)

Rincon Consultants, Inc. (Amber Bruno, Emily Kochert, Leslie Yen)

Rocks Biological Consulting (Brenda Bennett, Ryan Meszaros)

Carrillo Ranch HOA

Hanson Aggregate, Inc.

**Thank You!!**



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## Non-Profit and Volunteer

Back Country Land Trust (Scott McMillan, Jon Green)

Center for Natural Lands Management (Markus Spiegelberg, Sarah Godfrey, Brooke Prentice-Dekker)

Chaparral Lands Conservancy (David Hogan)

Conservation Biology Institute (Jessie Vinje, Spring Strahm, Margie Mulligan)

Del Dios Habitat Protection League (Stacy McCline)

Endangered Habitats Conservancy (Michael Beck, Chris Manzuk, Kyle Smith, Gardner Grady)

Mary Berube

Friends of Los Penasquitos Canyon Preserve (Mike Kelly)

Robert Patton

San Diego Audubon (Megan Flaherty)

San Diego Habitat Conservancy (Kathleen Pollett, Vince Rivas)

San Diego Jewish Academy (Teshy Wellman, Nan Sterman)

San Dieguito River Park (Shawna Anderson)

San Dieguito River Valley Conservancy (Jonathan Appelbaum)

# Thank You!!

# **Non-Profit and Volunteer (continued)**

Texas Tech University (Dr. Jyotsna Sharma)

The Nature Conservancy (Zac Principe, Susan North)

Urban Corps of San Diego (Gretchen Cummings)

UC San Diego Natural Reserve System (Isabelle Kay)

SDMMP & USGS (Kris Preston, Emily Perkins, Chris Brown, Annabelle Bernabe, Sarah McCutcheon)

**Thank You!!**

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**Thank You  
SANDAG and  
SDMMP!!**