

1.15 Orcutt's Birds-Beak (*Dicranostegia orcuttiana*) – Category SL

Management Units with Known Occurrences

Orcutt's bird's-beak is endemic to southwestern San Diego County and northern Baja California, Mexico (Reiser 1994). It is found in maritime succulent scrub and in floodplain habitat in the Otay River Valley. Orcutt's bird's-beak currently occurs at 9 locations in MU3 (see online map). Three large occurrences ($\geq 1,000$ individuals) are located in Otay River Valley, Cal Terraces, and Border Field State Park. There are 4 small occurrences ($< 1,000$ individuals) and 2 with an unknown population size. Historically, there was also a small occurrence at Goat Canyon/Spooner's Mesa; however, the species was not detected there during 2005 and 2009 rare plant surveys (TAIC 2010).

Management Categorization Rationale

Orcutt's bird's-beak should be managed as a Species Management Focus Category SL Species due to a moderate risk of loss from Conserved Lands in the MSPA and because managing vegetation alone will not ensure its persistence (see Vol. 1, Table 2-4). Orcutt's bird's-beak faces a moderate risk of loss due to its restricted distribution in San Diego County; limited suitable habitat; and annual, hemiparasitic life history traits. Existing occurrences in the MSPA are isolated and 4 are small in size and susceptible to demographic and environmental stochasticity.

The current threat to Orcutt's bird's-beak in MU3 is invasive nonnative plants. The most important stressors identified for Orcutt's bird's-beak in MU1, and which likely led to its extirpation from the unit, are invasive nonnative plants, off-highway vehicle activity, and illegal trails (TAIC 2010).

Management and Monitoring Approach

The overarching goal for Orcutt's bird's-beak is to maintain or enhance existing occurrences and reestablish historic occurrences, as needed, to ensure multiple conserved occurrences with self-sustaining populations to increase resilience to environmental and demographic stochasticity, maintain genetic diversity, and ensure persistence over the long term (> 100 years) in coastal sage scrub vegetation communities.

For the 2017–2021 planning cycle, the management and monitoring approach for Orcutt's bird's-beak is to:

- (1) Inspect Orcutt's bird's-beak occurrences annually on Conserved Lands (see Table of Occurrences) using the regional rare plant IMG monitoring protocol to record abundance and collect habitat and threats covariate data to determine management needs.
- (2) Conduct routine management actions identified through the IMG monitoring at Orcutt's bird's-beak occurrences on Conserved Lands (see Table of Occurrences). Depending on the type and level of threat, management should be conducted as needed, not necessarily every year, and using BMPs with precautions to do no harm.
- (3) Complete the study begun in 2016 to characterize the population genetic structure, gene flow, and genetic diversity for Orcutt's bird's-beak occurrences (see Table of Occurrences). The study will determine if there is evidence of mixed ploidy levels within or among occurrences; evaluate vulnerability of occurrences to genetic drift and loss of genetic diversity; assess the level of gene flow among occurrences; identify if there are signatures of genetic bottlenecks or low genetic diversity in occurrences that have undergone recent reductions; and look for evidence of local population adaptation. Based on the results of the genetic analyses, management recommendations will include whether common garden and reciprocal transplantations are necessary before proceeding with population enhancement or restoration and will provide specific recommendations for collecting, bulking, and distributing seed to enhance existing occurrences or establish new occurrences.
- (4) Survey historic Orcutt's bird's-beak locations to determine occurrence status; survey and delineate potentially suitable habitat for new occurrences; survey existing occurrences to identify the potential for enhancement and expansion; and at all sites collect data on occurrence status, habitat, and threats and determine management needs.
- (5) Enhance Orcutt's bird's-beak at the Cal Terraces/Dennery Canyon occurrence (see Table of Occurrences). Invasive plant control should be conducted using BMPs so that invasive plants are reduced to $\leq 20\%$

absolute cover within the occurrence's occupied extent and adjacent suitable habitat.

- (6) Begin preparing an Orcutt's bird's-beak section in the MSP Seed Collection, Banking, and Bulking Plan that incorporates best science and management practices (Wall 2009; Royal Botanic Gardens, Kew 2016) to preserve genetic diversity and rescue occurrences in case of catastrophic disturbance. The plan should include recommendations from 2017–2019 seed collection and bulking efforts conducted by San Diego Zoo Institute for Conservation Research and from the 2016–2017 genetic study to collect and store seeds over the long term at a permanent, established conservation seed bank (e.g., Institute for Conservation Research Native Plant Seed Bank, Rancho Santa Ana Botanic Garden Seed Conservation Program) and for providing a source of seeds for management purposes. The plan should include recommendations for collecting and storing seeds for conservation banking; management-oriented research; rescuing occurrences after catastrophic disturbances; and seed bulking and outplanting to augment extant occurrences or to establish new occurrences with consideration of genetic implications for population sustainability.
- (7) Collect Orcutt's bird's-beak seed for conservation banking and bulk seed for enhancing and expanding the Cal Terraces/Dennery Canyon occurrence (see Table of Occurrences). Begin implementing high-priority actions for Orcutt's bird's-beak in the MSP Seed Collection, Banking, and Bulking Plan to collect and store seeds at a permanent seed bank and to provide propagules as needed for management-oriented research, existing population enhancement, and establishment of new occurrences.
- (8) Prepare an Orcutt's bird's-beak section in the MSP Rare Plant Management Plan that prioritizes management actions to maintain large occurrences and expand ≥ 3 small occurrences on Conserved Lands (see Table of Occurrences) based upon an assessment of data on occurrence status, habitat, and threats. Prepare management recommendations for reestablishment of historic occurrences or establishment of new occurrences if determined necessary for gene flow and for long-term persistence. Minimum criteria for enhancement are to reduce invasive annual nonnative plants and thatch to $\leq 20\%$ absolute cover within the occurrence's maximum occupied extent and a surrounding buffer area

equal to 25% of this extent. Include recommendations from the 2017 genetics study, MSP Seed Collection, Banking, and Bulking Plan, relevant BMPs, and for monitoring the effectiveness of management actions. Implement the highest-priority management actions identified for Orcutt's bird's-beak in the MSP Rare Plant Management Plan and monitor effectiveness of implementation.

For details and the most up-to-date goals, objectives, and actions, go to the MSP Portal Orcutt's Bird's-Beak summary page: http://portal.sdmmp.com/view_species.php?taxaid=834156.

Orcutt's Bird's-beak References

Reiser, C. H. 1994. *Rare Plants of San Diego County*. Imperial Beach, CA.

Royal Botanic Gardens, Kew. 2001. *Field Manual for Seed Collectors: Seed Collecting for the Millennium Seed Bank Project*, Royal Botanic Gardens, Kew.

TAIC (Technology Associates International Corporation). 2010. *Biological Monitoring Report for the Tijuana River Valley Regional Park (Monitoring Year 2009)*. Prepared by Technology Associates International Corporation for the County of San Diego Department of Parks and Recreation.

Wall, Michael. 2009. *Seed Collection Guidelines for California Native Plant Species*. Prepared for Rancho Santa Ana Botanic Garden.