1.22 Orcutt's Hazardia (*Hazardia orcuttii*) – Category SL

Management Units with Known Occurrences

Orcutt's hazardia is native to only 1 location in central coastal San Diego County with 9 other known occurrences in northern Baja California (Oberbauer 1981; Vourlitis et al. 2009; USFWS 2012). It occurs in sandstone openings in Diegan coastal sage scrub and southern maritime chaparral. Within this habitat it occurs in soils with a higher percent clay, soil organic matter, nitrogen, and soil moisture than areas without the shrub (Vourlitis et al. 2009).

Besides the natural occurrence of Orcutt's hazardia in MU6, there are 4 transplanted occurrences in MUs 6 and 7 that originated from the native occurrence (see Table of Occurrences). In MU6, Orcutt's hazardia occurs in Manchester Mitigation Bank (2 occurrences), Rancho La Costa, and Kelly Ranch. In MU7, it occurs in the San Elijo Lagoon Reserve. Six of the 9 extant occurrences known from Baja California have <25 plants and there has been recent extirpation of 5 other Mexican occurrences (USFWS 2012) (see online map: http://arcg.is/2iBCBqC).

Management Categorization Rationale

Orcutt's hazardia should be managed as a Species Management Focus Category SL Species due to a high risk of loss from Conserved Lands in the MSPA and because managing the general vegetation community alone will not ensure persistence of the species (see Vol. 1, Table 2-4). There is a high risk of loss from the MSPA due to the small number of native and transplanted occurrences in proximity, relatively low number of plants in the MSPA, and the high risk of threats (see Vol. 3, App. 1, Species Profiles). This species is listed as threatened by the state of California and was recently designated by the federal government as warranted for listing as an endangered species, although the listing was precluded at this time due to other priorities (USFWS 2012).

Threats to Orcutt's hazardia include potential for extirpation from a catastrophic disturbance such as fire or disease (USFWS 2012). Although present in a fire adapted habitat, the lack of seedlings and low seed germination rates at the native occurrence could make it vulnerable to loss from a fire. The low rate of reproduction could also lead to occurrence decline over time. The small native occurrence is disjunct from other native occurrences in Baja California and is the

source of propagules for the transplanted occurrences, indicating the potential for low genetic variation and inbreeding depression. The native and translocated occurrences are vulnerable to genetic stochasticity. Insects or fungal agents were documented damaging flowers and reducing germination during 1 growing season (Vourlitis et al. 2006) and it is unknown whether this is a recurring threat. Invasive, nonnative purple false brome (*Brachipodium distachylon*) is a potential threat to 1 of the transplanted occurrences (Center for Natural Lands Management unpub. data 2013).

Management Approach

The overarching goal for Orcutt's hazardia is to maintain or enhance existing occurrences 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 chaparral and coastal sage scrub vegetation communities.

For the planning cycle of 2017–2021, the management and monitoring approach is to:

(1) Prepare an Orcutt's hazardia section in the MSP Seed Collection, Banking, and Bulking Plan to preserve genetic diversity and rescue occurrences in case of catastrophic disturbance. Implement high-priority actions for Orcutt's hazardia 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.

(2) Prepare an Orcutt's hazardia section in the MSP Rare Plant Management Plan that prioritizes management actions to maintain or enhance occurrences on Conserved Lands (see Table of Occurrences) based upon an assessment of data on occurrence status, habitat, and threats. Implement the highest-priority management actions identified for Orcutt's hazardia in the MSP Rare Plant Management Plan and monitor effectiveness of implementation.

(3) Inspect Orcutt's hazardia occurrences 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; repeat monitoring every 2 years after 2018. Conduct routine management actions identified.

(4) Conduct a study to determine the population dynamics of Orcutt's hazardia in response to natural and altered fire frequencies that may affect successional processes and population dynamics. The study should begin when the next fire burns an Orcutt's hazardia occurrence to research post-fire recovery mechanisms (e.g., resprouter vs. obligate seeder) and circumstances in which post-fire management is necessary to facilitate robust post-fire recovery of Orcutt's hazardia.

For details and the most up-to-date goals, objectives, and actions, go to the MSP Portal Orcutt's Hazardia summary page: https://portal.sdmmp.com/view_species.php?taxaid=502882.

Orcutt's Hazardia References

Oberbauer, T. A. 1981. Noteworthy Collections: Hazardia Orcuttii (Gray) Greene (Compositae). *Madroño* 28:38–39.

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Vourlitis, George L., J. Kirker, and K. Coler. 2006. Research for the Management and Conservation of Orcutt's Hazardia (Hazardia Orcuttii) Final Report. Unpublished Report Prepared for California Department of Fish and Game, Meredith Osborne, Contract Manager. *(Contract: PO285014)*.

Vourlitis, G. L., J. Miller, and K. Coler. 2009. Soil and Community Characteristics Associated with Hazardia Orcuttii (Asteraceae). *Madrono* 56(4):229–237.