

### **1.3 Shaw's Agave (*Agave shawii* var. *shawii*) – Category SL**

#### **Management Units with Known Occurrences**

Shaw's agave occurs in maritime succulent scrub on coastal bluffs in the southwestern portion of San Diego County and in northern Baja California (Vanderplank 2012). Some occurrences consist entirely of individual unbranched rosettes and others consist of clumps or colonies of clones. The distances between occurrences are considerable in the northern range and may be impacting effective cross-pollination. Within the MSPA, there are 6 small occurrences (<500 individuals) on Conserved Lands at 6 locations in MUs 1, 6, and 7 (see Table of Occurrences and online map: <http://arcg.is/2iBBgQB>). Only the Border Field Park occurrence is considered natural in origin, with a partially natural population at Cabrillo National Park and transplanted occurrences at Tijuana Slough National Wildlife Refuge, South Carlsbad State Beach, San Elijo Lagoon Ecological Reserve, and Torrey Pines State Reserve (Vanderplank 2012). A seventh occurrence outside of the MSPA at Point Loma Naval Base is partially native in origin and is currently one of the largest occurrences in the United States with 60 individuals and approximately 1,500 rosettes (Vanderplank 2012).

#### **Management Categorization Rationale**

Shaw's agave 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). This species is vulnerable to loss from the MSPA because of its limited distribution in 3 MUs with only 6 occurrences totaling less than 200 individuals (not including rosettes) in the MSPA (see Table of Occurrences), 4 of which are transplanted. The natural occurrence near Border Field State Park was the largest until construction of the border fence reduced it to a single individual (Vanderplank 2014).

Exacerbating the risk of loss of Shaw's agave are a lack of connectivity between occurrences, a low level of sexual reproduction and seedling establishment, and limited suitable habitat (see Vol. 3, App. 1, Species Profiles). The greatest threats to Shaw's agave are small, isolated occurrences vulnerable to loss of genetic diversity and to extirpation due to environmental stochasticity or catastrophic disturbance (Vanderplank 2012). Other threats include low levels of sexual reproduction, limited seed set and low seedling recruitment, competition with invasive nonnative

plants, and a lack of openings in maritime succulent scrub for seedling establishment. Shaw's agave can resprout following fire, and fire likely opens up vegetation for seedling establishment. However, fire suppression can lead to higher fire intensities due to increased fuel loading and might result in increased mortality.

### **Management and Monitoring Approach**

The overarching goal for Shaw's agave is to maintain existing occurrences to ensure multiple conserved occurrences with self-sustaining populations to increase resilience to environmental and demographic stochasticity and improve chances of persistence over the long term (>100 years) in coastal bluff, coastal sage scrub, and Torrey pine forest vegetation communities.

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

- (1) Inspect extant occurrences of Shaw's agave 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 as identified through the IMG monitoring conducted in 2016 and 2021 at Shaw's agave 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.

For details and the most up-to-date goals, objectives, and actions, go to the MSP Portal Shaw's Agave summary page: [https://portal.sdmmp.com/view\\_species.php?taxaid=810342](https://portal.sdmmp.com/view_species.php?taxaid=810342)

### **Shaw's Agave References**

Vanderplank, Sula E. 2012. Conservation Plan for Shaw's Agave (*Agave shawwii* subsp. *shawii*) Agavaceae. *Rancho Santa Ana Botanic Garden Occasional Publications*.

Vanderplank, Sula E. 2014. A Conservation Plan for *Agave shawwii*. *Rancho Santa Ana Botanic Garden Occasional Publications* 14.