Conservation Biology Institute

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September 18, 2015

Mr. Michael Beck
Endangered Habitats Conservancy
P.O. Box 22438
San Diego, CA 92192-2438

Dear Michael:

This letter report summarizes results of 2015 biological monitoring and management on the South Crest Preserve and Odom properties, and provides recommendations for future actions. Biologists from the Conservation Biology Institute (CBI) and EHC participated in the 2015 effort. Tasks included:

- Monitoring of three MSP[1] priority plant species on South Crest
- Monitoring of three MSP priority plant species on the Odom properties
- Detailed rare plant mapping on Odom

Our focus was on plant species identified as priorities for monitoring in 2015 (SDMMP 2013): San Diego thornmint (*Acanthomintha ilicifolia*), variegated dudleya (*Dudleya variegata*), Parry's tetracoccus (*Tetracoccus dioicus*), and Dehesa nolina (*Nolina interrata*). Each task is summarized below with respect to methods, results, and recommendations.

Task 1. South Crest Preserve – MSP Rare Plant Monitoring

CBI biologist Jessie Vinje and EHC biologist Jonathan Appelbaum monitored three MSP priority species previously mapped on South Crest: San Diego thornmint, variegated dudleya, and Parry's tetracoccus. We followed the SDMMP rare plant monitoring protocol (SDMMP 2014), which was developed to ensure consistency in data collection in support of regional monitoring per the SDMMP's MSP (SDMMP 2013). Table 1 summarizes survey results, identifies threats, and provides management recommendations. Refer to Table 2 for invasive plants identified as potential threats to these species. One of these invasive species, *Brachypodium distachyon*, has

[1] MSP = Management Strategic Plan. The MSP for western San Diego County was developed by the San Diego Management and Monitoring Program (SDMMP 2013) and identifies regional priorities for monitoring and management.

been identified as a high priority invasive species for management in the Invasive Species Strategic Plan (CBI et al. 2012) because of its impact on edaphic endemic species, including the MSP species onsite. No competitive native plant species were identified as co-occurring with the MSP rare plant species in 2015. Invasives control should focus on species that (individually or in combination) may result in detrimental impacts to covered species (e.g., altered resource allocation, vegetation structure, recruitment, or competitive exclusion) (CBI et al. 2012). As part of the monitoring effort, we updated mapping of population spatial extent using a hand-held GPS; these spatial data were uploaded to CBI's Data Basin website (www.databasin.org).

Per MSP monitoring protocols, monitoring forms were completed for both species. CBI will submit monitoring forms to the SDMMP.

Task 2a. Odom Properties – MSP Rare Plant Monitoring

CBI biologist Jessie Vinje and EHC biologist Jonathan Appelbaum surveyed clay and gabbro soils on the Odom properties for San Diego thornmint, variegated dudleya, and Dehesa nolina, using the same protocols as described in Task 1. Dehesa nolina was not prioritized for 2015 surveys only because most populations had been surveyed in 2014. However, the Conservation and Management Strategy for Dehesa nolina (CBI 2015) recommended assessments for newly conserved lands with the potential to support this species. Table 1 summarizes survey results, identifies threats, and provides management recommendations. Refer to Table 2 for invasive plants identified as potential threats to these species. Invasives control should focus on species that (individually or in combination) may result in detrimental impacts to covered species (e.g., altered resource allocation, vegetation structure, recruitment, or competitive exclusion) (CBI et al. 2012). As part of the monitoring effort, we mapped population spatial extent using a hand-held GPS; these spatial data were uploaded to CBI's Data Basin website (www.databasin.org).

Per MSP monitoring protocols, monitoring forms were completed for both species. CBI will submit monitoring forms to the SDMMP.

Task 2b. Odom Properties – Detailed Rare Plant Mapping

Under this task, CBI mapped target species detected on the Odom properties (Task 2a) comprehensively. This included Dehesa nolina and variegated dudleya. These species were mapped using a sub-meter GPS. Refer to Table 1 for mapping results (acreage and/or population counts or estimates). Some occurrences of Dehesa nolina and all variegated dudleya were mapped as points rather than polygons, so extent cannot be presented as acreage. Spatial data were uploaded to CBI's Data Basin website (www.databasin.org); CBI will submit these data to SDMMP.

Table 1. 2015 Survey Results, Threats, and Management Recommendations.

Species	Site	Population Size[1]	Occupied Habitat (acres)[2]	Threats	Management Recommendations
San Diego thornmint (*Acanthomintha ilicifolia*)	South Crest	237	0.017	- Invasive Plants - Competitive Native Plants - Feral Pigs - Herbivory/Trampling (deer) - Erosion	Weed control. Hand weed annually unless monitoring indicates less frequent weeding is appropriate.[3] Monitoring. Monitor annually to assess status and treatment success. Implement additional management, as needed (e.g., fencing, erosion control).
Variegated Dudleya (*Dudleya variegata*)	South Crest	27	NA	- Invasive Plants - Thatch - OHVs - Trails (unauthorized) - Erosion	Weed control. Continue weed control (e.g., hand weeding, dethatching, herbicides), as necessary, to reduce thatch and invasives. Restoration. Restore selected occupied areas after thatch removal and invasives control.[4] Access control. Inspect existing fencing and signage to ensure they remain intact. Install additional gates, fencing, and signage, as necessary, to exclude OHV use and encourage recreational users to stay on authorized trails. Erosion control. Maintain erosion control devices to minimize erosion in or adjacent to *Dudleya* plants.[4] Monitoring. Monitor annually to assess

Species	Site	Population Size[1]	Occupied Habitat (acres)[2]	Threats	Management Recommendations
					status and treatment success. Implement additional management, as needed (e.g., fencing, erosion control).
Variegated Dudleya (*Dudleya variegata*)	Odom	216	NA	- Same as above	Same as above
Dehesa beargrass (*Nolina interrata*)	Odom	1,000 plants	0.69	- Invasive Plants - Thatch - OHVs	Weed control. Implement weed control (dethatching, mowing, herbicide) to reduce thatch and target invasives. Integrate invasive control on Odom with ongoing efforts on South Crest. Access control. Install gate(s) on northern property, if necessary, to exclude OHV use. Monitoring. Monitor annually to determine status and treatment success. Implement additional management, as needed (e.g., fencing).

[1] Refers to population size in 2015.
[2] Refers to habitat occupied in 2015 (acres). NA (not applicable) is used if point data were collected. If no polygon data exists for a species, occupied acreage cannot be calculated.
[3] See CBI 2014 for Best Management Practices for hand weeding within *Acanthomintha ilicifolia* populations
[4] Refers to management actions that occurred under an existing, funded project (SANDAG *Nolina-Dudleya* project) (see *Dudleya variegata* management recommendations)

Table 2. Odom and South Crest Invasive Plants and Competitive Native Plants.

Covered Species	Site	Invasive Plants
San Diego thornmint (*Acanthomintha ilicifolia*)	South Crest	*Avena barbata* *Brachypodium distachyon*[1] *Brassica nigra* *Bromus hordeaceus* *B. madritensis* *Centaurea melitensis* *Erodium cicutarium* *Hirschfeldia incana* *Hypochaeris glabra* *Sonchus asper* *Sonchus oleraceus.*
Variegated Dudleya (*Dudleya variegata*)	South Crest, Odom	*Avena barbata* *Brachypodium distachyon*[1] *Bromus madritensis* *Brassica nigra* *Centaurea melitensis* *Erodium cicutarium* *Hedypnois cretica* *Sonchus oleraceus.*
Dehesa beargrass (*Nolina interrata*)	Odom	*Avena barbata* *Brachypodium distachyon*[1] *Bromus madritensis* *Erodium cicutarium* *Hedypnois cretica* *Hirschfeldia incana* *Hypochaeris glabra* *Logfia gallica* *Sonchus oleraceus.*

[1] *Brachypodium distachyon* is considered a high priority invasive species for regional management per the IPSP (CBI et al. 2012).

Please do not hesitate to contact me at (858) 254-9199 or pgordonreedy@consbio.org if I can provide further information.

Sincerely,

Patricia Gordon-Reedy
Biologist/Vegetation Ecologist
Conservation Biology Institute

References

Conservation Biology Institute (CBI). 2015. Conservation vision and management strategy for Dehesa nolina (*Nolina interrata*), San Diego County, California. Prepared for San Diego Association of Governments, Environmental Mitigation Program Grant 5001763. April. 18 pp. + appendices.

Conservation Biology Institute (CBI), Dendra, Inc., and California Invasive Plant Council (Cal-IPC). 2012. Management priorities for invasive non-native plants: a strategy for regional implementation, San Diego County, California. Prepared for San Diego Association of Governments (SANDAG), contract no. 5001322. 83 pp.

San Diego Management and Monitoring Program (SDMMP). 2013. Management Strategic Plan for Conserved Lands in Western San Diego County, v. 08.27.2013.

San Diego Management and Monitoring Program (SDMMP). 2014. Rare plant monitoring protocol and field form. Updated 3/5/15.