

San Diego Association of Governments

RARE PLANTS PROJECT

10th Quarterly Progress Report (FINAL)

Reporting Period: January 1, 2016 – March 1, 2016

SANDAG Contract Number: 5001767

Summary

The Chaparral Lands Conservancy (TCLC) submits the tenth and final report for the Rare Plants Project. Project activities during this period included restoration and management (Task 2), and grant reporting and administration (Task 3).

TCLC has completed project tasks to carry out planning and permitting, restoration and management, and Project and grant management. Work to implement all grant contract tasks was conducted and most results were achieved. However, the success of one major deliverable – establishment of four new Orcutt's spineflower populations through seeding – remains unknown due to poor environmental conditions. A summary of work under each category of the EMP grant agreement scope of work is provided below.

Planning and Permitting (Task 1)

Planning and permitting work for the Rare Plants Project was completed previously. There were no planning and permitting expenses during this period.

Work under the Rare Plants Project ultimately focused on two species, Orcutt's spineflower and the short-leaved dudleya, two of the rarest plants in San Diego. As indicated in the third quarterly report, initial Project planning determined that no site protection work was needed for a third species, the San Diego thornmint. At the time of the EMP grant application and preparation of the grant scope of work TCLC understood that San Diego thornmint sites on City of San Diego and Caltrans properties were in need of site protection measures including fencing, signing, and camouflage of unauthorized paths. However, consultation with City staff and site visits during Project planning led to a determination that site protection measures were not needed for San Diego thornmint on City and Caltrans properties.



Planning and permitting work for the Project achieved all quantifiable results and deliverables in accordance with the EMP grant agreement including cultural resource surveys, preparation of site plans, presence/absence surveys, CEQA compliance, right-of-entry permits, and state listed plant permits. The following is a summary of all planning and permitting work conducted by TCLC over the course of the EMP grant agreement:

- TCLC conducted extensive field surveys both to locate new Orcutt's spineflower populations and to identify unoccupied habitat suitable for establishment of new spineflower refugia populations. Prior to conducting surveys, TCLC prepared detailed maps of all documented existing spineflower populations to identify suitable soils as a proxy for suitable habitat. TCLC then mapped the location of all suitable soils on preserve lands throughout the known range of the species and prioritized locations for field surveys. This effort was ultimately highly successful when TCLC staff, contractors, and volunteers located seven entirely new and previously undocumented spineflower populations in three different preserves thereby raising the number of known populations from five prior to TCLC surveys to twelve as of March 2016. New spineflower populations were located in Crest Canyon Preserve, Gonzales Canyon Preserve, and Sorrento Hills Open Space. GIS mapping and surveys were funded in part by SANDAG EMP funds, and SANDAG funds leveraged significant additional funding from the California Department of Fish and Wildlife to extend survey efforts.
- TCLC communicated with agency staff and prepared project descriptions to facilitate agency initiation of CEQA review and entry permits for Project restoration and management work.
- Site plans and maps were prepared by TCLC to facilitate access to various preserve properties and guide survey contractors.
- TCLC prepared several application packages, conducted communications, obtained a CEQA Notice of Exemption, and obtained entry permits to access the following preserve properties: California Department of Parks and Recreation preserves Torrey Pines State Natural Reserve (TPSNR) Main and Extension; City of San Diego preserves (Crest Canyon Preserve, Gonzales Canyon Preserve, Overlook Park, Sorrento Hills Open Space); and University of California San Diego Skeleton Canyon Preserve.
- Permission was orchestrated by TCLC to access several other preserves for surveys: Center for Natural Lands Management preserves in Carlsbad and Encinitas; San Elijo Lagoon Ecological Reserve; and Scripps Bluffs University of California Natural Reserve.
- TCLC prepared an application package and obtained a California Endangered Species Act "Scientific, Educational, or Management Permit" from the California Department of Parks and Recreation to conduct restoration and management work with the state-listed Orcutt's spineflower and short-leaved dudleya.



- Cultural resource surveys and monitoring was facilitated by TCLC at the UCSD Skeleton Canyon Preserve and Torrey Pines State Natural Reserve Extension prior to and during fence and sign installation to comply with entry permits.

Restoration and Management (Task 2)

Rare Plants Project restoration and management work during this period included the following:

- Work by TCLC contractor Rancho Santa Ana Botanic Garden (RSABG) to complete propagation of a third generation of Orcutt's spineflower plants for seed bulking from seed collected at newly discovered populations in spring of 2015. Sixty plants were propagated in the third generation and produced well in excess of 30,000 additional seeds.
- Surveys by TCLC of four new seeded sites for Orcutt's spineflowers at TPSNR Main and Extension.
- Weeding in and around Orcutt's spineflower populations at Crest Canyon Preserve, Sorrento Hills Open Space Preserve, and TPSNR Extension.
- Installation of three hundred feet of fence to protect the Orcutt's spineflower population at the Crest Canyon Preserve.
- Installation of three hundred feet of fence to protect the Orcutt's spineflower population at the Sorrento Hills Open Space Preserve.
- Production and installation of one rare plants interpretive panel for TPSNR Extension, printing and delivery to TPSNR docents of two hundred fifty rare plants informational brochures for distribution to TPSNR Extension visitors, and manufacture and installation of closure signs at the Crest Canyon Preserve, Sorrento Hills Open Space Preserve, TPSNR Extension, and UCSD Skeleton Canyon Preserve.

Restoration and management work achieved most quantifiable results and deliverables in accordance with the EMP grant agreement including one stabilized existing Orcutt's spineflower population at TPSNR Extension with weeding, fencing, and signing, installation of a rare plants interpretive panel and closure signs, construction of approximately 3,000ft of fencing, and maintenance of insurance policies required by the EMP grant agreement and entry permits. The following is a summary of all restoration and management work for Orcutt's spineflower and the short-leaved dudleya conducted over the course of the EMP grant agreement:

- Contractor Rancho Santa Ana Botanic Garden collected, prepared, propagated, and processed three generations of Orcutt's spineflowers for seed banking and bulking. Seed was initially collected from the then single known spineflower population in North County San Diego at



TPSNR Extension. Seed was subsequently collected from six newly discovered spineflower populations in spring 2015. In all, one hundred sixteen plants were propagated to produce a total of approximately 64,000 seeds.

Seed preparation included seed cleaning and record keeping, establishment of permanent conservation seed bank collection, establishment of a temporary seed bank collection for propagation and seed bulking, and trials to determine best practices for nursery production. Seed processing included harvesting, drying, packaging, and 23° C storage.

- In anticipation of a predicted 2016 El Nino wet winter TCLC staff and volunteers identified suitable habitat and seeded four new Orcutt's spineflower population sites at TPSNR Extension and Main in December 2015 using 20,000 seeds bulked by RSABG. All remaining seed is being held for future seeding pending the results of this first seeding.

Unfortunately, the anticipated wet winter failed to materialize and both February and March were below average for rainfall and above average for temperatures, including heat waves. These are very poor environmental conditions to germinate and support any small annual plant to maturity. Orcutt's spineflowers were no exception with population numbers the lowest ever observed at the TPSNR Extension existing population where numbers have been tracked for several years. In turn, these conditions resulted in extremely low rates of spineflower germination and survival at the seeded sites with only eight spineflower sprouts observed, all of which appear to have perished prior to reaching maturity. As such, the EMP grant agreement deliverable of four new spineflower populations established through seeding was not achieved during the grant period. However, spineflower seeds introduced to the new sites are expected to remain viable for years and should germinate to produce populations in future seasons with more suitable weather conditions. Thousands of saved additional spineflower seeds will also be used to supplement the four seeded sites and other suitable new population sites.

While the success of the newly seeded sites could not be determined during the EEMP grant period, the location of seven entirely new natural populations through surveys in the same period ultimately achieved the same goal as the EMP grant deliverable to establish new refugia populations and significantly improves the conservation status of the species.

- TCLC staff and volunteers conducted extensive weeding at the TPSNR Extension existing Orcutt's spineflower population and six of the seven newly discovered populations. (The seventh new population was discovered following the close of the EMP grant period.) One particular invasive plant, purple veldtgrass (*Ehrharta calycina*), thrives in the same coastal open sandy soil



areas favored by the spineflower and has become a major threat to biodiversity in coastal preserves like Crest Canyon and TPSNR where the species is rapidly forming dense patches to the exclusion of native plant species. An (inevitable) accidental wildfire in any these preserves would trigger a major ecological disaster with purple veldtgrass subsequently colonizing burned areas much more rapidly than the rate of recovery of native maritime chaparral and coastal sage scrub species including several other of San Diego's rarest plants such as Del Mar manzanita, Torrey pines and many more. A major focused effort to remove purple veldtgrass from these areas is essential to ensure the long-term survival of Orcutt's spineflower and, for that matter, any other plant species native to coastal preserves.

- One rare plants interpretive panel was designed by a graphic artist contractor and TCLC staff and was prepared and installed at TPSNR Extension to increase public awareness and reduce trampling of Orcutt's spineflower and short-leaved dudleya. Higher-than-expected panel design and preparation costs reduced the number of panels planned in the EMP grant agreement scope of work from four to one.
- Forty-five closure signs were designed and manufactured and thirty-five signs were installed to direct visitors away from Orcutt's spineflower and short-leaved dudleya populations at the TPSNR Extension, spineflower populations at the Crest Canyon and Sorrento Hills Open Space preserves, and a dudleya population at the UCSD Skeleton Canyon Preserve. (Ten signs have been saved to replace any lost or vandalized signs.) In an effort to reduce the likelihood of vandalism, sign art was provided by students of Graciano Gomez Elementary School in San Bernardino and was incorporated into final sign designs. Higher-than-expected sign design and preparation costs reduced the number of closure signs planned in the EMP grant agreement scope of work from seventy-five to forty-five.
- Two-hundred fifty rare plants informational brochures with trail maps were designed by TCLC staff, printed, and delivered to the Torrey Pines Docent Society for distribution to TPSNR Extension visitors. Torrey Pines docents regularly walk TPSNR Extension trails and the informational brochures will serve as an effective communication tool to direct visitors onto legitimate trails and away from fragile populations of Orcutt's spineflower and the short-leaved dudleya.
- Approximately 3,000ft of fence was installed by a fence contractor, TCLC staff, and volunteers to direct visitors away from Orcutt's spineflower and short-leaved dudleya populations at the TPSNR Extension, spineflower populations at the Crest Canyon and Sorrento Hills Open Space preserves, and a dudleya population at the UCSD Skeleton Canyon Preserve. TCLC staff and



volunteers increased the effectiveness of fencing by camouflaging unauthorized paths leading towards or into spineflower and dudleya populations.

Grant Reporting and Administration (Task 3)

Grant reporting and administration work and expenses during this period included TCLC staff time to track and record expenses, preparation of the EMP grant invoice, and preparation of the EMP grant final report.

The following is a summary of all grant reporting and administration work conducted over the course of the EMP grant agreement:

- Preparation and oversight of all contracts and contract services and billing including the cultural resource contractor, fence contractor, GIS contractor, interpretive panel design contractor, Orcutt's spineflower survey contractor, Orcutt's spineflower seed bulking contractor, and sign design and manufacture.
- Project accounting, maintenance of insurance policies, and grant reporting.

Project Schedule

The Project was completed in accordance with the schedule contained in the EMP Grant Agreement Amendment I.

Project Budget

The Project was completed in accordance with the budget contained in the EMP Grant Agreement Amendment I. Final Project expenditures are detailed in Invoice 10, submitted separately.

Please see below for Project photographs. Please direct any questions to David Hogan at 619 756-3864 or director@chaparralconservancy.org. Thank you for your consideration and SANDAG support to conduct the Rare Plants Project.



Crest Canyon Preserve – Newly discovered Orcutt's spineflower in bloom (above) and typical open sandy spineflower habitat and Rare Plants Project fencing (below).





Sorrento Hills Open Space – Orcutt's spineflower typical open sandy habitat (above) and Rare Plants Project closure sign. Unauthorized paths are used by visitors to access views.





Rare Plants Project closure signs at Crest Canyon Preserve (above) and Sorrento Hills Open Space (below).





TPSNR Extension – Orcutt's spineflower seed collection for seed bulking (above) and seeding (below).





TPSNR Extension – Seeded spineflower sprout (above) and blooming short-leaved dudleya (below).





TPSNR Extension – Rare Plants project interpretive panel (above) and typical bluff-top sandstone short-leaved dudleya habitat. Bluffs and dudleya are trampled frequently by visitors accessing views.

