



Land Management Grant Performance Review 2019

SANDAG

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Introduction and Purpose

SANDAG established the Land Management Grant Program in 2006 to assist land managers throughout the San Diego region, by filling funding gaps to promote regional management priorities. The Land Management Grant Program is funded through the *TransNet* Environmental Mitigation Program (EMP), this assessment was conducted to test the long-term effectiveness of the program by reviewing a selection of the grants that have been completed between 2015 and 2017.

TransNet is a local half-cent sales tax that funds street, highway, and transit improvements in the San Diego region, as well as bike and pedestrian paths, smart growth projects, and habitat preservation. The Board of Directors entered into a memorandum of agreement (MOA) with state and federal agencies on the implementation of the *TransNet* EMP in February 2008. The MOA was renewed on February 22, 2019, for an additional ten years. A provision of the MOA allocates \$4 million annually for ten years to implement regional habitat management and monitoring efforts to help maintain the region's biological integrity, thus helping to avoid the future listing of endangered species. The Board has allocated a portion of this annual \$4 million to the EMP Land Management Grant Program.

As of September 2019, the Land Management Grant Program has awarded approximately \$16.6 million dollars to 117 habitat conservation and land management projects throughout the region with \$10.1 million in matching funds. To date, 91 of those projects have been completed. In June 2017, 11 completed projects were reviewed as part of a Comprehensive Efficiency and Effectiveness Performance Review. Since then, an additional 19 projects have been completed, nine of which are reviewed in this assessment.

The purpose of this assessment is to determine if the Land Management Grant Program has been successful at providing long term, tangible benefits to the region's natural environment and sensitive species, therefore advancing the goal of avoiding the future listing of endangered species in the region. The individual review write-ups for this assessment are on file at SANDAG per individual request.

Methodology

To determine the lasting success of the Land Management Grant Program, a sample of completed land management grants funded through the *TransNet* EMP were analyzed individually. This review focused on looking at each individual project's effectiveness at providing a lasting impact since project completion.

A total of nine projects were individually selected from the 19 projects that have been completed since the last comprehensive review was completed in the summer of 2017. Approximately half of the projects that had been completed for each award year were selected for the review. Table 1 represents the breakdown of the selected projects.

Table 1
Breakdown of project selection

Award Year	Projects Completed Since 2017 Review	Projects Included in 2019 Review
2013	3	1
2015	8	4
2017	8	4
Total	19	9

The focus of this assessment was to analyze the effectiveness and long-term success of each grant selected for review. This was determined by the ability of the project to provide a lasting effect on the surrounding environment. During the review, the project manager for each grant escorted SANDAG staff to various project sites to see if the tasks completed during the project were still visible, functioning, and/or providing their intended impact to the area. For example, if a grant funded the fabrication and installation of a fence to deter trampling of a sensitive habitat, staff would check the physical state of the fence, and use images from pre-grant conditions to compare the current condition of the landscape to the condition prior to the installation of the fence.

Grant project managers were contacted, and field visits were conducted during the months of March, April, and May of 2019 in order to take full advantage of the spring season. While visiting site locations, visible changes from pre-grant conditions, visible changes from condition at grant completion, and any damages for each specific task that contained a field work component were identified. Grant project managers were asked if any conflicts were experienced, if continued actions have been taken to protect the longevity of the project, if there were any changes in the status of project objectives since the end of the grant, and if they felt that their project was successful.

Results **(sustained benefits to the region)**

In order to determine the longevity and success of completed projects, SANDAG staff conducted site visits with grant project managers and referred to before and after photo comparisons, when available, to determine sustained benefits to the region. Projects are grouped qualitatively below by their level of sustained benefit to the region.

Exceptional sustained project longevity

Projects in this category were able to complete all tasks outlined in the grant agreement and the effect on the environment was clearly visible during the site visit when comparing before and after photographs. Five projects were grouped into this category, including the *Cactus Wren 2015 Project*, *Bernardo Bay Cactus Wren Project*, *Salt Creek Cactus Wren Project*, *Carlsbad Hydrologic Unit 2 Project*, and *Nuttall's Lotus Project*. Of the five projects that are in this category, three were completed by local non-profits and two were completed by cities in the San Diego region. Three projects focused on coastal cactus wren (*Campylorhynchus brunneicapillus*) habitat restoration and coastal cholla (*Cylindropuntia prolifera*) installation. These projects were completed by the City of San Diego, City of Chula Vista, and the San Diego Zoo Global's Institute of Conservation and Research (ICR). Cactus wrens are classified as a high priority, endangered species in the Management Strategic Plan, prepared by the San Diego Management and Monitoring Program (SDMMP), due to poor and degrading environmental conditions.¹

¹ SANDAG, *Management and Monitoring Strategic Plan for Conserved Lands in Western San Diego County: A Strategic Habitat Conservation Roadmap*, 2017. https://sdmmp.com/mssp_doc.php

The *Cactus Wren 2015 Project*, awarded in 2015 and completed in 2018 by ICR, is a unique project. Mainly, this project's intentions were to serve other land managers in the San Diego region. The main objectives of the project were to establish a cactus nursery in Rancho Bernardo (City of San Diego Planned Unit Development [PUD] property), provide 1,000 cacti to local land managers, prepare the Safari Park Biodiversity Reserve and Lake Hodges site for herbicide treatments, remove of annual exotics, and install weed mats and irrigation. Once the cactus nursery was established in the Rancho Bernardo area, ICR handed off the continued management and maintenance of the nursery to the City of San Diego. ICR exceeded expectations and was able to distribute 5,485 large rooted cacti for planting at Lake Hodges during the grant cycle. ICR not only distributed potted cacti, but they were also able to transplant 1,000 cacti pads and potted cacti to the Bernardo Bay at Lake Hodges in November 2016. The majority (80%) of the total planted cacti took root and survived in the harsh environment.

ICR held several volunteer and educational events to hand pull invasive weeds in the spring of 2017 for both the Safari Park Biodiversity Reserve and the Lake Hodges site. Unlike most grant funding through the EMP *TransNet* program, ICR did not have to create a longevity plan for the nursery because their grant was to fund the creation of a cacti nursery and then hand management of the nursery to the City of San Diego. ICR plans to continue applying herbicide and using hand-pulling techniques to remove invasive species around the naturally occurring cacti in the Safari Park Biodiversity Reserve and newly transplanted cacti in Lake Hodges. ICR's efforts were noticeable when the field visit was conducted. At that time, ICR was in progress of removing all invasive plant species, such as black mustard (*Brassica nigra*). The cacti were noticeably larger in comparison their original photographs in 2015, indicating that the cacti had taken root and is thriving in the new environment.

In addition, the City of San Diego received SANDAG grant funding for the *Bernardo Bay Cactus Wren Project* which was awarded in 2017 and completed in 2018. The project's goals were to: enhance clusters of habitats for coastal cactus wren at a twenty-acre property in Bernardo Bay by planting cholla cactus; close unauthorized trails throughout the area; and install signage and directional fencing to preserve restored areas, as well as adjacent environmentally sensitive areas. Throughout the project, the City of San Diego was able to plant cacti (received from ICR) within illegal trails to deter individuals from using those areas. Indicators of project success included a 75% survival rate for planted cacti, cactus growth, reduced use of unauthorized trails, and functioning directional signs. Although some cacti were victims of herbivory, the project experienced a 90% survival rate for the planted cacti. At the time of the site visit, most signs were functioning and in good condition except for one sign which had been vandalized but was still functional. No additional signs required replacement.

During the field visit, it was apparent that the illegal trails have had limited use by the amount of vegetation growing in the once deep scar trails. Cacti that had been planted onsite have visibly grown since installation when compared to photographs taken in 2017. The *Bernardo Bay Cactus Wren Project* is categorized into the Exceptional Sustained Longevity category because the cacti took root, survived a drought, and lasted through the winter. Furthermore, the illegal trails that were created have been successfully blocked by the installation of cacti

Additionally, the City of San Diego was eliminating invasive weeds onsite with volunteer events and with the assistance of ICR. The city has been able to manage and maintain the site with continued funding since the completion of the grant in 2018.

The final Cactus Wren-focused project is the *Salt Creek Cactus Wren Project*, which was awarded in 2017 and completed in 2018 by the City of Chula Vista. The goals of this project were to increase the quality of habitat and improve connectivity for the coastal cactus wren, reduce shrub cover to less than 25%, and reduce the potential risk of cactus wren habitat loss from fires. The Salt Creek area has also been identified as a high-priority location for conducting habitat restoration and enhancement for cactus wrens in the South San Diego County Coastal Cactus Wren Habitat Conservation and Management Plan.² Four months after the City of Chula Vista performed the shrub thinning, cactus wrens began to nest in the healthy growing cholla.

During the field visit, a cleared area around each cactus was clearly visible which allowed cactus wren to forage freely and observe 360 degrees to protect themselves against predators from their nests. Additionally, a cactus wren nest was observed in one of the mature coastal cholla cactus when the field visit was performed.

The Salt Creek Cactus Wren project was a successful project. It became evident how effective the project was with how quickly cactus wren started nesting onsite. Since its completion in 2018, the City of Chula Vista has documented cactus wren nests onsite. The City of Chula Vista has also been able to fund long-term maintenance onsite to continue weed removal and improve the native habitat for the cactus wren.

The *Nuttall's Lotus Project*, awarded in 2015 and completed in 2018 by the San Diego Audubon Society (SDAS) in the Mission Bay area, is another example of a project with an exceptional sustained impact on the environment. Work took place at three high priority areas: Mariner's Point, Stony Point, and South Shores. The goals for the project were to broadcast spray nine acres with herbicide near the coastal dune habitats, spot treat invasive species within the Nuttall's lotus (NULO, *Acmispon prostratus*) fenced area, host 48 habitat restorations events over three years in the three priority areas mentioned above, maintain two acres of NULO at Mariner's Point, seed the Stony Point site to establish NULO on the coastal dunes, and remove the ice plant (*Aizoaceae Martynov, nom. Con*) at the South Shores site to at least 50% coverage to allow for expansion of NULO.

Staff visited the Stony Point and Mariner's Point locations as part of the field visit. To recreate the ecosystem for the least terns (*Sternula antillarum*) and NULO, a sand replenishment project was completed at the Stony Point site to provide the sandy environment that the NULO and least terns favor. The City of San Diego worked with SDAS on this sand replenishment project prior to the contract with SANDAG. NULO and least tern populations have increased since the sand replenishment project was completed in 2016. Using funding from SANDAG, SDAS was able to seed and transplant NULO from Mariner's Point to Stony Point. The NULO and Least Terns require less than 30% vegetation cover because least terns are small birds that require a 360-degree view to protect their eggs from predators. NULO requires similar vegetation cover to the least tern's in order to limit resource competition. Since the project's completion in 2018, the NULO population has been thriving at Stony Point and least terns have been nesting onsite every spring. With the reduction of weed pressure many native plants that were dormant under the non-native plants, such as pink sand verbena (*Abronia umbellate*), were able to grow this past spring season (March-June 2019) and were visible during the site visit. The area that had received the sand replenishment was noticeably different than the rest of the area at Stony Point, with a larger amount of sand with a finer grain than the surrounding non-replenished area. Outside the fenced NULO area, there was minimal vegetation growth on the sand, but inside the NULO area, the SDAS has been able to maintain beach vegetation and the habitat for NULO and least terns.

² SANDAG, *Management and Monitoring Strategic Plan for Conserved Lands in Western San Diego County: A Strategic Habitat Conservation Roadmap*, 2017. https://sdmmp.com/mssp_doc.php

The second site visit location SANDAG staff visited was Mariner's Point. Mariner's Point originally had 550 NULO individuals in 2018, but as of April 2019, there are over 10,000 individual plants in this area and the site serves as the main location for least tern nesting in Mission Bay. It is predicted that a couple hundred of the Least Terns nest at this site every spring. In both locations, the SDAS has continued to reduce invasive vegetation cover, and protect the NULO population while maintaining the least tern's natural habitat. SDAS has a robust volunteer program with many individuals that volunteer to assist the SDAS with weed pulling and educational events, especially at Mariner's Point.

The final project in this category is the *Carlsbad Hydrologic Unit 2 Project*, awarded in 2015 and completed in 2017 by the Nature Collective. The Nature Collective set out to treat 301 acres with herbicide and remove treated species biomass, install native plants on 4.62 acres, and create a record of invasive plant species occurrences with GPS technology throughout the *Carlsbad Hydrologic Unit 2* area and share this data with project partners. Three sites were visited during the performance review field visit including: the Santa Carina trail, Stonebridge Mesa trail, and Ford Wildlife Habitat Preserve. At the Santa Carina trail, retreatments and biomass reduction, revegetation, and invasive species mapping were performed to improve the natural landscape of the Santa Carina trail. Prior to this grant, the site was infested with white snow (*Sarcodes sanguinea*), black mustard, and a number of weedy, invasive plants that outperform the native plants in this grassland environment. With the help of volunteers and hired biologists, the Nature Collective was able to remove most of the invasive species and transplant native species on the project site. All the plants installed, on the 4.62 acres, by the Nature Collective were alive and doing well at the time for the site visit. A moderate amount of weeds were observed during the site visit but a volunteer event was planned for the following week to remove the weeds by hand and dethatch areas of this property.

The second site visit was to Stonebridge Mesa trail in Encinitas, California. At Stonebridge, the focus was to retreat biomass, treat new infestations, and map invasive species. Herbicide was required to treat the invasive species on this site due to how dense and thick the vegetation was. The Nature Collective used funding from the SANDAG grant to apply the herbicide. However, continued applications will be needed. Luckily, the Nature Collective was awarded additional grant funding from outside agencies to continue applications of herbicide for the longevity of the project. When the SANDAG representative visited this location, there were large areas where the invasive plants had been removed and native plants were thriving, and some areas where the native plants were hidden underneath the dense non-native weeds. The Nature Collective had several volunteer and herbicide application events scheduled for the month of April 2019 to reduce weed pressure.

The third site visit was to the eastern side of the Ford Wildlife Habitat Preserve, which is a Nature Collective owned portion of the San Elijo Lagoon Ecological Reserve in Encinitas, California. At this site, grant funding was used mainly for vegetation and tree removal. The area was full of eucalyptus trees and dead brush prior to the grant work. In 2019, most of the eucalyptus trees have been cleared. Several native plants were planted after the biomass removal.

The Nature Collective's project goals were to treat with herbicide and biomass reduction the 301 acres, maintain the 301 acres that were treated from new regrowth, revegetate 4.62 acres with native plants, and to submit a map of occurrence data to SDMMMP. The majority of the Nature Collective's project goals were met. One task that was not met was treating the 301 acres of vegetation with herbicide to reduce the amount of invasive species. Due to budget constraints and staff turnover, this deliverable was not accomplishable. Instead of applying herbicide to 301 acres, the Nature Collective was able to treat 190 acres within budget and the timeframe. Continued work for the Nature Collective will be required to weed, retreat, and reduce the vegetative biomass. Overall, this project was successful because the SANDAG grant funding led to obtaining more grant funding from other agencies that recognize that the Nature Collective is a reputable and successful organization with their projects.

One common element that is evident in all five of the projects in this category is that each project had continued funding to keep up with the required maintenance of the project. Having continued funding for ongoing invasive weed management or trail management allowed the grantees to keep up with the grant goals and have a lasting impact on the project site since the completion in 2017. If the SANDAG grant was the sole source of funding, then the work would not have been able to continue the maintenance required for the long-term success of the project.

Medium sustained project longevity

Projects in this category were able to complete all tasks proposed and the effect on the environment was noted during the site visit when comparing before and after photographs; these projects may still benefit from maintenance or long-term funding to continue maintaining project goals. Projects were grouped into this category because either there is little or no funding to carry on the long-term maintenance on the project or there are extenuating circumstances that prevent the project from accomplishing its long-term goals. Three projects were grouped into this category, including: *Furby-North Preserve Project*, *Vernal Pool Restoration Project*, and the *Riparian Restoration and Arundo Removal Project*.

The *Furby-North Preserve Project* was awarded in 2015 and completed in 2017 by the County of San Diego in the San Ysidro area. The County of San Diego had one main goal: to ensure that off-road vehicles do not access the property by installing gates and fences. This will allow the county to move forward with future habitat restoration projects on the site. Unlike most other grants through the EMP *TransNet* grant program, the *Furby-North Preserve Project* had a simple longevity plan: check if the signs or gates have been damaged and fix accordingly. A county park ranger patrols the property for illegal trespassing and off-roading vehicles which has given the County of San Diego ideal supervision over the project site. The County of San Diego also performed weeding and dethatching to remove all brush that blocked areas where fencing or gates needed to be installed. Most of the past illegal trespassing began on an adjacent property owned by the City of San Diego. The County of San Diego shared information with local residents about the preserve and worked with the City of San Diego to ensure that the city installed fencing on their property to deter people from entering.

On the field visit, SANDAG staff had noticed that the fences and gates that were installed were maintained and monitored. There was no damage to the gates or fences from off-roading vehicles or vandalism. Prior to the installation of fences and gates, off-roading vehicles would enter the site freely. Now that fences, gates, and signs have been installed, it is much more difficult for off-roading vehicles to enter. Many current trespassers are hikers walking onsite by hopping the fence or entering from the adjacent property owned by the City of San Diego.

Securing the preserve from off-road vehicles and trespassing was just the first step in the overall goal to maintain the preserve for endangered species. Going forward, the County of San Diego would like to remove invasive species, fence off areas for endangered species to thrive (for example, Quino checkerspot butterfly, *Euphydryas editha quino*) and plant more native species on the property. The County of San Diego will continue to collaborate with the City of San Diego on illegal trespassing from either property line and maintain the longevity of their fences, gates, and educational signs.

The main reason that the County of San Diego's *Furby-North Preserve* project was classified as a medium sustained project was because of continued trespassing. Illegal trespassing is still ongoing due to the beaten trails that begin on the adjacent property and lead to the County of San Diego's property. In order to secure the property site from trespassing will take communication and planning efforts from both the County of San Diego and the City of San Diego. The County of San Diego communicated to SANDAG staff that securing the site from trespassing is the first step in future planning for the property site. Going forward, the County of San Diego would like the opportunity to restore and enhance the natural habitat within the property site in the coming years.

Another project that was identified as a Medium Sustained Project was *the Vernal Pool Restoration Project*, awarded in 2017 and completed in 2018 by the City of San Diego-Parks and Recreation Department. The project's goal was to reduce illegal off-road vehicle use to protect the vernal pool habitat for sensitive species that exist onsite, including, little mouse-tail (*Myosurus Minimus ssp. Apus*) and Western spadefoot toads (*Spea hammondi*). The vernal pools at the Spring Canyon/Goat Mesa complex and surrounding open space have suffered considerable off-road damage over the years, resulting in changes to hydrology, flow patterns, and inundation characteristics. To limit the amount of off-road vehicle, use and trespassing, the City of San Diego was awarded funding to fence-off key access points and areas of frequent off-road vehicle use throughout the open space area. Decreasing illegal off-road vehicle use also reduces the compaction of soils and slows the creation of unauthorized trails onsite. Since the completion of the SANDAG grant in 2018, the City of San Diego has been awarded additional grant funding that will build upon these efforts to protect Otay Mesa's sensitive species by removing the dead biomass and brush, installing erosion control devices, planting 500 native plants, and creating weed buffers around the vernal pools using species such as little mouse-tail. Additionally, the City of San Diego was able to purchase and install about 1,000 ft. of additional three-wire fencing on site to continue their efforts of limiting off-road vehicles.

The property's perimeter is located along the United States and Mexico border, which has made property management a difficult task, the U.S. Border Patrol frequently uses off-road vehicles onsite. The City of San Diego cannot stop the border patrol from trespassing onto the property with ATV's or dirt bikes because if a border patrol agent has reason to suspect that there is someone crossing the border, they can access any property necessary, pursuant to federal law. Patrols and visual surveys showed that illegal off-road use was reduced by 75% following the fence installation. Three wildlife cameras were setup in areas that had fencing installed to remotely photograph any movement that occurred onsite. Natural revegetation of road scars was minimal during the grant period due to the lack of sufficient precipitation; however, at the time of the site visit, plenty of vegetation could be seen growing over the illegal scars and trails. Primarily, the reason the Vernal Pool Restoration project is characterized as a Medium Sustained Project is due to the lack of eliminating all off-road vehicles from using the site. Unfortunately, the City of San Diego cannot prevent border patrol use of the site due to its proximity to the international border.

The final project identified as a Medium Sustained Project is the *Riparian Restoration and Arundo Removal Project*, which was awarded in 2017 and completed in 2018 by the Lakeside's River Park Conservancy in Lakeside, CA. The project focused on Giant Reed (*Arundo donax*) removal in the riparian habitat along the San Diego River. There are two major issues associated with Giant Reed growing in the San Diego River: (1) Giant Reed can travel downstream and root in new locations where it can outcompete native plants and cause erosion along the river; and (2) tall Giant Reed can create shelter and privacy for the homeless population and may increase the number of encampments along the river. During the performance review, staff from the Lakeside's River Park Conservancy guided SANDAG staff through a portion of the riparian forest where grant funds were used to treat and remove densely concentrated Giant Reed. A combination of herbicide application and biomass removal was used to combat the Giant Reed infestation and bring it to a more manageable level. Upon evaluation, this portion of riparian forest was cleared from Giant Reed and free of homeless encampments. It is important to note that the field visit was performed in early spring of 2019 and Giant Reed typically grows during the summer months, so additional regrowth may be observed at a later date.

Lakeside's River Park Conservancy relies on grant funding and volunteers to manage the Giant Reed and other invasive species that emerge in the riparian forest. Currently, there is no funding to support the management of the riparian forest, but the Conservancy is actively applying for funding to support future herbicide applications. In the meantime, volunteers and Conservancy staff are using hand pulling techniques manage the Giant Reed's presence. In addition, funding from the San Diego River Conservancy is being used to coordinate over 200 river-adjacent property owners to control river-adjacent sources of Giant Reed. Even though the project with SANDAG ended in 2018, the site looked clean and clear from Giant Reed except for a few small patches. To manage the site long-term, Lakeside's River Park Conservancy requires more funding to purchase more herbicide for continued applications. Since the completion of the project, the Conservancy has noticed an increase in the least Bell's vireo (LBV, *Vireo bellii pusillus*) population, an endangered, native bird species. It has been noted that there is about one nest every hundred feet. The spike in LBV population appears to be correlated to the massive Giant Reed removal in the San Diego River.

A contributing factor that projects were placed into this category was because the short-term projects may have been effective when the EMP Land Management Grant was funded during the grant cycle, but once the grant was completed, the non-profits or local agencies did not have continued funding to maintain the effectiveness of the project. Additionally, projects that were placed into this category had extenuating factors that prevented the grant from fully completing its goals.

None/little sustained project longevity

Projects in this category may have been able to complete all project tasks during the grant period, but the longevity of the tasks completed could not be noted during the site visit or when comparing before and after photographs. One project evaluated during the field visits was placed into this category.

The *Otay Cactus Wren Project* awarded in 2013 and completed in 2016 by the Otay Water District in Spring Valley, focused on habitat restoration for the endangered coastal cactus wren. The Otay Water District's goal was to dethatch and weed brush/invasive species onsite. After dethatching the site, the Otay Water District installed about 1,000 to 1,200 coastal cholla cactus cuttings per acre (coastal cactus wren's favorable species for nesting). Cactus wrens are not expected to nest onsite for at least seven years due to coastal cholla cactus slow grow periods (approximately one meter in height per year). Only one side of the Habitat Management Area (HMA) was visited during the site visit because of the amount of dense vegetation that had grown throughout the property over the past five years. The entirety of the project site is about 500 acres, but the work performed was on 240 acres that were considered higher priority for habitat restoration. At the completion of the grant with SANDAG in 2016, the Otay Water District had accomplished its goals of dethatching the site and had installed about 1,974 cacti cuttings per acre. However, at the time of the site visit in 2019, the area was overgrown with some native and plenty of non-native plants including: black mustard, brome grasses (*Bromus spp.*), and Storks-bill (*Erodium spp.*). In addition, a housing developer purchased the adjacent property to the east (about 300 acres) that was once a golf course and has intentions of creating a large housing development, which could pose challenges for species-specific management in the future. High precipitation in 2018-2019 has increased weed growth which allows non-natives to outcompete the native plants because dethatching or herbicide treatments have not been continued on the project site since the completion of the SANDAG grant in 2016.

The Otay Cactus Wren project is classified as a project with none/little sustained longevity because of the lack of continued funding for the project. The Otay Water District's HMA plan has not considered the cactus wren project site a high priority for funding in the past six years, which has allowed invasive species and non-natives to grow and dominate the area, outcompeting the coastal cholla that had been installed for the coastal cactus wren project. Coastal cactus wren forage on the ground and require less than 25% vegetation cover to accurately see their surroundings to protect against predators. The site was well over the less than 25% requirement at the time of the site visit meaning that cactus wren would likely avoid this site due to the amount of vegetation cover. The continued maintenance required for the property was not completed. SANDAG staff inquired if there were any plans to control the invasive species or vegetation cover, but regrettably, the Otay Water District did not have plans for maintenance due to higher priorities in the HMA.

Discussion

It is important to note the differences between the project types and individual goals analyzed in this performance review. While seven of the completed projects focused on habitat restoration and invasive species management, two were fence installation projects. The long-term maintenance needs for these two types of grants are drastically different. Vegetation restoration and invasive species management require long-term funding to continue herbicide treatments, weed removal, and potential consultant work. Most of the projects in the "Medium Sustained" category that focused on vegetation management did not have a consistent source of funding for the long-term maintenance of the project leading to the degradation of the project site after the SANDAG grant concluded. For the fencing projects, additional grant funding is not needed for the long-term maintenance. These projects were completed by the City of San Diego and the County of San Diego who used administrative funding from their respective jurisdictions to continue monitoring their projects and maintaining signage and fencing.

For the short-term grants through the EMP *TransNet* Grant Program, it has become apparent that vegetation management projects are difficult to maintain without a consistent source of funding for longevity. For example, the Lakeside River Park Conservancy has had a difficult time securing funding to maintain the project site since the completion of the SANDAG grant to continue herbicide treatments. Another example is the Nature Collective's project, which had a difficult time accomplishing the revegetation and herbicide treatments within the 18-month timeframe. Subsequently, the Nature Collective requested a six-month time extension from SANDAG in order to complete the deliverables set in the original contract. Fencing projects awarded through the SANDAG Grant Program are much easier to complete within the 18-month timeframe and are easier to maintain long-term, negating any extenuating circumstance preventing the maintenance, like the City of San Diego's dilemma with U.S. Border Patrol trespassing as an example.

Recommendations to Land Management Grant Program

Based on the results of this Performance Review, a few recommendations are advised for the future iterations of the Land Management Grant Program. The first recommendation is to increase the Performance Review interval from every two years to every three to five years. This change is recommended to provide additional time between the project's end date and its inclusion in the Performance Review since many projects reviewed had only been complete for six months or less at the time of the site visit. Doing a field visit six months after the grant was completed does not give an accurate depiction of sustained longevity efforts for the project site. Extending this interval to three to five years will provide a more accurate representation of the longevity of projects funded through the Land Management Grant Program.

In addition, when appropriate, future projects should be required to establish photographic points and include photographs from these locations, complete with dates and descriptions, in each quarterly report. This will allow the Land Management Grant program manager to more easily evaluate the project's progress throughout the grant funding cycle. In addition, photographic points can also be used during future performance reviews to easily evaluate the long-term success of each grant. SANDAG does require that each quarterly progress report include photographs, but it does not currently require that the photographs be taken at specific locations. Photographic point directions should be established for projects when appropriate and when the photographs can accurately illustrate the progress/work performed during the project's time period.

Conclusions

Overall, the nine completed grants included in this performance review were successful during their grant funding period. However, funding and establishing a plan for long-term maintenance of the project was the largest factor in determining how successful each project was and what category they were included in within this performance review (exceptional, medium, or little/none sustained longevity).

Five completed projects were included in the exceptional sustained longevity category because of their continued funding and/or robust volunteer program and their overall ability to maintain and manage the project site after the completion of the SANDAG grant. Three projects were considered medium sustained longevity projects because of their lack of continued funding, hindering their goals for the intended project. The medium sustained longevity projects encountered many difficult situations that were extenuating or out of the grantees control, for example the continued trespassing from U.S. Border Patrol or the inability to obtain continued funding from other grant programs. The Otay Water District's Cactus Wren project was the only project categorized as having little/none sustained longevity because the grantee did not have the capacity to maintain the site due to the restrictions within the HMA Plan. All the work performed during the SANDAG grant funding period was completed and successful, but the site visit revealed that three years after project completed, the site was overgrown, and little evidence of the grant-funded work was seen.

The grants included in this performance review benefited several endangered or sensitive species including Nuttall's lotus, coastal cactus wren, least tern, least Bell's vireo, and a variety of habitats such as coastal sage scrub, vernal pools, and coastal dunes. Since the completion of the 2017 Land Management Grants, SANDAG awarded funding to 19 new projects in July 2018. Some of the grants are continuations from previously funded SANDAG grant cycles, while others are entirely new projects.