

**CALL FOR PROJECTS FOR THE NINTH CYCLE OF THE
TransNet ENVIRONMENTAL MITIGATION PROGRAM
LAND MANAGEMENT GRANT PROGRAM
SPECIES AND HABITAT RECOVERY GRANT APPLICATION FORM**

Grant Application Form and required supplementary materials (hereafter referred to as "proposal") cannot exceed 12 pages.

Applicant Name¹: John Clark, Ph.D., Director of Plant Collections and Strategy, San Diego Zoo Global

Address: 15600 San Pasqual Valley Road

Phone and Email Address: (760)796-5679, jclark@sandiegozoo.org

Name of Property: San Diego Zoo Safari Park (open space reserve)

General Location: San Pasqual Valley

Jurisdiction: City of San Diego

Total Acres: 900

Estimated Acres Requiring Management: 20

Owner(s) of Property²: City of San Diego, Public Utilities Department

Land manager(s) of property (include name[s]): John Clark, Ph.D., Director of Plant Collections and Strategy, San Diego Zoo Global [property lessee supervisor]
Nicole McGinnis, Natural Resources Manager, City of San Diego, Public Utilities Department [property lessor manager]

Brief Project Summary that includes your primary goal and objectives (200-word maximum)

Our proposed project, Stinknet Removal for Improved Coastal Cactus Wren Habitat, focuses on managing an entrenched *Oncosiphon piluliferum* (stinknet) infestation at the Safari Park Biodiversity Reserve for the benefit of the large extant nesting population of coastal cactus wrens (CACW) and other sensitive species on the property. On over 20 acres, we will significantly reduce stinknet to a manageable level long-term. Treatments areas will be prioritized to best protect established nesting territories and improve areas that may expand habitat. We propose to apply pre-emergent herbicide with follow-up glyphosate application and hand-pulling over three years, followed by experimentally planting and/or seeding natives to increase plant cover. We will use pre and post monitoring of vegetation cover and CACW within treatment areas to measure success. Using remote sensing data collected via drones we will analyze and map the infestation throughout the Biodiversity Reserve. This procedure has application to inform future management efforts of stinknet. Current thought amongst managers estimates stinknet seeds persist in the soil seed bank for three years; we plan to experimentally examine seed survivorship. In implementing the proposed project we will improve management of an important CACW population as well produce research to inform best management practices for stinknet.

¹ While collaboration is encouraged in the development of the grant proposal, the proposal must identify one organization as the lead entity that will enter into an Agreement with SANDAG.

² If the applicant is not the landowner, please submit a letter or right-of-entry permit from the land owner granting permission to perform the land management duties as outlined in the proposal. Failure to provide the letter or right-of-entry permit will lead to disqualification of the proposal. **Attached letter or right-of-entry permit (if applicable) does not count towards 12-page maximum.**

Quantify Expected Results (add bullets as necessary)

- 20 acres treated for stinknet
- 15 acres of native vegetation enhancement, within experimental framework
- monitoring reports for impacts of treatments on CACW and native and non-native vegetation
- protocol and report on remote sensing as a monitoring tool for stinknet management
- research report on duration/survival of stinknet in soil seed bank

Brief Description of dedicated staff and/or consultants that would work on Project (200-word maximum)

- Safari Park Biodiversity Reserve Manager – hire in process – supervise staff, consultants and volunteers in all land management activities, co-coordinate monitoring activities, and revise project as necessary to best achieve goals
- Director of Plant Collections and Strategy, SDZG – John Clark, Ph.D. – project supervisor finalizing grant reports
- Contracted herbicide applicators – TBD through competitive bidding – conduct the initial herbicide application at the beginning of each season
- SDZ Safari Park integrated pest management technician – Jason Thomas, QAL – train ICR staff in spot-spray herbicide application and conduct required chemical reporting
- SDZG Research Assistant – pending hire – project implementation across tasks, including stinknet removal, native propagation and planting, and monitoring
- Conservation Program Specialist – Colleen Wisinski – train and co-coordinate CACW monitoring efforts; experienced ornithologist who led the previous CACW monitoring efforts
- Scientist – Katie Heineman, Ph.D. – co-coordinate and analyze vegetation monitoring and conduct remote sensing analyses
- Senior Researcher – James Sheppard, Ph.D. – pilot and contractor coordinator for drone flights
- SDZG volunteers, additional SDZG horticulture staff, and ICR staff – spot spraying (staff only) and hand removal of stinknet through spring and summer, vegetation and CACW monitoring support, shrub planting and maintenance

Funding Needs Summary

Please indicate how much funding is being requested from SANDAG and any matching funding proposed.

Budget Item	Requested Funding Amount	Proposed Matching Funds*	Description
Personnel Expenses Staff	\$245,642	\$138,571	research assistant for 3 years of project to work on Tasks 1-4, data scientist time for data coordination and analyses, various staff for implementation and monitoring; Match staff, volunteers, fellows
Personnel Administrative Expenses	\$0	\$233,701	Project planning and logistics; coordinating staff, volunteers, and contractors; land manager and supervisor
Consultant Expenses	\$141,000	\$0	Contract services for herbicide application and drone flights
Other Direct Expenses	\$25,750	\$0	Nursery and planting supplies, herbicide and weeding tools, bulked seed for direct application
Indirect Costs ³	\$92,706	\$133,738	SDZG's indirect cost rate is calculated at 54.91%; this will be split between match and grant.
Totals	\$505,098	\$506,010	

³ Indirect Costs are only allowable if: (1) applicant has an indirect cost allocation plan audit approved by a qualified independent auditor or (2) the applicant's proposed method for allocating indirect costs is submitted with the proposal in accordance with [OMB guidelines](#) and approved by SANDAG. Indirect costs will not be reimbursed until one of the two conditions above are satisfied and indirect cost

*if applicable

Are there matching funds available? Yes No

If yes, how are the matching funds assured (100-word maximum)?

Matching funds are being met through the support of San Diego Zoo Global in staff salaries, and in-kind contributions, and unrecovered indirect costs. SDZG's federally calculated indirect cost rate is 54.91%; previous EMP awards have allowed for a split of this rate with the unrecovered amount be used towards matching funds. See attached letter.

Attach a letter from the organization/partner that ONLY provides confirmation that they are committed to providing the matching funds proposed for this project. Letters confirming matching funds will not count toward the 12-page limit. (General letters of support not related to commitment of matching funds will NOT be accepted and will NOT be considered as part of the proposal).

PROJECT PROPOSAL

A. Project Purpose

1. The primary goal of the proposed project is to support the population of coastal cactus wren (CACW) within the San Pasqual Valley occurrence by improving habitat. While cactus exists in well-established patches and has been enhanced and expanded in areas, the surrounding non-cactus components of the cactus scrub and the adjacent coastal sage scrub needs improvement. Enhancing and expanding CACW habitat is a priority objective within the Management Strategic Plan (MSP). Stinknet (*Oncosiphon piluliferum*) has spread throughout San Pasqual Valley, growing in dense patches that are thought to preclude CACW foraging behaviors, which generally occur in the bare ground patches that occur within coastal sage scrub. This non-native plant also affects other coastal sage scrub-dependent species in the area (e.g., California gnatcatchers, numerous reptiles and amphibians) and poses a fire threat to the valley, including the cactus scrub habitat hosting half of the north county population of wrens. Stinknet removal is therefore critical in managing wren habitat. An ancillary goal of the project is to gain a greater understanding of the stinknet threat by conducting remote sensing surveys via a drone and initiating research on seed survivorship, both of which will support future management efforts for this noxious weed.

The Invasive Plant Strategic Plan (IPSP) classifies stinknet as a Level 3 non-native plant in San Diego County, thus management goals are focused around containment within management units or watersheds⁴. However, stinknet's potential effects on sensitive species has increased concern over this weed. The San Diego Management and Monitoring Program (SDMMP) is spearheading an effort to better understand the stinknet infestation in the county in 2018. With this project, we hope to reduce the impact of stinknet on sensitive species, namely CACW, rather than attempt to eradicate or control spread of stinknet. The reserve-wide mapping of stinknet through classification of the remotely sensed data, however, will provide critical information to containment efforts within San Pasqual Valley and provide a methodology which can be replicated elsewhere.

We will manage stinknet through a combination of intensive herbicide application and physical removal over three years followed by native cover enhancement through seeding and outplanting to minimize reinfestation. These management activities will occur within the Biodiversity Reserve (undeveloped and conserved lands adjacent to the San Diego Zoo Safari Park) and refined to multi-acre

⁴ Conservation Biology Institute (CBI), California Invasive Plant Council (Cal-IPC), and Dendra, Inc. 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), San Diego, CA. Contract no. 5001322.

areas determined to be of highest benefit for the existing CACW population, i.e., areas within or adjacent to known CACW territories and areas which previously received cactus scrub enhancement plantings to expand habitat. The project will include field monitoring of both wrens and vegetation to document effectiveness of the management efforts and inform future management. Using remote sensing we will expand vegetation monitoring beyond the treatment areas. A drone equipped with multiple sensors will collect data reserve-wide and allow us to identify the extent of the stinknet infestation and how it expands through the landscape. This technique can potentially provide a comparatively low-cost procedure to map large areas in San Diego County invaded by stinknet.

San Diego Zoo Global has recognized the need for a comprehensive lands management plan for the Biodiversity Reserve and will be developing such a plan through 2018. Though no current management activities are taking place, the presence of ~30 CACW breeding pairs (documented in 2012) – a large portion of the North County population – has prompted past management activities on the property. A previous Transnet EMP Land Management Grant (Grant Agreement #5001328) funded 45 acres of cactus scrub enhancement plantings from 2010–2012 as well as bird surveys in both established CACW habitat and novel areas receiving plantings. Though the cover of prickly pear cactus has increased as a result of this previous management effort, the expanded cactus scrub is unlikely to support wrens and allow for an increased number of territories if foraging is inhibited by the stinknet infestation and lack the shrubs that support the wrens' arthropod food resources.

Stinknet impacts over 60 acres of established or potential cactus wren habitat stinknet on the property. To best refine the treatment areas (totaling a minimum of 20 acres) for the project we will conduct baseline monitoring of vegetation and CACW in spring 2018. Data and experiences from previous point count surveys and genetic sample collection on the preserve allowed staff to delineate rough nesting territory maps of breeding pairs. Once updated with the 2018 data, we will prioritize multi-acre patches for stinknet treatment. Broad-scale mapping of the stinknet infestation through remote sensing will also begin in 2018, the preliminary results of which will contribute to the prioritization process.

2. Our proposed project is designed to aid coastal cactus wrens (SO) by improving the coastal sage scrub habitat in areas which wrens occur. However, with improvements to coastal sage scrub habitat, we anticipate a benefit for the other MSP-covered species occurring on the property: California gnatcatchers (VF), orange-throated whiptails (VG), and red diamond rattlesnakes (VG).

Specifically, the project will benefit the San Pasqual Valley occurrence of the San Pasqual Valley/Lake Hodges genetic cluster of CACW (property owned by the San Diego City Department of Public Utilities). We will be implementing MGT-IMP CAMBRU-7, MGT-IMP CAMBRU-9, and contributing to MON-IMP CAMBRU-8⁵.

In alignment with CAMBRU-7 action IMP-1, the project will retain and expand quality foraging habitat in Management Units 6 by controlling stinknet and other invasives to 20% absolute cover in priority areas and increasing native shrub cover. Our planting palette is expected to consist of California buckwheat, California sagebrush, bunch grasses, deerweed, and California sunflower, per the South San Diego County Coastal Cactus Wren Habitat Conservation and Management Plan⁶. However, the planting palette can be altered as needed with the results of the Cactus Wren Demography, Foraging and

⁵ San Diego Management and Monitoring Program (SDMMP) and The Nature Conservancy (TNC). 2017. *Management and Monitoring Strategic Plan for Conserved Lands in San Diego County: A Strategic Habitat Conservation Roadmap*. Prepared for San Diego Association of Governments (SANDAG), San Diego, CA.

⁶ TNC and SDMMP. 2015. South San Diego County Coastal Cactus Wren (*Campylorhynchus brunneicapillus*) Habitat Conservation and Management Plan. Prepared for San Diego Association of Governments. Prepared by The Nature Conservancy in collaboration with San Diego Management and Monitoring Program.

Arthropod Study in progress. Additionally, by removing invasive plants, the project will contribute to CAMBRU-9 action IMP-1 to reduce severity of potential fires by “maintaining bare ground buffers around large intact cactus patches, and by reducing nonnative grasses and herbs”⁷.

The monitoring component of the project will not only provide data on the effectiveness of our treatments, but also contribute to MON-IMP CAMBRU-8, actions IMP-1 and IMP-2⁷. The vegetation surveys will document the extent to which the 2010–2012 cactus enhancement planting successfully contributed to wren use of restored areas. We will conduct vegetation surveys annually to monitor effectiveness of stinknet removal treatments and will conduct point-counts in spring 2018 and spring 2022. We will share all restoration and enhancement area data with SDMMP for the web portal.

In tackling stinknet to improve CACW habitat, the project also addresses the objectives of MGT-IMP INVPLA-1 to continue implementing the IPSP by removing Level 3 invasives. Per the ISPS, we will work with contractors hired via competitive bidding for the project to develop a biosecurity plan to limit spread of stinknet seed within and outside the Biodiversity Reserve. We will also revegetate areas treated for stinknet to “optimize resistance to invasive plant establishment” (MSP V2B.7-12)⁷ using locally appropriate seed in bulk and plants grown from seed collected on site.

3. The San Diego Safari Park property is located in San Pasqual Valley, falling within Management Unit 6. Owned by the City of San Diego Public Utilities, the property is managed by San Diego Zoo Global in consultation with the City. Over 800 acres of the property is considered conserved lands under the city’s Multiple Habitat Planning Area. See attached map.

4. CACW Researchers have identified habitat degradation from invasive plants species as a threat to wrens⁷. Invasives reduce bare ground, which wrens need for foraging. Invasives also alter the arthropod community composition, which impacts food availability for the birds. The other species potentially benefiting from this project are known to benefit from intact coastal sage scrub with low levels of invasive cover.

California gnatcatchers are threatened by type conversion from coastal sage scrub to fields of invasives⁸. A multi-year monitoring study of reptiles and amphibians on the Biodiversity Reserve links a decline in various species populations (including red diamond rattlesnake and orange-throated whiptails) to both drought and an increase in stinknet cover (Jeff Lemm, unpublished data). In 2017 we saw a dramatic increase in stinknet with an expansion of this weed into new areas as well as plants reaching greater heights and occurring at increased densities.

5. We will reduce cover of stinknet and other invasives to 20% through treatment with a pre-emergent herbicide, spot treatment with glyphosate, and hand removal followed by solarization of any flowering individuals. Studies in Riverside by UC Cooperative Extension support repeated use of pre-emergent with follow up removal of germinating individuals with either glyphosate or physical removal (Chris McDonald, Ph.D., personal communication). A broad spectrum pre-emergent will be used; before stinknet dominated the landscape mustards and non-native grasses were quite prevalent and are likely still in the soil seed bank. Pre-emergent will be applied by contractors hired through a competitive bidding process (cost estimates for this proposal are based on an estimate from Black Sage Environmental, INC.). We also plan to have SDZG employees work under the qualified applicator licensed staff at the

⁷ San Diego Management and Monitoring Program (SDMMP) and The Nature Conservancy (TNC). 2017. *Management and Monitoring Strategic Plan for Conserved Lands in San Diego County: A Strategic Habitat Conservation Roadmap*. Prepared for San Diego Association of Governments (SANDAG), San Diego, CA.

⁸ U.S. Fish and Wildlife Service. 2010. *Coastal California Gnatcatcher (Polioptila californica californica) 5-year Review: Summary and Evaluation*. Carlsbad FWS Office, Carlsbad, CA.

Safari Park to apply herbicide treatments as well as have staff and volunteers work to hand-remove stinknet throughout the growing season for the three consecutive years of treatment.

To optimize resistance to reestablishment of stinknet and other nonnative plants, we will seed and plant natives. Native plantings are necessary once an ecosystem has moved past the threshold of resilience⁹. Increasing native shrub, forb, and grass cover will also further enhance the habitat's suitability to wrens – providing a substrate for the large arthropods that wrens consume. Outplanting native shrubs and perennial grasses will begin with propagation of plant material using seed collected on site and processed in the SDZG's Native Plant Seed Bank. Several pounds of seed from various species will be needed for each acre receiving seed enrichment, and will be purchased from vendors selling locally collected and bulked seed. Outplanting will occur in the winters following the second and third years of pre-emergent treatments. The young plants will be planted in basins that allow for ~1 gallon of water and will be encased in a reflective plant protector (to protect from herbivory and provide a cooler, more moist micro-climate). Staff and volunteers will water the plants through their first summer to ensure high survival rates. Seeding will occur in the fall following the final pre-emergent treatment (fall 2021, approximately 10 months after the pre-emergent application). Winter plantings followed by fall seeding were the most effective timing combination for coastal sage scrub species in previous research¹⁰.

Remotely sensed multi-band imagery and radar will be collected through flights of an unmanned aerial system (drone) at high spatial resolutions across the Biodiversity Reserve. SDZG staff will work with our established partners at Northrop Grumman to conduct flights. Data will be processed and analyzed by SDZG staff with the aims of conducting a one-class classification, keying on the spectral signature of stinknet. Initial flights being conducted in 2018 at different seasons will help identify the best phenological period to correctly classify stinknet.

Large-scale broad spectrum pre-emergent use could affect native vegetation. However, no MSP plant species or other sensitive species occur on the property and the extant prickly pear cactus should not be affected. Potential depletion of native seeds in the soil seed bank reinforces the need to follow invasive treatment with seeding and outplantings. We do not anticipate any negative effects on MSP animal species from project activities. Monitoring and weed removal activities will occur during the CACW breeding season, but will be conducted by individuals or small groups to limit disturbance.

6. We are not working towards full eradication of stinknet on the Biodiversity Reserve property. As such our strategy focuses on targeting areas which will most benefit cactus wrens by protecting existing cactus scrub, especially those with existing CACW territories and areas with cactus at suitable heights for nesting.

Herbicide treatments followed by hand-removal will occur for three consecutive years. Current understanding holds that stinknet seed survives three years in the soil seed bank, thus three years of treatment should strongly reduce long-term cover. Increasing native cover from seeding and outplanting will also help reduce non-native cover long-term. The three year push to reduce coverage will provide a baseline that can be maintained by the SDZG natural lands manager and volunteers for future long-term maintenance.

Native vegetation cover will be enhanced within an experimental framework. Outplanting shrubs grown in the shadehouse is labor intensive (and thus expensive) but thought to be the most effective way to increase native cover long-term. The 20+ acres being treated for stinknet will be divided into four

⁹ Styliński, C.D., and E.B. Allen. 1999. Lack of Native Species Recovery Following Severe Exotic Disturbance in Southern Californian Shrublands. *Journal of Applied Ecology* 36: 544–54.

¹⁰ DeSimone, S.A. 2011. Balancing Active and Passive Restoration in a Nonchemical, Research-Based Approach to Coastal Sage Scrub Restoration in Southern California. *Ecological Restoration* 29: 45–51.

treatment areas: control (natural recruitment only), seeding of early and late colonizers, shrub and perennial grass outplantings at high density, and a combination of seeding and outplanting at medium density. Results can inform future weed control management on the property and other land managers working in coastal sage scrub.

San Pasqual Battlefield State Park, adjacent to the Biodiversity Reserve, has extensive cactus scrub habitat and nesting pairs of CACW. Although we contacted state park land managers we did not include work on the state park in this proposal. Within the grant period we cannot eradicate stinknet within the San Pasqual Valley, but can inform future management. Coordination with neighbors and San Diego County land managers will occur through data sharing.

7. Our overall goal is to improve habitat for CACW and other coastal sage scrub reliant sensitive species. Objective 1 is to reduce stinknet cover in areas within or adjacent to CACW occupied cactus scrub, or areas enhanced with prickly pear cactus plantings 6-8 years ago. Stinknet treatment areas will be comprised of multi-acre patches cumulatively covering a minimum of 20 acres. For each of the three treatment years we will monitor vegetation to ensure we are effectively eliminating invasive cover with a pre-emergent herbicide and will treat persistent growth with glyphosate spot-spraying and hand-pulling. By the final year of the project, following a year without herbicide treatment, invasive cover will be no higher than 20% as measured along transects with intercept and quadrat-based vegetation monitoring methods.

Objective 2 to increase native cover will also help achieve the goal of improving coastal sage scrub habitat for sensitive species. Native plant species will help prevent reestablishment of invasives and provide substrates for arthropod foraging. We will plant and/or seed natives to increase cover of native shrubs, grasses, or forbs significantly over a minimum of 15 acres. Aiming for 70% survivorship of outplanted species, we will monitor planted individuals in belt transects as well as monitor total cover of natives with the same vegetation monitoring methods as invasive cover. Vegetation surveys will be led by the natural lands manager and Katie Heinman, Ph.D., combining knowledge of the landscape with scientific design experience.

We will also monitor the CACW population at the biodiversity reserve. In the 2018 breeding season prior to implementation of this project, we will make point-count surveys using the same methods used in 2010-12 and at the same points across both established and planted cactus scrub areas. The surveys will indicate whether the combined efforts of cactus plantings, invasive control and increased native cover are effective in expanding CACW habitat. The surveys will be conducted by ICR staff and volunteers with birding backgrounds, as trained by Colleen Wisinski, M.S., the lead ornithologist who designed the 2010-12 protocols and has worked with cactus wrens for over eight years.

A broader goal of the project is to inform future management efforts for stinknet. This will be achieved through two objectives: 1) developing a method to monitor stinknet infestations using remotely sensed data collected via drones, and 2) determine the seed survival curves of stinknet in the soil seed bank.

8. Katie Heinman, Ph.D., a data scientist within the Plant Conservation team at ICR, will be charged with compiling and analyzing all data, as well as transferring data to SANDAG and the SDMMMP data portals. Data will be managed through ArcGIS online and related software products and spreadsheets (.csv or Excel as required). The Natural Lands Manager (TBD) will contribute to all tasks and write quarterly, final, and research summary reports with input from all the staff involved. John R. Clark Ph.D., Director of Plant Collections & Strategy at ICR will oversee all aspects and provide quality control.

9. No. No funding for the treatment of stinknet has been sought or previously funded. However, a previous TransNet EMP funded project addressed the need to enhance and expand CACW habitat on the Biodiversity Reserve through prickly pear plantings (Grant Agreement #5001328, 2010-12). Building upon

work done in the previous grant, we will use the protocol established for CACW point count monitoring, use the number of pairs identified (likely still ~30) as our baseline, and treat areas previously planted with cactus with the hope of creating suitable wren habitat. However, we will preferentially treat naturally-established cactus patches over restored cactus areas. The shadehouse established for cactus propagation under the previous grant, and currently in partial use for rare plant propagation, will be used for propagation of perennial shrubs and grasses for Task 4.

10. No. The proposed activity will not be conducted on land previously set aside as mitigation.

B. Scope of Work by Task

Please break down the proposal into discrete tasks and include a task name, description of each task, quantifiable expected results, and discrete deliverables for each task. *Note: make sure to list tasks for quarterly reporting on the status of the grant project and a final report on the outcome of the grant project. You may add or subtract rows as needed.*

Exhibit A – Proposed Project Scope of Work

Task No.	Task Name	Task Description	Quantifiable Results/Deliverables
1	Stinknet Treatment	Remove previous season stinknet to prepare site for herbicide treatment; 3 yrs early winter pre-emergent treatment, glyphosate spot spraying and hand removal as needed	~20 acres of stinknet treated coastal sage scrub habitat with a maximum of 20% coverage of stinknet in the year after final treatment (and <10% cover in treatment years)
2	Field Monitoring	Vegetation monitoring in the spring of each treatment year; CACW point counts during the breeding season; herpetological monitoring	Data shared with SDMMP on vegetation cover; updated CACW density estimates; reports to SANDAG detailing results
3	Remote Sensing Monitoring	Piloting drone with multiband spectral sensors; “ground truthing” data collection; analyses of imagery to track changes in stinknet	Development and sharing of a protocol to analyze remotely sensed data to detect stinknet; stinknet distribution across the entire Biodiversity Reserve (~900 acres) analyzed
4	Native Plant Enhancement	Propagating, planting, and maintaining native shrubs in treatment areas; native seeding	Outplanting and/or seeding with native species in subset of stinknet treatment plots with 70% survival of planted shrubs
5	Seed Survivorship Research	Research seed survivorship across different conditions (i.e. time and heat) with seed from soil seed bank	Report on soil seed bank survivorship submitted to SANDAG
6	Administrative	Coordination of departments; report preparation; data preparation; regional weed management meeting attendance	Quarterly and final reports to SANDAG; data compiled and submitted to SDMMP

C. Budget by Task

Please include a specific budget for each task described in the Scope of Work (Section B above). This should include both requested SANDAG funds and any matching funds proposed for each project year. *If matching funds are proposed, please distribute the match commitment proportionately¹*. Applicants are encouraged to identify phasing in their proposal in case full funding for the project is not available. You may add or subtract rows and columns as needed. *This funding category is intended to fund restoration and enhancement projects taking place over a three- to five-year period and will not cover on-going annual costs within applicant's organization.*

Exhibit B – Proposed Project Budget

Task No.	Task Name	Year 1 Grant Request	Year 1 Matching Funds ¹	Year 2 Grant Request	Year 2 Matching Funds ¹	Year 3 Grant Request	Year 3 Matching Funds ¹	Year 4 Grant Request	Year 4 Matching Funds ¹	Total Grant Request	Total Matching Funds	Total Project Cost
1	Stinknet Treatment	\$72,650	\$8,690	\$72,915	\$8,690	\$73,805	\$8,690	\$14,252	\$0	\$233,622	\$26,070	\$259,692
2	Field Monitoring	\$8,854	\$5,407	\$9,122	\$5,407	\$9,396	\$5,407	\$12,864	\$5,407	\$40,236	\$21,628	\$61,864
3	Remote Sensing Monitoring	\$14,620	\$4,500	\$15,013	\$4,500	\$15,419	\$4,500	\$15,836	\$4,500	\$60,888	\$18,000	\$78,888
4	Native Plant Enhancement	\$14,935	\$16,429	\$27,658	\$28,305	\$35,053	\$16,139	\$0	\$0	\$77,646	\$60,873	\$138,519
5	Seed Survivorship Research	\$0	\$3,000	\$0	\$3,000	\$0	\$3,000	\$0	\$3,000	\$0	\$12,000	\$12,000
6	Administrative	\$0	\$70,377	\$0	\$70,939	\$0	\$66,583	\$0	\$25,802	\$0	\$233,701	\$233,701
	Sub Total	\$111,059	\$108,403	\$124,708	\$120,841	\$133,673	\$104,319	\$42,952	\$38,709	\$412,392	\$372,272	\$784,664
	Indirect Cost (22.48% of OMB calculated 54.91)	\$24,966	\$36,016	\$28,034	\$40,443	\$30,050	\$43,350	\$9,656	\$13,929	\$92,706	\$133,738	\$226,444
	TOTAL	\$136,025	\$144,419	\$152,742	\$161,284	\$163,723	\$147,669	\$52,608	\$52,638	\$505,098	\$506,010	\$1,011,108
	PERCENTAGE	49%	51%	49%	51%	53%	47%	50%	50%	49.95%	50.05%	100%

1. Throughout the Project, Matching Funds must be proportionate to Total Project Costs (Grant Request and Matching Funds combined). For example, if a proposed project Year 1 Grant Request is \$80,000 and proposed Year 1 Matching Funds are \$20,000, the Total Year 1 Project Costs are \$100,000. Therefore, the required proportionate matching funds to provide per invoice during Year 1 of the project are 20 percent (e.g. invoice submitted for \$8,000 grant amount reimbursement and \$2,000 matching funds submitted). However, if the Year 2 Grant Request is \$70,000 and proposed Year 2 Matching Funds are \$30,000, while the Total Year 2 Project Costs also are \$100,000, the required proportionate matching funds increases per invoice during Year 2 of the project to 30% (e.g. invoice submitted for \$7,000 grant amount reimbursement and \$3,000 matching funds submitted). Retention will be withheld beyond the 10 percent retention for each invoice submittal that does not meet the proportionate matching funds requirement. These additional matching funds retained will not be released until the proportionate matching funds are reached for the project to-date.

D. Project Schedule

Please include start and end dates relative to the anticipated Notice to Proceed (assumes Fall 2018) for each task described in the Scope of Work (Section B above). Please list tasks for quarterly reporting on the status of the grant project and a final report on the outcome of the grant project. You may add or subtract rows as needed.

Exhibit C - Proposed Project Schedule
(Assumes Fall 2018 Notice to Proceed [NTP])

Task No.	Task Name	Proposed Start Date	Months Needed to Complete Task	Task End Date
1	Stinknet Treatment	1 Months from NTP	36 Months	09/30/2021
2	Field Monitoring	6 Months from NTP	45 Months	06/30/2022
3	Remote Sensing Monitoring	4 Months from NTP	47 Months	08/31/2022
4	Native Plant Enhancement	4 Months from NTP	37 Months	11/30/2021
5	Seed Survivorship Research	1 Months from NTP	48 Months	09/30/2022
6	Administrative	1 Months from NTP	48 Months	09/30/2022

Please explain why and how much additional time would be needed in the event of any delays due to NTP being provided beyond Fall 2018 and/or unexpected weather conditions such as drought that could occur during the proposed project implementation.

A significant delay of NTP, into or past February 2019, would impact our strategy. In such an event, we would change the pre-emergent treatment scheduled for winter 2018-2019 to an intensive spraying of glyphosate-based herbicides earlier and more frequently through the growing season. These would be additional applications to the already anticipated spot-sprays and hand removal of that would occur each spring.

NOTICE REGARDING PREVAILING WAGES

SANDAG's EMP Land Management Grant Program projects are funded with *TransNet* revenues consistent with the *TransNet* Extension Ordinance adopted by the voters in November 2004 (SANDAG Ordinance 04-01). Although SANDAG Ordinance 04-01 does not require payment of prevailing wages, California law may require that public works projects pay prevailing wages for workers.


Applicant acknowledges that SANDAG has strongly encouraged Applicant to seek legal counsel regarding whether the Proposed Project will require applicant to pay prevailing wages and agrees that SANDAG will have no liability for conducting this analysis. Yes No

Applicant acknowledges that if awarded an EMP Land Management Grant, the grant agreement between SANDAG and the grantee requires grantee's compliance with all federal, state and local laws and ordinances applicable to the Agreement. Yes No

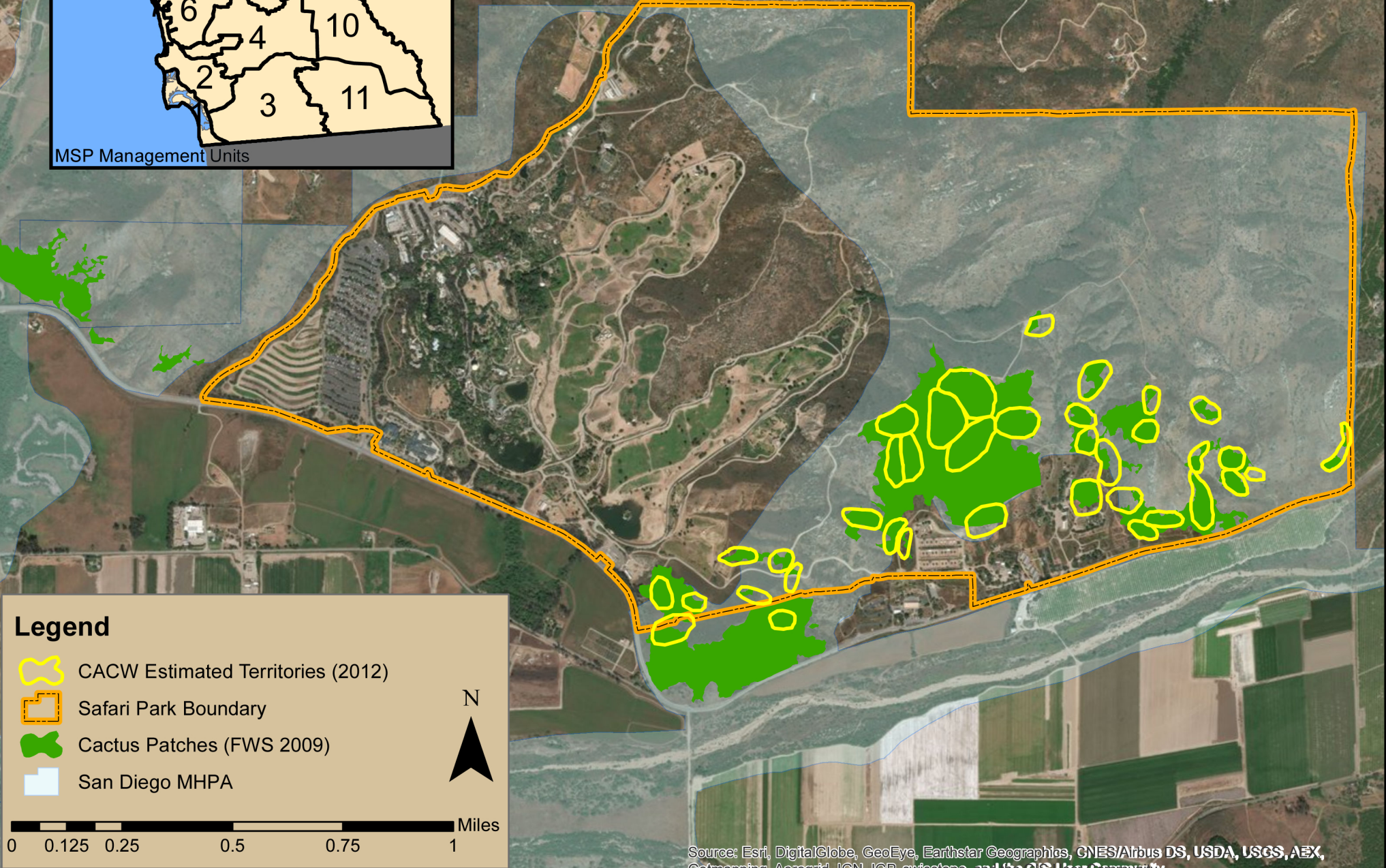
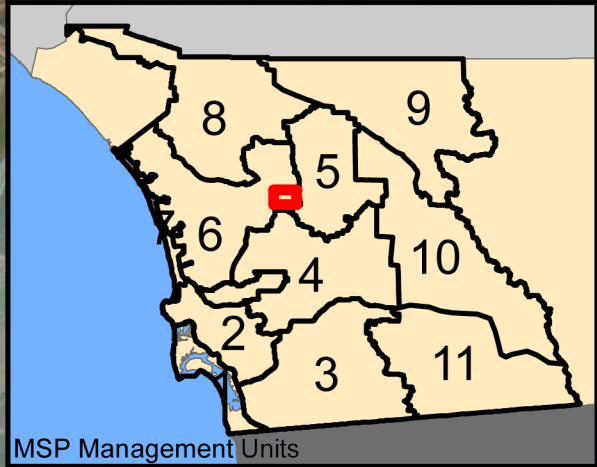
REQUIRED STATEMENTS FROM APPLICANT

- Yes No The applicant has read and understands the Sample Grant Agreement (Agreement) and Invoice Template (Attachment 4).
- Yes No If the SANDAG Board of Directors approves the proposed project proposal, the proposed applicant agrees to sign and return the Agreement to SANDAG, without exceptions or amendments, within 45 days of receipt.
- Yes No The applicant agrees to comply with SANDAG's Board Policy No. 035, Competitive Grant Program Procedures, which outlines "Use-it-or-lose-it" project milestone and completion deadlines. Board Policy No. 035 is included in the Agreement, and also is on SANDAG's website at the following link: sandag.org/organization/about/pubs/policy_035.pdf
- Yes No The applicant understands that 10 percent of all invoices will be retained until the completion of the proposed project.
- Yes No The applicant understands that for proposed projects with matching funds, retention will be withheld beyond the 10 percent retention for each invoice submittal that does not meet the proportionate matching funds requirement. These additional matching funds will not be released until proportionate matching funds are reached for the project to-date.
- Yes No The applicant understands that all invoices must be accompanied by written, documented support of the charges for requested reimbursement of grant funds and payment will not be made by SANDAG until all documents are satisfactorily submitted.
- Yes No The applicant understands that invoices and reports must be submitted on a quarterly basis within three weeks after the period covering January 1 to March 31; within three weeks after the period covering April 1 to June 30; within three weeks after the period covering July 1 to September 30; and within three weeks after the period covering October 1 to December 31.
- Yes No The applicant understands that the EMP quarterly report template (to be sent to the grantee after NTP is issued) must be used to document quarterly progress and that invoices with errors will be returned to the grantee for correction prior to being processed by SANDAG staff.
- Yes No The applicant understands that the final invoice must be accompanied by written, documented support of the charges for requested reimbursement of grant funds; a final report (prepared in accordance with the final report template to be sent to grantee after NTP is issued); and all outstanding deliverables in order to receive final payment and have retained funds released.
- Yes No The applicant understands that to be considered eligible for funding, a resolution complying with the requirements of Board Policy No. 035, Section 4.1, must be submitted to SANDAG at least *two weeks* prior to the recommendation by the Regional Planning Committee of the list of prioritized project proposals. SANDAG will provide applicants with advance notice of the Regional Planning Committee's anticipated meeting date.
- Yes No The applicant agrees to submit all project data/information to SANDAG in a format compatible with the regional management database.

I have the authorization to submit this proposal (Grant Application Form and required supplementary materials) on behalf of my organization.

Applicant Name/Title: Douglas G. Myers, President/CEO	
DocuSigned by:  <small>B3E0F8C2539043C...</small>	
Applicant Signature	Date: 1/12/18

Stinknet Removal for Improved Coastal Cactus Wren Habitat Proposal for 9th Cycle of Transnet EMP Grant Program San Diego Zoo Global



Legend

- CACW Estimated Territories (2012)
- Safari Park Boundary
- Cactus Patches (FWS 2009)
- San Diego MHPA

N

0 0.125 0.25 0.5 0.75 1 Miles