GOAL 2

SUSTAIN & RESTORE

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GOAL 2: SUSTAIN & RESTORE

Identify and engage best practices in land management and restoration to sustain and enhance native biodiversity, positive recreational experiences, and socio-economic benefits connected with the Sonoran Desert.

Background and Rationale

With its iconic saguaros and warm winter climate, the Sonoran Desert is a prime destination for visitors seeking recreation and respite. Millions upon millions of residents and tourists recreate in the Maricopa County region, which is rich in protected natural areas. Thanks in large part to the vision of mid-late 20th century community and governmental leaders who, amidst rapid urbanization, had the foresight to set aside nearly 200,000 acres of land as parks and preserves, the region is home to the largest set of urban protected areas in the nation.[1] These lands are incredible ecological, economic, and social assets.

However, that legacy preserve system is under strain. With visitorship topping that of popular national parks,[2] the system is stressed by a myriad direct visitor impacts, such as prohibited off-trail hiking, biking, and off-road vehicle use. These impacts, coupled with historic grazing, fire impacts, invasive species incursions, impacts from climate change and the urban heat island, urban encroachment, and limited resources for resource management, serve to greatly undermine the sustainability and resilience of these regional assets.[3]

The ability of park managers to effectively mitigate degradation, ensure positive user experience, and apply principles of sustainable natural resource management depends upon: 1) the capacity to engage in long-term monitoring, 2) a determination of limits of acceptable change, 3) knowledge of invasive, non-native plant distributions and removal techniques, 4) an understanding of best practices for restoration and rehabilitation, and 5) access to genetically appropriate native plant materials.

Developing these capacities requires coordination and collaboration on a regional scale. Actions under this goal will lead us towards a coordinated approach to better understand the threats, constraints, and solutions required for sustainable natural resource management and the long-term preservation of our regional open spaces system. Undertaking these actions will require financial and organizational support as well as coordination with private and public sectors. Several objectives and actions in Goal 2 will inform the work of Goal 3.

GOOGLE EARTH IMAGE

OBJECTIVE 2.1

Detect any significant change to biodiversity and water courses occurring in protected areas due to stressors.

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.1.1	Form a subcommittee to prioritize specific monitoring or research needs.	MSC	DBG, ASU, CoPPRD, MCPRD, MCFCD, AudAZ, ADOT, WTMC, CoPCSD, CoBCSD, CoTPR, AGFD, TNC, USGS, WERC, USFS, municipalities, and tribal communities	*2017-2018
2.1.2	Based on the selected priorities, conduct a literature review as well as an inventory of available data. Identify appropriate methods and experimental design for priority research or monitoring. Consider national protocols, e.g. BLM, NPS, NISC, or integration with ASU's Central Arizona-Phoenix Long Term Ecological Research project's sites/data.	MSC	DBG, ASU, CoPPRD, MCPRD, MCFCD, AudAZ, ADOT, WTMC, CoPCSD, CoBCSD, CoTPR, AGFD, TNC, USGS, WERC	*2017-2018
2.1.3	Identify mechanisms to implement regional monitoring and/or research program. Analyze and interpret data to make management recommendations.	MSC	DBG, ASU, CoPPRD, MCPRD, MCFCD, AudAZ, ADOT, WTMC, CoPCSD, CoBCSD, CoTPR, AGFD, TNC, USGS, WERC, USFS	*2017-2018

* Implementation began as the strategy was being developed

OBJECTIVE 2.2

Understand the social, environmental, and economic benefits to recreation and non-recreation users associated with the Sonoran Desert.

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.2.1	Conduct literature review and mine data to determine the suite of benefits resulting from the open space.	ASU-SCRD	DBG, MCPRD, CoPPRD, ASP, AZF, GPEC, ASU-CAP LTER	*2017-2019
2.2.2	Through a series of surveys, identify the primary social, environmental, and economic benefits associated with recreation and non-recreation activities in and around Sonoran Desert ecosystem, as well as the associated risk of income loss that would result from ecosystem degradation.	ASU-SCRD	DBG, MCPRD, CoPPRD, ASP, AZF, GPEC, ASU-CAP LTER, USFS, municipalities, and tribal communities	2019-

* Implementation began as the strategy was being developed

OBJECTIVE 2.3

Conduct research to determine acceptable levels of impact from visitor use, provide guidance on developing monitoring strategies, and use information derived from monitoring to evaluate management actions.

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.3.1	Conduct literature review and data mining to determine best practices for conducting Visitor Use Management research. Identify any similar studies that have already occurred.	ASU-SCRD	DBG, MCPRD, CoPPRD, municipalities, and tribal communities	2019
2.3.2	Identify desired conditions for resources and visitor experiences, select indicators and establish thresholds, compare and document the differences between existing and desired conditions, and identify visitor use management strategies and actions to achieve desired conditions.	ASU-SCRD	MSC, DBG, MCPRD, CoPPRD, USFS, BLM, municipalities, and tribal communities	2020-2022
2.3.3	Enable and assist park managers in monitoring to ensure thresholds are not exceeded and take appropriate management action based on documented conditions (adaptive management).	ASU-SCRD	MSC, DBG, MCPRD, CoPPRD, USFS, BLM, municipalities, and tribal communities	2022-
2.3.4	Conduct a training workshops on Visitor Use Management for park managers.	ASU-SCRD, MCPRD	MSC, DBG	2022-

OBJECTIVE 2.4

Identify best management practices and guidelines for wildlife and habitat restoration including climate change considerations such as drought in the Sonoran Desert region.

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.4.1	Create a "CAZCA Restoration Lab" to foster collective learning, resource sharing, training, and implementation support for Sonoran Desert restoration. An essential function of the Lab will be to identify and fill information gaps for best practices. Host quarterly speaker and workshop series to share restoration projects and challenges and elicit input from participants. Post information presented in the series and create a web-based forum for discussion and information sharing.	MSC, DBG	TNC, WTMC, MCPRD, CoPPRD, AGFD, BOAZ, ACNC-SOMO, AudAZ, ASP, USFS, MCFCD, ADOT, BLM, USFS, CNUW, ASU, municipalities, tribal communities, and any agency or department responsible for revegetation, restoration, or rehabilitation	*2017-
2.4.2	Support and coordinate communication and outreach of field research experiments designed to test techniques to improve knowledge and best practices of restoration and native plant materials propagation[4].	MSC, DBG	AGFD, AudAZ, WTMC, WERC, USGS, USFS, BLM, ACNC-SOMO, AAEE, SWSP	2018-
2.4.3	Conduct experiments designed to fill research gaps in best practices of restoration and native plant materials propagation in the region[4].	MSC, DBG	ASU, CNUW, WTMC, MCPRD, CoPPRD, AGFD, TNC, USGS, USFS, BLM, WERC, ACNC-SOMO, SWSP	2018-

* Implementation began as the strategy was being developed

OBJECTIVE 2.5

Ensure a reliable supply of genetically appropriate native plant material for restoration, revegetation, and other needs[5].

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.5.1	Assess the need for native plant materials regionally. Survey public land agencies and private entities to calculate long-term seed needs. These needs will include materials for restoration, catastrophic events, and urban infrastructure projects, etc.	DBG, MSC	PCA, AudAZ, SWSP	*2017-2018
2.5.2	Assess the capacity of private, public, and tribal producers to meet the need for native plant materials[6]. Inventory seed collections available for amplification and assess capacity for propagating local ecotypic seed and other materials in private and public sectors within our ecoregion.	DBG, MSC	PCA, SWSP	2018
2.5.3	Identify the key species to include in a propagation program. Select an initial set of 10-15 species within plant functional groups and plant community types. Consider future climate change scenarios and "prestoration" in selecting a robust seed mix. Create a database on plants, germination requirements, storage requirements, propagation techniques, etc. that will help practitioners select species mixes appropriate for their site and needs.	DBG, MSC, WERC	PCA, SER-SW Chapter, CNUW, AudAZ, MCPRD, MCFCD, ADOT, BLM, USFS, SWSP, municipalities, tribal communities, and any agency or department responsible for revegetation, restoration, or rehabilitation	2018
2.5.4	Develop and share existing tools that enable managers to make ecologically based decisions in selecting a seed mix or plant palette for ecological restoration, such as plant community composition maps, seed transfer zones[7], and the plant germination database described in Action 2.5.3.	DBG, MSC, WERC	PCA, SWSP	2018-
2.5.5	Develop project to collect and propagate local seed to meet regional need[8]. Analyze capacity and demand assessments and develop appropriate mechanisms to develop a propagation program incorporating existing resources. Possible programs may include a networked model, a collective, native seed farm, or catastrophic event seed bank.	DBG, BLM, WERC	TNC, CNUW, MCPRD, MCFCD, ADOT, AGFD, USFS, SWSP, municipalities, tribal communities, and any agency or department responsible for revegetation, restoration, or rehabilitation	2018-

* Implementation began as the strategy was being developed

OBJECTIVE 2.6

Identify best practices and enact a strategic plan for invasive, non-native species management in the Sonoran Desert region.

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.6.1	Identify high priority nonnative plants and animals for the region. Compile a list of invasive species occurrence in Maricopa County parks and preserves and prioritize species and areas to include in mapping, informational, and strategic efforts. Create a list of relevant regional and national invasive species programs[9].	DBG, MSC	SWVMA, CoPPRD, AudAZ, ASDM, ADOT, MCPRD, ADOT, AGFD, ASP, BLM, USFS, municipalities, regional fire depts., and tribal communities	2018-2019
2.6.2	Work with partners to set a standardized system for citizen science invasive species mapping and strategic efforts[10]. Consider the creation of a certification to streamline detection, treatment and monitoring activities, a set of minimum standards for control to simplify this process and maximize returns on the project investment in volunteer training.	DBG, MSC	CoPPRD, PMPC, MCPRD, ASU, ACNC-SOMO, AGFD, USFS, BLM, ASP, municipalities, and tribal communities	2018-2022
2.6.3	Post relevant information regarding invasive plant and animal management strategies for high priority species. Ensure that all partners can easily access and share information about management decisions, improve strategy efforts, and provide a single comprehensive method for inputting mapping and monitoring data[11].	DBG	MSC, AGFD, ACNC-SOMO, ASDM, PMPC, USFS, BLM, ASP, municipalities, and tribal communities	2018-
2.6.4	Conduct field research to improve knowledge of best practices. Identify gaps in best practice guidelines and develop studies to improve knowledge.	MSC	DBG, CoPPRD, MCPRD, ASDM, NPS- Saguaro, SWVMA, ACNCS-SOMO, USFS, BLM, ASP, municipalities, and tribal communities	2018-

Objective 2.6 – Continued on next page

OBJECTIVE 2.6 (Continued)

Identify best practices and enact a strategic plan for invasive, non-native species management in the Sonoran Desert region.

ACTION	DESCRIPTION	SUGGESTED LEAD ORGANIZATION(S)	OTHER PARTICIPANTS	TARGET YEARS
2.6.5	Create regional strategic plan for invasive, non-native plants and animals, including a contingency plan if prioritized invasive species eradication and control is not attainable[12]. To the extent possible, align with existing Arizona and U.S. efforts. There will be three major components of the regional strategic plan: • Management • Regional Collaboration • Legislative Action	DBG, MSC	All relevant local, state, and tribal land management agencies and departments, SWVMA, TNC, ACNC-SOMO	2019-2020
2.6.6	Work with partners to develop and implement park-specific action plans. In addition to the regional strategy, parks and preserves will also likely require invasive management plans. CAZCA will offer guidelines and support in this area.[13]	DBG, MSC	All relevant local, state, and tribal land management agencies and departments, SWVMA, TNC, ACNC-SOMO	2020-
2.6.7	Expand public understanding and increase awareness of how non-native invasive species impact natural resources, communities and economies. Leverage existing programs and events.[14]	DBG, MSC	ASDM, NPS-Saguaro, SWVMA, TNC, ACNC-SOMO, all relevant local, state, and tribal land management agencies and departments	2018-

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CAZCA
CENTRAL ARIZONA CONSERVATION ALLIANCE

DESERT
BOTANICAL
garden