The Benefits of Planting Native Desert Plant Species

Hengly Domingo Lopez
College of Intigrative Sciences and Art, Arizona State University, Polytechnic

Introduction

- Desert and arid environments have a lot to offer when it comes to horticulture.
- Desert plants provide many benefits to their surrounding environments as well as other organism within desert and arid ecosystems.

Objectives

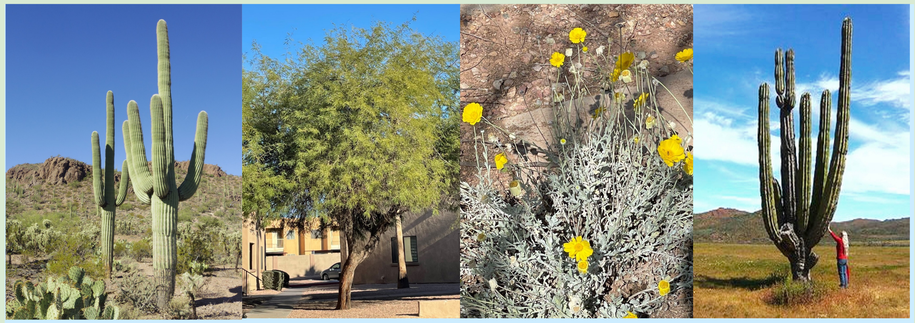
1. Review native desert plant species
2. Identify the benefits of native desert plants to water conservation, other plants, and their environments

Methodology

- Acquired scholarly articles through Google Scholar and ASU Library databases.
  - Key Words: keystone desert plant species, water conservation, drought tolerant/resistant.
- References where made in accordance to APA guidelines.

Results

Native desert plant species



Saguaro Cactus
- Sonoran Desert
- Keystone and endemic species
- Drought resistant

Mesquite Tree
- Supports establishment of Cardón Cactus

Desert Marigold
- Phytoreme-diation
- Drought tolerant

Mexican Giant Cardón
- Soil stabilization
- Soil erosion prevention

Fig 1. Four examples of native desert plant species (Bashan et al., 2009; Harvey, 2021; Yetman et al., 2020)

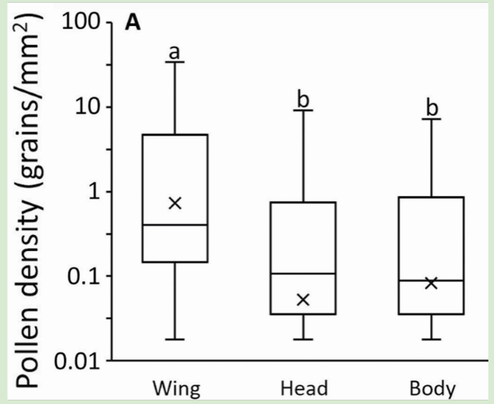
Benefits of native desert plants

Table 1. Tempe Program Overview Since 1992.

Category	Statistic
Number of Conversions	1,971
Total Square Feet of Turf Removed	4.6 million
Average Square Feet Removed Per Participant	2,400 sq. feet
Preliminary Water Savings Per Participant	8,000/80,000 gpy*

*gyp means gallons per year. *Adapted from MacSwain et al. (2013)*

Results



Antrozous pallidus, also known as the pallidus bat was found to consume nectar from *Agave lechuguilla* in the Chihuahuan Desert.

Fig 2. Pollen density on pallidus bats (Jaquish and Ammerman, 2021).

Conclusions

- Native desert plants species had desirable traits that allow them to thrive in desert climate
- Native desert plant species benefits conserving water and other native plant and animal species.

Literature Cited

- Bashan, Y., Salazar, B., Puente, M. E., Bacilio, M., & Linderman, R. (2009). Enhanced establishment and growth of giant Cardon cactus in an eroded field in the Sonoran desert using native legume trees as nurse plants aided by plant growth-promoting microorganisms and compost. *Biology and Fertility of Soils*, *45*(6), 585–594.
- Harvey, S. R. (2021). *Desert Marigold Arsenic Uptake and Phytoremediation Potential on Mine Tailings in the Eastern Mojave Desert* (Order No. 28263115). Available from ProQuest Dissertations & Theses Global. (2488602540).
- Jaquish, V. G., & Ammerman, L. K. (2021). *agave* flower visitation by pallid bats, *antrozous pallidus*, in the Chihuahuan Desert. *Journal of Mammalogy*, *102*(4), 1101–1109.
- MacSwain, D. M., Kraft, M. E., Dornbush, M. E., & Blaney, D. (2013). *Local Governments and Water Conservation: Case Studies in Lawn Conversion Programs* (Doctoral dissertation, University of Wisconsin-Green Bay).
- Yetman, D., Búrquez Alberto, Hultine, K., & Sanderson, M. (2020). *The Saguaro Cactus: A Natural History* (1st ed., Ser. Southwest Center Ser.). The University of Arizona Press.