OFFICE OF SUSTAINABILITY
CAMPUS SUSTAINABILITY FUND

Native Plant Gardens - Progress Report

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Project Manager Name
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Requested Metrics

Total number of gardens installed: 25
Total number of plants installed (across gardens): 606
Total number of students who assisted with the installations: 58
# of square feet of native garden installation: approximately 11,250
% change of heat and humidity: planted gardens demonstrated 15% lower temperatures and 6% higher soil moisture, on average, than non planted areas
# of outreach events conducted: 7
# of partnerships: 5 (Strategic Habitat Enhancements, Compost Cats, Students for Sustainability, Rainwater Harvesting class, Ecological Restoration Club)

Project Accomplishments

All proposed project objectives have been achieved, largely through the direction and efforts of local restoration partner Strategic Habitat Enhancements. We installed 25 native plant gardens in previously bare or invaded habitat across campus. The 606 plants we installed significantly enhanced the diversity of plants available for pollinators on campus. Plant species were specifically chosen due to the following characteristics: (1) native status; (2) robustness (i.e. rapid establishment); (3) low water user; (4) rapid root growth; and (5) flowering across a wide range of months in order to provide pollinator resources consistently across the calendar year.

We have engaged a large number of students from across campus in the installment of the gardens and signage at each garden extends knowledge transfer about the gardens to the viewer. All of the gardens could be considered a 'success' as they all maintained at least 80% survival (often more) of installed plants. Moreover, planted gardens demonstrated 15% lower temperatures and 6% higher soil moisture, on average, than non planted areas! We expect that these differences to increase through time as installed plants establish and grow both vertically and horizontally. This growth will continue to shade the sol surface, minimizing temperatures and soil moisture loss.

A second component of the project involved engagement of students with the gardens through events. To address this part of the project we deployed several activities. First, we hosted several events on campus at the gardens that were free for students, were often bilingual and were led by early career UA community members, including field technicians and artists. Events included seedball making, tours of the gardens, botanical illustration and zine making. We consider these events successful as students were engaged, excited and continued to show up at events across years. In addition, Strategic Habitat Enhancements made a very well-attended presentation at the

UA Herbarium (attendees were in person and online) as well as provided a lecture to Dr. Rachel Mitchell's Restoration Ecology class, with a follow-up field tour of some of the gardens.

The second activity we engaged in was creating and maintaining a freely available website that describes the gardens: https://pollinatorgardens.arizona.edu/. The website has information about each garden including number and types of plants installed, location and soil temperature and moisture measurements. This website will be maintained after the life of the grant and environmental data will be added as it is collected. QR codes leading to the website are listed on each garden's signage.

Lessons Learned:
When using a diverse suite of native plants, 100% success rate is not a realistic success goal. In general, there has been a 60-75% survivorship rate of the planted gardens, which is still an impressive increase of pollinator gardens and resources on campus.

This project was successful over the course of three years because it provided the opportunity to install 25 microsites through a process that allowed for iteration, tailoring to the sites, and monthly check in meetings between FM, Grounds and Built Env Architect to talk about palette and location planning, discussing challenges with sites. If we could do it over again, we would begin partner meetings from the beginning of the project.

Three collaborations with Grant McCormick's water harvesting class: Speech and Hearing, College of Nursing drainage, Math East. These were successful because of high student engagement as well as committed students. These installations were meaningful because students learned about how to capture and direct storm and rainwater and the larger picture of native plant installations. These help to foster collaboration and how to settle on a landscape and palette between multiple groups.

Next Steps

We will continue to monitor the gardens monthly for temperature for at least a year. Its likely that the Field Technician associated with the project, Albert Kline, will be the one collecting data on the gardens and uploading this data to the website. We will encourage analysis of the data by UA students in a variety of ways, including: (1) advertising opportunities to students to complete independent projects on the gardens; (2) running a VIP course associated with the gardens; (3) having SNRE classes tour the gardens; and (4) letting members of all SNRE student groups, including the Ecological Restoration club, Tierra Seca, and the Wildlife Society Club know that there are opportunities on campus to conduct maintenance of and collect data from native plant gardens.

Conversations with the UA arboretum result in the likelihood that the gardens will be (1) added to the on campus plant inventory list and (2) added to the regular arboretum campus tours. PI Gornish and Carianne Funicelli (Strategic Habitat Enhancements) provide talks to the public via the arboretum approximately once every other year – the gardens will be mentioned during these talks.

Finally, the permanent signage associated with the gardens will maintain a connection between the garden viewer and the website.

As additional funding is secured, Carianne Funicelli will continue to monitor the gardens, particularly the student-installed gardens and rainwater harvesting landscapes. She will assist with garden resuscitation in instances where gardens have high mortality rates.

FM will monitor gardens for their success and should there be plant die-off, they can replace plants. Plant replacement will be selected based on plant palette, location, and lessons-learned as to why a certain plant was not successful. However, the Gornish lab is always flush with extra native seed and in the absence of FM replacing lost or damaged plants, Gornish will seed in native seed of fast growing species into empty spaces to coincide with the monsoon. This should result in coverage of native plants in the gardens.

Challenges Faced

Working with FM, as you guys told us, have been challenging. FM was very receptive to monthly meetings and engagement across the life of the grant, which was helpful.

Student groups are great to work with, but they are dynamic. Leadership, engagement, capacity, and commitment changes within a student group or club over the course of a semester or year. Having back-up student groups and having back-up volunteers is critical to address the cadence of involvement.

Project Support

None