

Improving and Maintaining Grossmont Colleges Award-winning Native Plant Gardens and Coastal Sage Scrub Reserve Outdoor Classroom.

Six Native Plant Gardens:

It has been determined that out of the original 152 species planted with accompanying information signs, only 53 species could be found today. That is a 36% survival rate.

There are many reasons why plants die. This document makes recommendations on what to do about the plant death and how important it is to install more plants with signs.

It is also recommended that we purchase approximately 30 new signs with posts that will have the Common name, Latin binomial and Kumeyaay name on the plant signs. Included on the signs will be scannable QR codes that will take the observer to a webpage that gives information about the plants including Kumeyaay names and uses.

Finally, it is hoped that the improved gardens will become a site of interdisciplinary curriculum development as they relate to climate change, preserving natural habitats and species, encouraging knowledge about Kumeyaay uses and name of the plants and also stand as demonstration gardens for the public as we transition from water loving habitats to more native habitats which require less water, energy and pesticides and which also support native insects, birds, reptiles and mammals.

Summary of the evaluation of the Outdoor Nature Preserve classroom:

The Outdoor Nature Preserve classroom has some serious maintenance issues including trail improvement (for both safety and long-term management). Non-native plants such as palm trees need to be removed. A bridge needs to be built at the lowest portion of the reserve for safe travel along the trail. The trail also needs trimming to allow safe travel.

64 signs and 8 posts need to be purchased to update the information about the plants and animals within the reserve. Included on the signs will be scannable QR codes that will take the observer to a webpage that gives information about the plants including Kumeyaay names and uses.

Introduction:

Grossmont College's Award-winning Native Plant Gardens (NPG) are a unique resource that no other local college has. The sites of these gardens were once large lawns that required enormous amounts of water, energy, labor, equipment and herbicides to maintain in our arid region here in the South-west of the US. Converting these lawns into Native Gardens was proposed by Tim Flood, the former VP of administrative services at Grossmont College in 2012 (approximately). Tim reached out to the Biology and Earth Sciences departments for assistance in designing these gardens with the following goals:

- 1) Reduce water use/waste of tremendous amounts of water. With Climate Change resulting in less rainfall and hotter average temperatures, the amount of water needed to continue to maintain such large lawns is not only expensive and unsustainable, but unethical in this day and age. Hundreds of thousands of dollars have already been saved on water costs since the gardens were installed.

- 2) Integrate the gardens into curriculum. Many of the plants have signs that document the following information (example): Common name: (Black Sage); Scientific binomial (Salvia mellifera); and Kumeyaay name (Ixuii). The Earth Sciences department had several large boulders placed within the gardens representing the local geology. Both the departments of Biology and Earth Sciences utilize these gardens in their laboratory curriculum.

Other benefits of the garden are:

- 1) The gardens help meet the requirements of **AP 3260: Districtwide Sustainability Program:**

Climate and Sustainability mandate:

In accordance with State code and Executive order, the Grossmont-Cuyamaca Community College Districtwide Sustainability Program “provides guidance for achieving energy conservation, following sustainable building practices, and implementing physical-plant management best practices across the District.”

V. Grounds and Landscape Management:

Sustainable practices will be pursued in all matters of grounds and landscape management including optimization of water efficiency through the use of irrigation controls, low-water plants, and reclaimed water (where possible); reduction of quantity and improvement in quality of runoff; the elimination of aggressive invasive species from campus plants; minimization of the grounds-keeping waste stream; maximization of energy efficiency in grounds-keeping equipment; and habitat preservation within our campuses and their surrounding areas.

- 2) Curriculum development opportunities: Plants with known Kumeyaay names and uses can be emphasized for future inter-curricular opportunities. For instance students in Gender and Ethnic Studies or Sociology could study particular Kumeyaay uses of the plants as food, medicine, religion, tools, etc. The goal is to have on-going Professional Development opportunities for faculty to come together to create cross-disciplinary curriculum that discovers and highlights First-Nations people’s uses of the local native plants.
- 3) Reduced, energy, labor, equipment, and herbicide use. Lawns need to be mowed on a regular basis. This requires energy, labor, machinery, and the use of herbicides (to kill the ‘weeds’ in the lawns), and fertilizers. The Native Plant Gardens require much less water and only need to be trimmed back during the growing months. The gardens do not require lawnmowers, herbicides, with fertilizers, etc. Indeed, most of the plants are already adapted to our local climate.
- 4) Reduced grounds-keeping waste stream. Mowing lawns generates a lot of green waste. The native garden trimmings can be left in place to decompose naturally.
- 5) Reduce waste water run-off from campus. Lawn irrigation results in water run-off into surrounding canyons. This run-off further pollutes the surrounding canyons and ultimately, the San Diego River.
- 6) Inequities: Poorer neighborhoods and those with large numbers of people of color have low ‘Green-Space’ densities compared to richer and whiter communities. Neighborhoods with high Green-Space densities have been shown to lower stress and crime in those communities. Green spaces increase property values. Plants lower the heat factors for a community, making the sites more livable including lowering energy costs. Green spaces provide people with alternatives to their homes during heat waves. Green-Spaces provide playgrounds of wonderment for our unurbanized students.
- 7) Demonstration gardens for the public. The movement in urban landscaping (due to climate change and loss of native species) is to ‘wild’ the urban landscape by using local, native plants. Xeriscapes gardens (gardens that need little to no irrigation) are very popular these days, but it’s important to use plants that local insects, birds, reptiles and mammals can utilize as well. Not all xeriscape species are the same when it comes to providing resources to the local fauna.

- 8) Provide habitat: Converting high-resource use lawns (habitat deserts) into 'wild' gardens which provide habitat for native organisms.
- 9) Grossmont College has the opportunity to demonstrate responsible stewardship of its land and help California reduce its overall carbon production.

History:

Faculty members who helped design the gardens are Tim Cliffe, Michael Golden, Mark Goodman, Gary Jacobs, and Marit Evans-Layng. Six gardens with various plant associations were designed. Grossmont Contracted out to Native Plant Specialist Wes Hudson to determine the proper plants for each of the six gardens. Michael Golden worked with Wes in designing the plant signs and determining which plants would be signed. He also researched the latest taxonomic names for each plant as well as researched Kumeyaay names and uses at the Barona Cultural Center and Museum. Tim Cliff and others from the Earth Sciences department designed the geological part of the gardens by identifying large boulders that represent the historical geology of the area.

Much of the work converting the lawns to native plant plots was done by both inhouse facilities staff as well as contracted work by vendors.

Planting was conducted by out-side contractors. Ongoing maintenance is the responsibility of the grounds personal.

Overall State of the Gardens:

Many plants are dead or missing....many with plant signs.

Some of the gardens are overgrown with Flat-top Buckwheat. This has resulted in many other plants being overgrown and/or killed. These gardens need to be trimmed back allowing the plant signs to be read.

30 Signs with posts recommended to be purchased (quote: \$1724.50 July 2, 2021). I sent the quote to Bill M. July 19, 2021)

Unknown as of yet how many older posts need updated signs (missing plant, or wrong plant signed).

Signs with posts need to be purchased.

Need a vendor who can install posts.

Need to find a vendor who can plant new plantings.

Recommendations for gardens: In-house staff:

All gardens need regular maintenance:

Keep the garden growth under control. Plants need to be trimmed back each spring in order that all plants can receive the light then need. Especially needed is the trimming back of plants that are growing faster/bigger than the surrounding plants so they don't completely take over the garden like what has happened in the Coastal Sage Scrub garden. Plants also need to be trimmed back to expose the plant signs and to keep access to utility boxes, etc.

Recommendations for gardens: Outside vendor/contract:

All gardens have experienced plant death. One of the problems is that many of the plants with signs are now missing. They will either need to be re-planted at the original site of the sign, or planted someplace else within the garden complexes where they may do better (sign would have to be dug up and reinstalled). At this stage I am proposing 30 new signs (quote attached). We will need an outside vendor to install the 30 plant posts.

The missing plants will need to be purchased (need quote) and planting of missing plants (outside vendor will be needed).

Rocks/Geology: New rock signs will need to be purchased that can have QR codes added to them. When an observer scans the QR code, a Webpage will pop-up with information about that rock.

Future goals: Curriculum development:

New plant signs will need to be purchased that can have QR codes added to them. When an observer scans the QR code, a Webpage will pop-up with information about that rock. I hope to initiate annual profession development week activities to encourage inter-disciplinary participation between faculty of various departments to utilize the gardens into their curriculum.

Curriculum opportunities: All of the plants in the gardens were used by the Kumeyaay. Kumeyaay names and uses have been documented for many of the plants. Signs with the plant names and scannable QR code provide the observer the opportunity to learn more about the biology and ethnobotanical uses of the plants.

Assessment of the six Native Plant Gardens:

I. Evaluation of plant presence and overall health: BUTTERFLY GARDEN. West side of Library
Of the approximately 42 plants with signs initially planted, only 9 are still living. Four plant signs could not be located probably due to them being overgrown by other plants species.

This garden has the most losses.

Recommendations for improvement and maintenance of the Butterfly garden:

- 1) Need a native plant expert to evaluate the site for slope, drainage, and watering regimes to determine why so many plants perished. Outside vendor. \$.
- 2) Replant species that have signs if they are in an appropriate site for the particular species. Outside vendor. \$.
- 3) Perhaps introduce other plants that might do better at this site. Outside vendor. \$.
- 4) Significant plants missing: Local Milkweeds for the monarch butterfly. Outside vendor. \$.
- 5) Many plants need to be trimmed to expose the plant signs and to also allow room for other plant species. Inhouse-facilities.
- 6) Regular maintenance including trimming back and in some cases, removing plants that are over taking the garden. Inhouse-facilities.
- 7) Relocate some signs to sites that will better support the referred species. Outside Vendor. \$.
- 8) Need an informational sign for the garden (Titled with QR code which will take the reader to a website about the garden). Outside Vendor. \$. Need posts with signs (estimate included).
- 9) Rocks need to be exposed by cutting back plants. Inhouse-facilities.

II. Evaluation of plant presence and overall health: RIPARIAN GARDEN. North-side of the library.
Of the approximately 13 plants with signs initially planted, 9 are still living. Four plant signs and the referred species were not located. Overall, this site still looks good. One of the plant signs has been damaged (looks like it was 'weed-whacked').

Recommend to install 5 more signs with posts (Quote for posts and signs included).

Recommendations for improvement and maintenance of the RIPARIAN garden:

Continue trimming plants so there is good access to plant signage and the large rocks. Inhouse.

- 1) Need an informational sign for the garden (Titled with QR code which will take the reader to a website about the garden). Outside Vendor. \$(Estimate included).
- 2) Need a plant sign for the willow. Vendor.\$ (Estimate included).
- 3) Rocks need to be exposed by cutting back plants. Inhouse-facilities.

III. Evaluation of plant presence and overall health: CHAMISE GARDEN. NE Corner from Library across to main walkway.

Of the approximately 21 plants with signs initially planted, 4 are still living. 13 plant signs and the referred species were not located. Overall, this site still looks pretty good. A couple of species have been allowed to basically overtake this garden making it difficult to find plants and their plant signs. Many species are simply dead due to being overgrown.

Recommendations for improvement and maintenance of the CHAMISE garden:

- 1) The garden needs to be trimmed back with dead plants removed. Inhouse-facilities
- 2) There needs to be an informational sign with post and QR code that will take the reader to a webpage that will explain the history, importance and usage of these gardens. Vendor.\$ (Estimate included).
- 3) Several species need to be replanted as they should be able to grow at the site as long as other larger species are not allowed to overgrow the garden again. Inhouse/vendor.\$.
- 4) Rocks need to be exposed by cutting back plants. Inhouse-facilities.

IV. Evaluation of plant presence and overall health: MIXED CHAPARRAL: East side of library
Of the approximately 26 plants with signs initially planted, 10 are still living. 16 plant signs and the referred species were not located.

Recommendations for improvement and maintenance of the MIXED CHAPARRAL garden:

- 1) Trimming of the overgrowing plants in order for students and the public to be able access the highlighted plants and their corresponding signs. Inhouse-facilities.
- 5) Need identification and signage for the various ceanothus species (some of which are locally rare or endemic). Vendor.\$ (Estimate included).
- 2) Reintroduction of plants that have died but which still have plant signs in place. Vendor. \$.
- 3) Rocks need to be exposed by cutting back plants. Inhouse-facilities.

V. Evaluation of plant presence and overall health: OAK WOODLAND: Mid-east side of Library across sidewalk. This site is user friendly in that it has several places people can sit and enjoy the garden. Indeed, there is a wonderful glass mosaic of an Oak leaf one can view from the higher cement benches.
Of the approximately 19 plants with signs initially planted, 14 are still living. 3 plant signs and the referred species were not located.

Overall, this site still looks good. Some species are dead. (particularly the Black Oak-needs to be replaced). The Engelmann Oak looks great! Also this is a site that has a glass mosaic of an oak leaf.

Recommendations for improvement and maintenance of the OAK WOODLAND garden:

- 1) Plant another Back Oak as it was very significant to the Kumeyaay. Plant other significant species important tot eh Kumeyaay (as yet to be determined due to funding).
- 2) Plants need to be cut back for better access to the Oak Leaf and the benches.
- 3) Informational post: One for information about the Oak garden and several to highlight the botanical information and Kumeyaay uses of the plants.

VI. Evaluation of plant presence and overall health: COASTAL SAGE SCRUB (southern end of gardens near Student café):

Of the approximately 24 plants with signs initially planted, 8 are still living. 12 plant signs and the referred species were not located.

Recommendations for improvement and maintenance of the COASTAL SAGE SCRUB garden:

Overall, this site still looks a mess. A couple of species have been basically overtake this garden making it difficult to find plants and their plant signs. Many species are simply dead due to being overgrown. This is

often the first garden people encounter as they walk up from the quad or the cafeteria. Many signs and utility boxes are either obscured, or very difficult to access.

- 1) A few species (mostly flat-top buckwheat) have been overgrown the garden, resulting in the loss of many other species. Plant signs and utility boxes are also obscured by these few species. Several plants need to be removed and dead plant material needs to be removed as well. Inhouse-facilities.
- 2) Signs need to be accessible and not obscured by plants. Inhouse-facilities.
- 3) Replace the 16 plants killed due to being overgrown. Vendor.\$ (Estimate included).

Assessment of Outdoor Nature Preserve classroom:

- 1) Trail needs water bars. Spoke with both Loren and Shawn about getting this work done. Will need an outside vendor.
- 2) Trail needs trimming, especially at the bottom of the drainage. Facilities can take care of this as they do every year.
- 3) Some sort of Bridge will eventually need to be built to safely cross the lowest point in the drainage. Outside Vendor.
- 4) The fence at the lower property boundary within the reserve is damaged and needs to be replaced. Outside Vendor.
- 5) Palm trees need to be removed from the drainage at the bottom (Outside Vendor.): Facilities can trim back the palms but we will need a vendor to remove the palms.
- 6) A sign needs to be posted alerting people who enter the canyon that there are critter-cams (cameras) in the reserve: I have been asking for this for several years. Inhouse staff.
- 7) 64 Signs without posts need to be purchased (quote: \$1693.60 June 16, 2021). I sent the quote to Sharon on July 19, 2021. This is to update incorrect/old signage.
- 8) 8 posts need to be purchased. They will have QR codes that will take them to a webpage that informs the reader about different aspects of the reserve and basic plant ecology.