

# SACRAMENTO SISTER CITIES FRIENDSHIP GARDEN

*expressing regional diversity through plant locality*



**IQRA ANWAR** 2013 Senior Project



# SACRAMENTO SISTER CITIES FRIENDSHIP GARDEN

*expressing regional diversity through plant locality*



Presented to the faculty of the landscape architecture program  
at the University of California, Davis

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A handwritten signature in cursive script that reads "Chris Lewis".

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# Abstract

Sister Cities International is a nonprofit organization that focuses on creating peace worldwide through the understanding and respect of different cultures. A method of achieving this includes the creation of friendship gardens. By featuring plants originating from different regions in one place, friendship gardens can help reflect the diversity of fellow sister cities and signify a cooperative relationship between different countries. The Sacramento Sister Cities Council is building a friendship garden in dedication to its ten sister cities. However, unlike most friendship gardens, this garden will not feature plants from different locations, but will rely solely on the use of California natives in representing its sister cities. This project explores how to express the diversity of various cultures worldwide through a localized plant palette. By researching the climates, geographies, planting communities, and dominate gardening styles found in Sacramento's sister cities, cities were grouped into generalized categories based on similarities. These categories lend themselves to direct comparison with California's own distinct planting communities. As a result, plants were selected from the best fit regions of California and laid out in a way that mimicked the gardening styles of the different regions. Ultimately, this project demonstrates the ability to describe different places through limited materials.

# Dedication

To my Parents, Brothers, and Sisters  
For their tremendous love and support for me and my aspirations.

# Acknowledgments

To my committee members, Elizabeth Boults, Patricia Daugherty, and Chris Lewis  
For their constant encouragement, insight, and patience in working with me.

To Gayle Totton  
For listening to my worries and understanding them. Ultimately calming them.

To my classmates  
For their firm belief in me and my capabilities.

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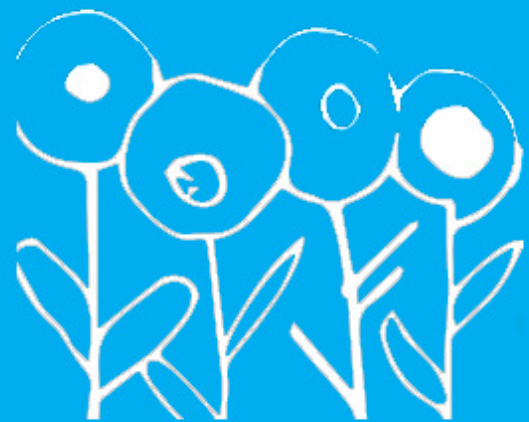
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# INTRODUCTION

*"The dedication of a garden... as a symbol of the friendship between our two countries. In a few months, I'll be leaving...but the garden, and all it represents, will remain, to be nurtured and sustained by...friendship"*

*Ronald Reagan*

# Introduction

Sister Cities International is a nonprofit organization that focuses on creating peace worldwide through the understanding and respect of different cultures. A variety of methods are used including the creation of “friendship gardens” which use a diversity of plants originating from different regions to help reflect fellow sister cities.

In 2012, the Sacramento Sister Cities Council and Sacramento’s Friendship Force, a fellow nonprofit organization committed to furthering international peace, made an initiative to plant ten trees originating from Sacramento or one of Sacramento’s nine sister cities: Bethlehem, Palestine; Chisinau, Moldova; Hamilton, New

Zealand; Jinan, China; Liestal, Switzerland; Manila and Pasay City, Philippines; Matsuyama, Japan; San Juan de Oriente, Nicaragua; and Yongsan-gu, South Korea. The gesture of planting these trees was simple. The trees would help symbolize Sacramento’s relationship with its fellow sister cities.



**Figure 1** Major Nonprofit Organizations supporting the Sacramento Sister Cities Friendship Garden.

Months after the trees were planted, Sacramento welcomed its 10th sister city Ashkelon, Israel.

With the addition of another sister city, the realization of having to expand the grove of trees to include future sister cities became evident. Slowly, talks about creating a more prominent face for the organization grew, as did desires for a more usable place from which both local and global visitors could benefit, a place that described the diversity of the different sister cities of Sacramento, yet demonstrated their interconnectedness. The result of this vision became the Sacramento's Sister Cities Friendship Garden.

### Project Goals and Requirements

Friendship gardens typically feature plants that originate from different regions. These plants help reflect the diversity and coming together of fellow sister cities. With this said, the Sacramento's Sister Cities Council has requested that the garden's planting palette be limited to California native plants.

Thus the intent of this project is to explore methods of

using California native plants in not only harmonizing with the distinctive sister city trees, but also in expressing the diversity of the places that the trees come from while meeting client needs. Requirements given by the client include using relatively drought tolerant California native plants and sustainable irrigation practices. Minimizing the overall maintenance and material costs of the project are also important, considering that the majority of the gardening will be done on a volunteer basis. Materials have to either be donated or fund-raised.



**Figure 2** Sacramento Sister City Council members in the garden.

Finally, incorporating an entertainment area, seating options, and decomposed granite paths are required; creating pollinator habitats, a year-round blooming plan, and signage describing the different sister cities and planting communities are recommended.

### Final Products

The final products required by the client include a finalized hardscape, irrigation, and planting plan, along with a cost estimate of the total materials and labor costs.





**Figure 3** A variety of trees planted in the garden to represent Sacramento's Sister Cities and Friendship Force. 1. Willow; Jina, China 2. Japanese Cherry Blossom; Matsuyama, Japan 3. Rose of Sharon; Yongsan, Korea 4. Olive Tree; Bethlehem, Palestine 5. Valley Oak; Sacramento, California 6. Camphor Tree; Manila/ Pasay City, Philippines 7. Pacific Madrone; San Juan de Oriente, Nicaragua 8. Canary Island Pine; Hamilton, New Zealand 9. English Oak; Chisinau, Moldova 10. Linden Tree ; Liestal, Switzerland





# RESEARCH

*"California embraces nearly 160,000 square miles - imagine 160,000 square miles of California set in a garden that can be walked in a day"*

*Tilden Regional Park Botanical Garden*

# Research

## **California Native Planting Communities**

The presence of varying topography and numerous micro-climates makes California one of the world's most diverse places, both geographically and botanically. With this said, California as a whole can be broken down into several regions that consist of similar geography and climate conditions, and more particularly, distinct planting communities.

The Mediterranean climate communities in California occur in the foothills and typically experience wet winters and springs, and hot dry summers and falls. These planting communities include “grasslands, chaparral, coastal sage scrub, and oak and mixed- evergreen woodlands” (Keator, 2007). Meanwhile the coastal fog belt is more cool and

humid in the summer making it home to coastal scrub, red wood, pine, and cypress forests, coastal dunes, and coastal bluff planting communities. Mixed conifer and aspen forests, montane chaparrals and meadows, and alpine fields are characteristic to mountain continental climates; cold and snowy winters, followed by short springs and summers. Desert climates experience very hot temperatures for prolonged periods of time and consist largely of juniper woodlands, creosote bush and sagebrush scrub, desert washes, desert oases, and cactus-succulent scrubs.

There are also some planting communities that are based on soil type and water availability. These include riparian woodlands, wetlands, marshes, and bogs which

are home to many mosses, ferns, and orchids (Keator, 2007). Finally while there are many distinct planting communities in California, there are also areas which feature an overlap and mix of planting communities.

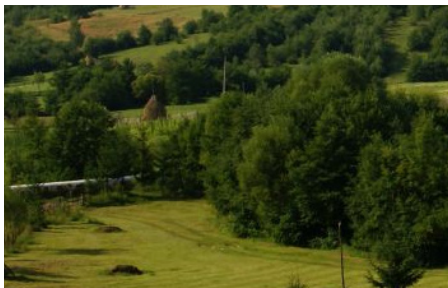
### International Planting Communities

Similarly, different sister cities can be grouped together by their similar geographic locations and climates in order to determine similar planting communities.

The cities of Jinan, China; Matsuyama, Japan; and Yong-san-gu, South Korea are all located in east Asia and tend to experience either temperate climates, with cold winters and warm summers, or subtropical climates with the majority of the rainfall occurring during the summer versus the winter. Furthermore, all three of the cities reside within or near a foothill/ mountaneous area and are home to temperate mixed forests ranging from “evergreen to deciduous broad-leafed forests, with dense shrubs, bamboo, and herbs” (Plant Life Asia Flora, 2013).



**Figure 4** Examples of diverse California planting communities.



**Figure 5** Examples of different International planting communities.

Likewise the cities of Ashkelon, Israel and Bethlehem, Palestine can also be compared for similarities. Both cities experience Mediterranean climates and receive coastal influences from the Mediterranean Sea. While Ashkelon, Israel resides in a coastal plain characterized by sandy soil, it is neighbored by a “soft” mountainous area where Bethlehem, Palestine is located. In effect, planting communities, including various shrublands, savannas, woodlands, and desert areas featuring wildflowers, tend to overlap and border one another (Elliman, 2001).

Manila and Pasay City, Philippines and San Juan de Oriente, Nicaragua both have tropical climates as they occur on the same latitudinal plane and receive heavy influences from the surrounding bodies of water. The constant temperature year round, and distinct dry season and lengthy wet season, means the two cities share similar planting communities including a mixture of tropical forests, orchids, and many other flowering species. Meanwhile, Hamilton, New Zealand can also be compared

with the Philippines and Nicaragua in the sense that New Zealand is an island that also experiences heavy influences from the surrounding water body. While conditions throughout New Zealand vary depending on the location, the city of Hamilton happens to feature a subtropical climate, with a distinguished dry and wet season, heavy rains, and swampy lands. These conditions make New Zealand home to many fern and liverwort communities which are often found in more tropical areas (Countries of the World; Nicaragua; Philippines; New Zealand, 2013).

The cities of Liestal, Switzerland and Chisinau, Moldova are both located in Europe along the same latitudinal plane and experience relatively cooler winters and warmer summers. However, Liestal, Switzerland is located in a more mountainous area and consists of an alpine climate which favors a mix of both deciduous and coniferous forests, along with shrubs. On the other hand, Chisinau, Moldova features a combination of flat lands surrounded by hilly areas which serve as transitional areas between grasslands,

shrublands, woodlands, and mixed forests. The climate is also more continental, and is characterized by not only cooler winters and warmer summers, but the lack of rainfall (Countries of the World; Moldova; Switzerland, 2013).

When generalized, plants found in Sacramento's sister cities can relate not only to each other, but potentially to the planting communities found in California. However, it must be noted that not all planting communities are found in California, for example consider the sister cities residing in tropical areas. Therefore the garden must become an interpretive area that uses not only the combination of colors, textures, and geometries of plants, but also the concept of spatial organization as a method of describing different places.

### **Garden Design**

Creating an interpretive area requires exploring re-occurring garden styles and themes that had been or currently are inherent to the planting cultures of

of various sister cities. In doing so one can note how essential elements such as hardscape and water are used in various garden designs.

Many East Asian gardens including Chinese, Japanese, and Korean gardens share a combination of using dry elements such as rocks, wandering water bodies and pathways, along with intricate architectural elements in their designs: windows, gates, and bridges. Very often, these gardens also feature an asymmetrical composition that is simple, unforced, and in harmony with nature (Schenker, 2009).

The majority of Middle Eastern gardens in areas near Israel and Palestine, historically emphasize the use of clean lines, geometry, patterns, particularly tiled mosaics, and vibrant colors. The presence of shade and water elements as central features are also stressed in garden design, as these features are often viewed as scarce in dry areas. The

gardens are usually private, hidden behind walls, and seen as oases (Schenker, 2009).

Similarly, tropical gardens also emphasize the importance of using vibrant colors, shade, and water elements. Plants are typically laid out in a dense fashion, and the garden is used to emphasize indigenous cultural elements which vary from region to region (Loraine, n.d.). In European countries such as Moldova and Switzerland, gardens vary from each other, but share some commonalities in regards to cleanliness and simplicity in the use of planting and materials. Gardens are typically seen as formal and/or functional and can feature a combination of flowers, herbs, and food (Weilacher, 2012).



**Figure 6** The most common elements found amongst the different garden styles.





**Figure 7** The different garden styles found amongst Sacramento's Sister Cities.

While the gardening styles amongst the sister cities differ, there are some similarities between the elements found in each garden, as demonstrated through Figure 3. The most common element found between all of the different garden styles is that of water. Although the requirements of the project include using drought tolerant plants and sustain-

able irrigation practices, methods of including this element are explored later within the design process.

## Case Studies

In order to best understand and compare the natural planting communities which occur in California with the ones that occur in the various sister cities around the world, research along with site visits to two botanical gardens were conducted.

### **Tilden Regional Park Botanic Garden**

Tilden Regional Park Botanic Garden, located in Berkeley California, is an exclusively California native garden which was established in 1940. The garden is composed of 10 acres and features all of the plant communities found throughout California. The garden is broken down into 11 sections which are represented with color labels and a corresponding color map of the state of California. These sections are

an interpretation and grouping of California planting communities including Southern California, Shasta-Klamath, Valley-Foothill, Santa Lucia, Channel Islands, Sierran, Redwood, Sea Bluff, Pacific Rain Forest, Franciscan, and Canyon.



**Figure 8** Dominant Planting Communities of California mapped into sections.

Some of the great qualities of this park is that it includes features such as a central water element throughout the entire site, and flowers that bloom every month of the year; characteristics which were either noted as important for many of the garden styles of Sacramento's sister cities or desirable to the client. Having color coded labels also allowed for a quick visualization and comparison of the different planting communities found in California.

- 0 Southern California Desert Section
- 1 Valley-Foothill Section
- 2 Santa Lucia Section
- 3 Channel Islands Section
- 4 Franciscan Section
- 5 Pacific Rain Forest Section
- 6 Sierran Section
- 7 Redwood Section
- 8 Sea Bluff Section
- 9 Shasta-Klamath Section

Another positive quality included the fact that while the garden is owned and operated by the East Bay Regional Park District, a public agency, it is supported entirely by the labor efforts and funds, of roughly 100 volunteers (Regional Parks Botanic Garden) Similarly, while residing on public park property, the Sacramento Sister

Cities Friendship Garden will be maintained through the efforts of volunteers and raised funds.

Finally, part of the garden's mission statement is to educate the public and promote them to use California native plants. This is achieved through a combination of information including the plants themselves, labels marking both scientific and common names, along with maps, brochures, and a website with more information.

### UC Berkeley Botanic Garden

In contrast to Tilden Regional Park Botanical Garden, the UC Berkeley Botanic Garden was originally established in 1890 as a California native garden; over time as it began to expand it was moved to a new location in 1920 and began to feature plants from regions across the globe. The current location is now comprised of 34 acres and features plants from every continent. The garden is divided by geographical

regions including, Australia, California, North America, Mediterranean, Mexico/Central America, New World Desert, South America, and South Africa.

The UC Berkeley Botanical Garden Guidelines places heavy emphasize on organizing its plants by geographical origins, so that the native habitats are properly demonstrated (UC Berkeley Botanical Garden). Hence, while the site held many differences in comparison to the Sacramento Sister City Friendship Garden, considering its large size and use of non-native plants, the general planting styles of the different regions came through.

The sections which were explored were the most relevant to Sacramento's Sister Cities including the Asia, Australasian, Mediterranean, and South American geographic areas, along with the rose and herb garden, which featured plants from Europe.

The Asia section featured primarily green trees and

shrubs, with a few colorful blooming plants, which were placed sparsely throughout the site. The section also featured a creek of water running through it along with spontaneously placed large rocks. The Australasian section featured more low growing evergreen shrubs, along with green and yellow grasses. The plants appeared to be more compact and dense. Similarly, the South American section featured the most dense amount of planting material. The Mediterranean Section featured colorful shrubs, annuals, and grasses from three different regions including Europe, Africa and Asia. Finally the rose and herb garden also featured plants from Europe and the Mediterranean. However, unlike the other sections, these plants were laid out in a very functional manner.



**Figure 9** Commonly shared features throughout Tilden Regional Park and UC Berkeley Botanical Garden, included the use of color coded labels, central water and rock elements, and flowering plants.

## Research Findings

While the different sister city regions have both similarities and differences in their planting communities and gardening styles, a single garden can contain several planting communities and/or styles. The key is to group plants together by similarities. Water and drainage requirements are essential when incorporating existing trees so that the understory and surrounding plant materials are similar to the tree's natural planting community.

(Middlebrook, 2007). By selecting California native plants from similar planting communities as the trees themselves, one can create a compatible garden. Finally, a combination of different gardening styles is also possible through conscious planting design that does not overwhelm the visitor. Understanding which plant communities and styles complement each other are essential in creating a compatible garden.

## Applying Research

Sacramento's sister cities can be generalized into four broad categories based on similarities between climates, geographies, planting communities, and dominate gardening styles (Figure 7).

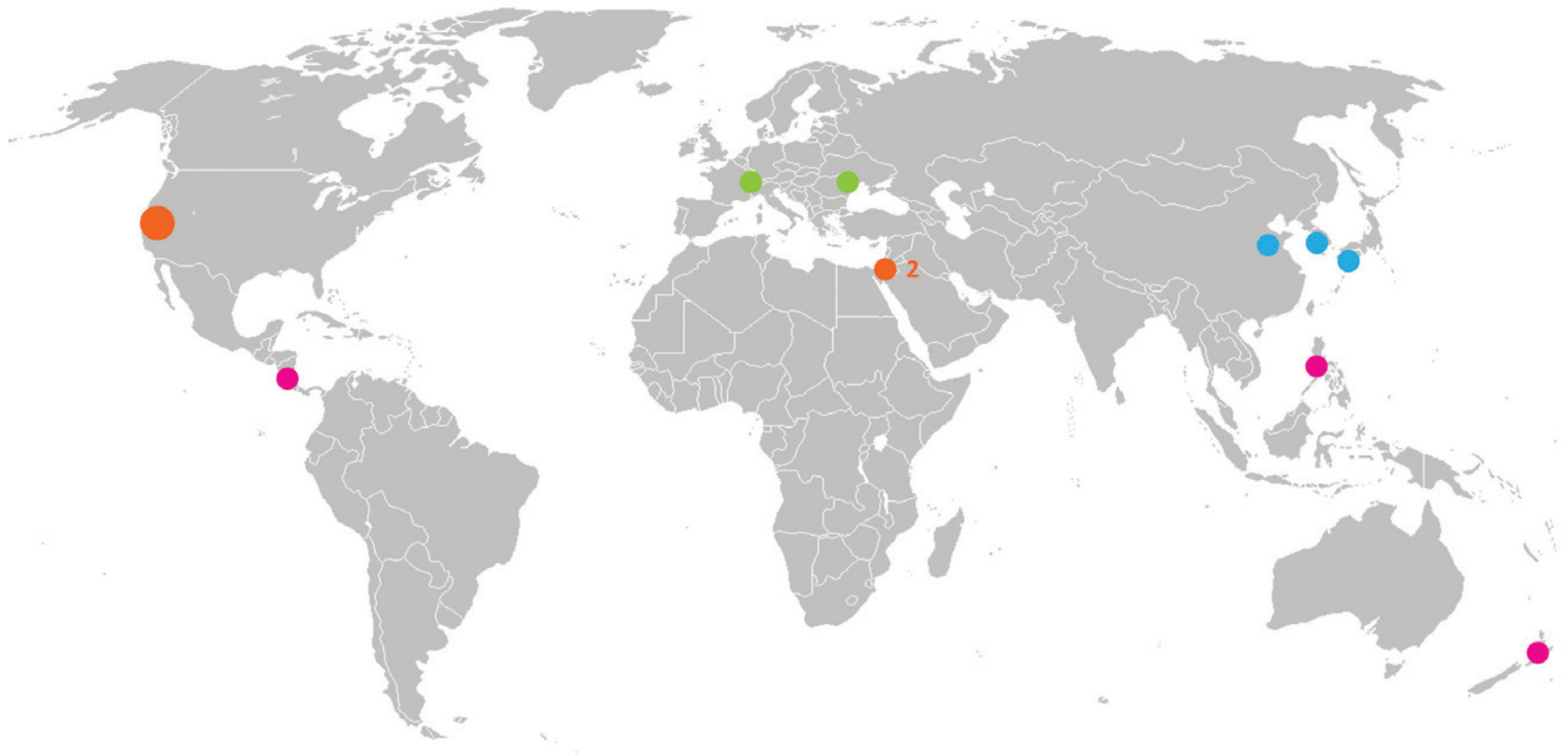
**Asian** - Jinan, China; Matsuyama, Japan; Yongsan-gu, South Korea

**Mediterranean** - Ashkelon, Israel; Bethlehem, Palestine

**Tropical** - Hamilton, New Zealand; Manila and Pasay City, Philippines; San Juan de Oriente, Nicaragua

**European** - Chisinau, Moldova; Liestal, Switzerland

These categories can then be compared with California's own distinct planting communities (Figure 8) and as a result, plants from the best fit regions of California can be selected based on site conditions and client requirements, which include using a majority of plants that are both drought and heat tolerant.



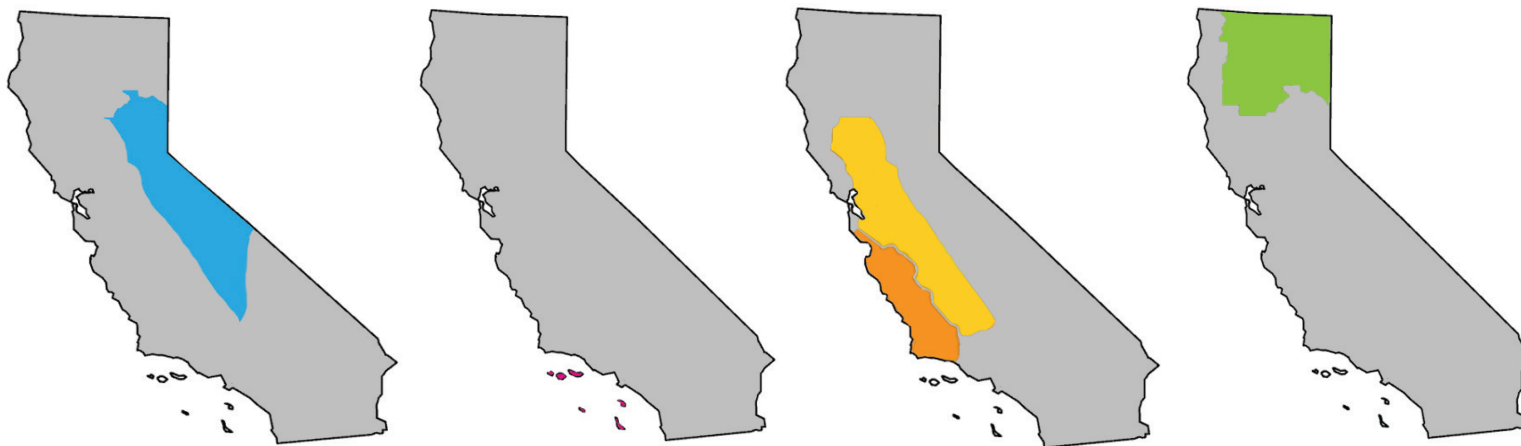
**Figure 10** Sister Cities mapped worldwide based on generalization of similar climates, plants, and garden styles.

**Sierran Section** of California, consists of mountain meadows and evergreen forests planting communities which relate most to the Asian category of sister cities.

**Channel Island Section** of California consist of chaparral planting communities which relate most to the Tropical category of sister cities.

**Valley Foothill and Santa Lucia Sections** of California, consist of grassland, meadow, and chaparral planting communities which relate most to the Mediterranean category of sister cities.

**Shasta Klamath Section** of California consists of a mix of grassland, meadow and evergreen forests planting communities which relate most to the European category of sister cities.



**Figure 11** California planting community regions most related to categories of sister cities.





**Figure 12** Diversity of plant materials derived from different California Native planting communities.



# SITE ANALYSIS

*"Simple solutions seldom are. It takes a very unusual mind to undertake analysis of the obvious"*

*Alfred North Whitehead*

# Site Analysis

## The Site

Sacramento Sister Cities Friendship Garden is located in a community park in South Natomas, Sacramento. This park is highly used and maintained by both the surrounding community and parks department. It is located next to a library and community center, between two playgrounds, and across from a rose garden. Two elementary schools are also in close proximity to the site. The site is fairly well used by a variety of users ranging anywhere from children, teenagers, adults, to the elderly.



Figure 13 Site location and context map, South Natomas Community Park

### Existing Conditions

Currently the garden consists of the ten trees which were planted to represent Sacramento's Sister Cities and Friendship Force. The site itself is a shallow swale, which is currently over taken by weeds. The site receives a lot of sunlight exposure with the exception of a little shade coming in from previously planted trees including two london plane trees and an adjacent grove of bradford pears. Moreover, the site is accessible from two adjacent sidewalks, and an informal dirt path that was originally created by the users on site as an informal short cut.

### Opportunities and Constraints

Opportunities and constraints for this site include its location. While the location is public and assessable, there are concerns of children running into the garden from neighboring playgrounds which can potentially bring up liability issues. While the garden is being located in the park, it will not be maintained or regulated by park staff.

Moreover, with the location of the garden being across from an existing rose garden that is highly maintained and funded, the garden may appear to be overshadowed, or even in competition for attention. However, this may also serve as an opportunity, considering that many people are already drawn to the site. Another opportunity is that many people are uninformed about friendship gardens and California native plants, which may be beneficial for the garden as it can become an educational area, increasing its dimensionality. With this said, the largest constraint thus far is that of funding and maintenance, both of which will be limited.



**Figure 14** Sacramento Sister City Friendship Garden Site



**Figure 15** Adjacent areas include the library, playground, picnic shelter, and rose garden. Current site conditions include a weedy site, adjacent grove of Bradford pears, and highly used informal dirt path.

## Site Analysis

The garden experiences a fair amount of pedestrian traffic from all adjacent areas, suggesting that the garden should feature multiple entrances in response to the different access points. The garden is also exposed to a lot of direct sunlight which is most ideal for sun loving plants. However as the sister city trees mature into their full growth the site will be come fairly shaded. Therefore incorporating a mixture of

plants including those that can do well in part shade may be most beneficial for the site in the long term.

Furthermore when mapping the location of existing sister city trees, it was found that the trees of similar categories were planted near one another, making the idea of breaking down the garden into planting zones in order to express the different regions possible.

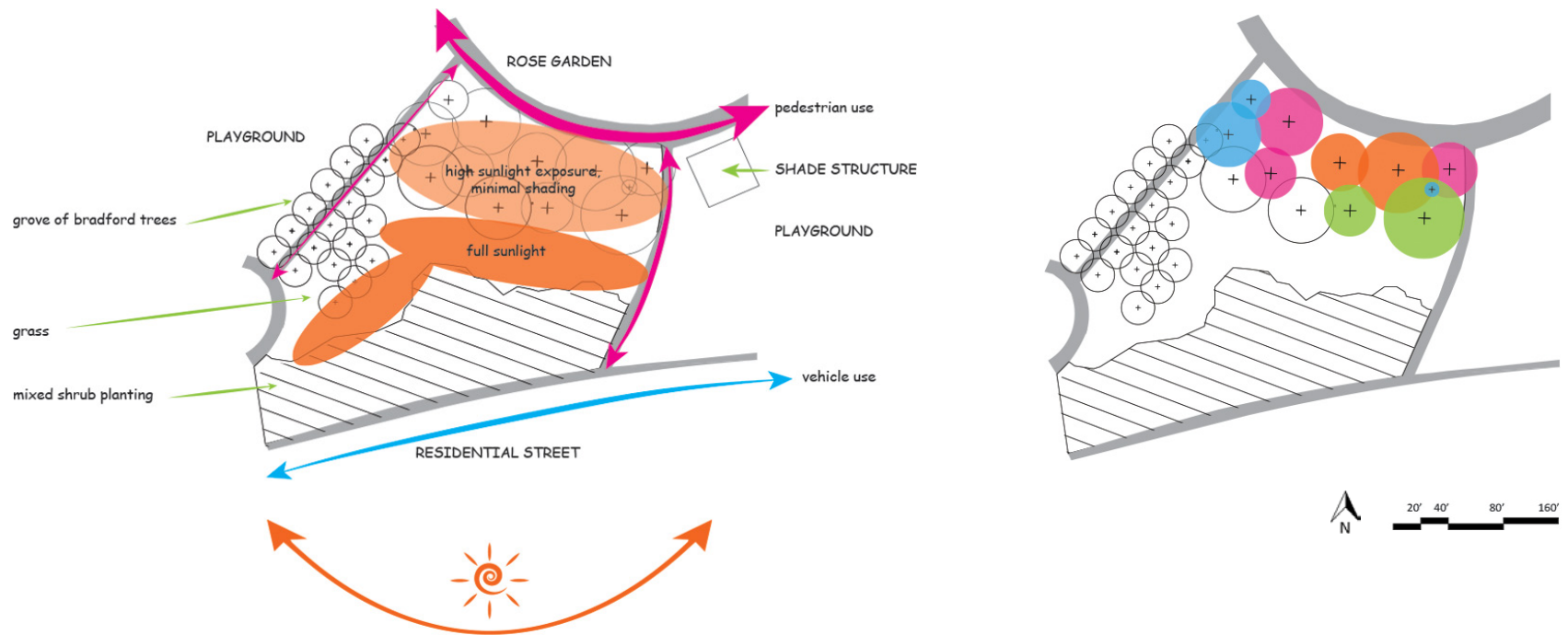
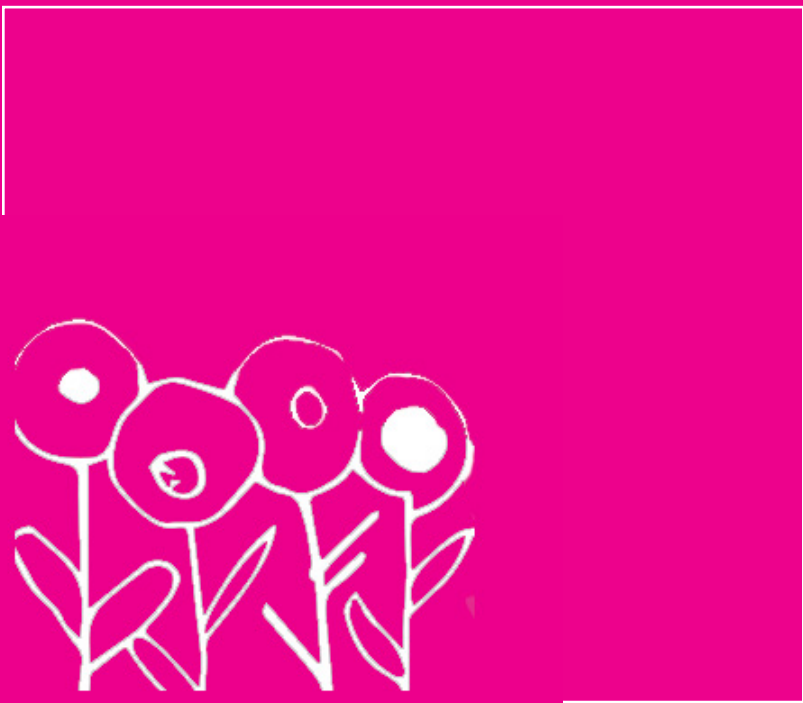


Figure 16 Analysis of Existing Conditions

Figure 17 Trees from the same categories were generally planted next to each other, creating potential zones within the garden.





# DESIGN

*"Marrying cultural and ecological appropriateness can be a challenge, but that is part of the pleasure of garden design"*

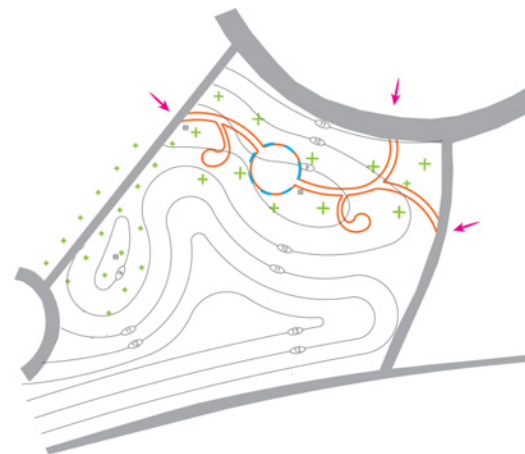
*Alrie Middlebrook*

# Design

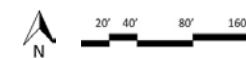
## Hardscape Materials

Creating the layout for the garden began with the client's request for an entertainment area. This was achieved by mapping potential entertainment sites and then choosing the largest area which gave the least amount of disturbance to the existing trees. After choosing the loca-

tion of the entertainment area, entrances to the garden were marked based on dominant circulation patterns. Next, a walkway through the trees was created connecting the entertainment area with the surrounding entrance points. The walkway then diverged to include two



**Figure 18a** Design process diagrams locating entertainment area, entrance and circulation through the garden.



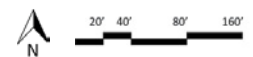
smaller semi-private seating areas. Finally using decomposed granite for the pathway was determined based on client specifications.

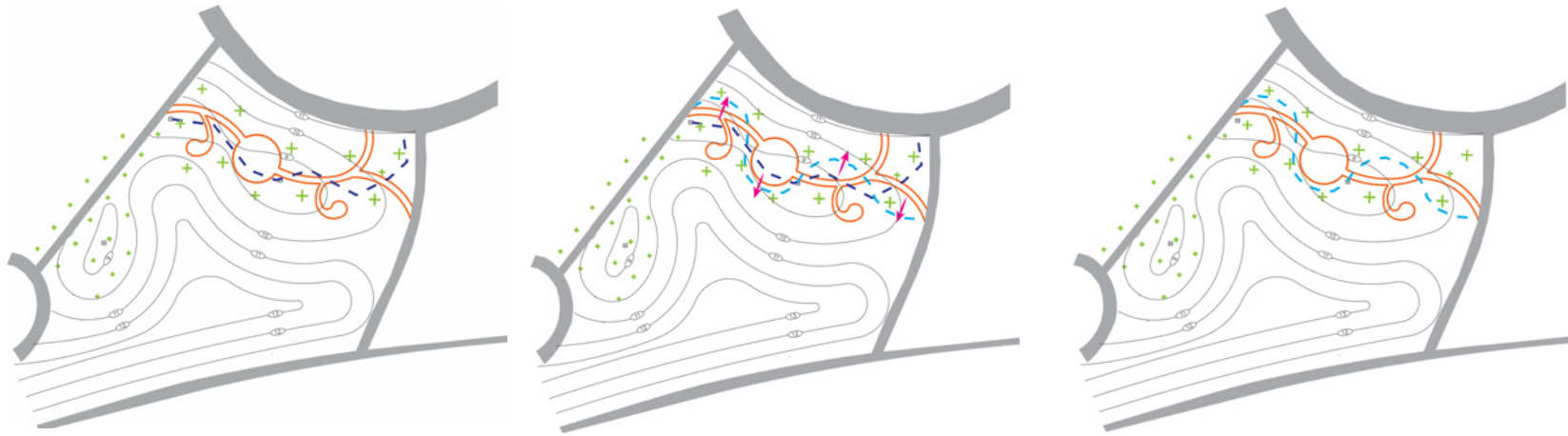
With water being the most common element found between all of the different garden styles of the sister cities, the use of a dry creek was proposed, considering that the

requirements of the project included using sustainable irrigation processes. The location for a dry creek running through the site as a central focal point was determined, based on the natural drainage through the site and the most desirable location of the creek. The creek was then expanded in order to avoid conflict with the proposed pathway.



**Figure 18b** Design process diagrams locating dry creek through the garden.

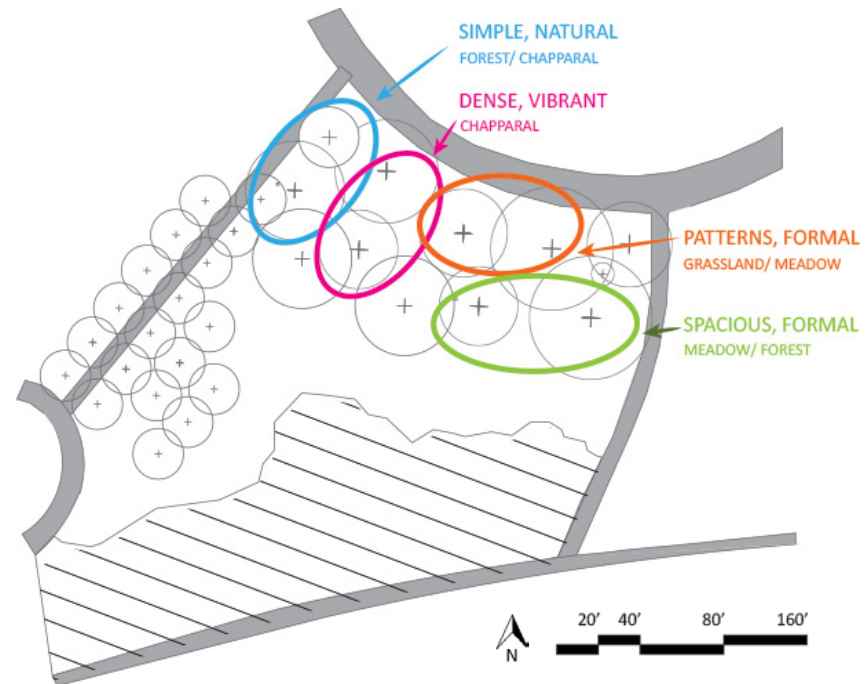




**Figure 18c** Continued design process diagrams locating dry creek and avoiding conflict with pathway.

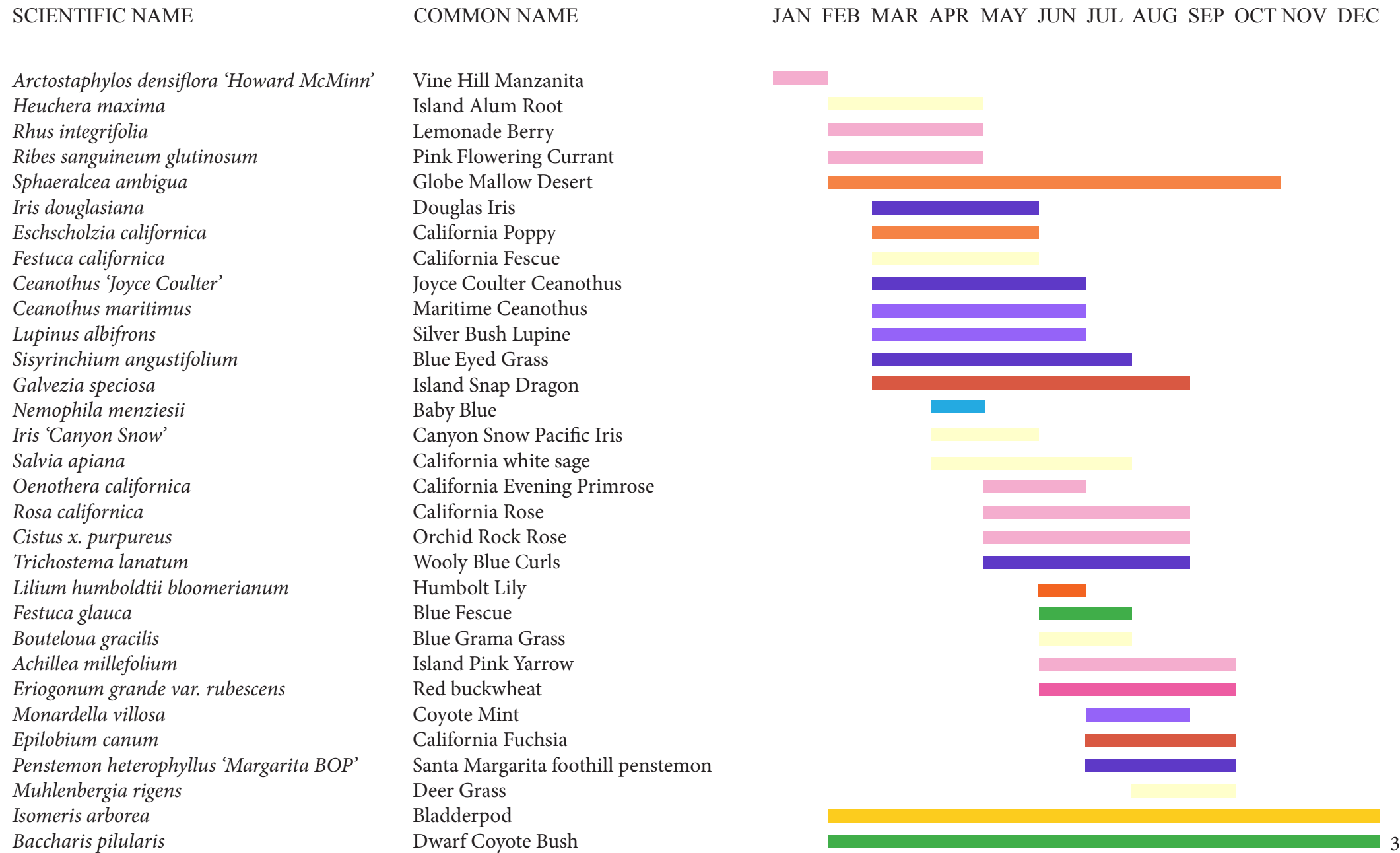
### Planting Materials

After determining the garden layout, the garden was broken down into zones in regards to the most relevant planting communities and gardening styles pertaining to the existing trees. The plants which were chosen from these planting communities consisted of relatively low water use and sun loving plants. Plants were also selected to create a year-round blooming plan, and for attracting pollinators such as bees, butterflies, hummingbirds, and other beneficial insects.



**Figure 19** Concept diagram of planting layout.

Figure 20 Plant list and seasonal bloom chart



Planting Plan



Figure 21 Illustrative Planting Plan  
Figure 22 Planting zones within the garden

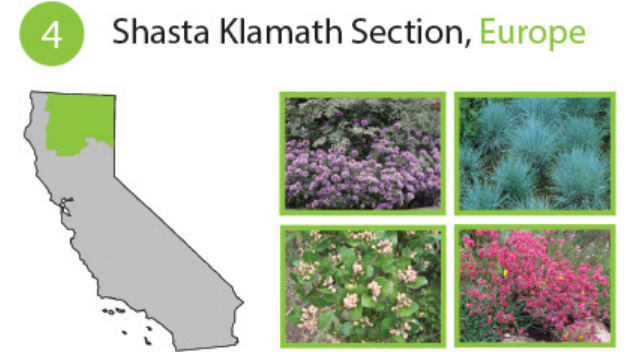




Figure 23 View from general entertainment area

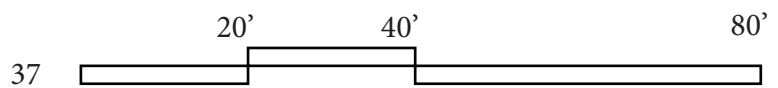




Figure 24 View from semi- private sitting area



Figure 25 Section elevation from center of pathway looking north







# CONCLUSION

*"The best plants come with a story"*

*María Rodale*

# Conclusion

In researching the plants of different sister cities, it has become apparent that not all of the sister cities share similar climates and conditions to those found in California. Because of this, the garden needs to become an interpretive area, which considers multiple factors such as colors, textures, and geometries of plants in order to describe different places, along with layout. Conscious design is very important in making sure that the garden is not overwhelmed by different plants and styles, but flows as one entity while describing the different places.





# References

- Biogeographic region. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/65890/biogeographic-region>
- China. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/111803/China>
- Garden and Landscape Design. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/225753/garden-and-landscape-design>
- Israel. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/296740/Israel>
- Jinan. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/110056/Jinan>
- Keator, G., Middlebrook, A., (2007). *Designing California Native Gardens*. Berkeley, CA: University of California Press
- Manila. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/362270/Manila>
- Moldova. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/388005/Moldova>
- New Zealand. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/412636/New-Zealand>
- Nicaragua. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/413855/Nicaragua>
- Palestine. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/439645/Palestine>
- Philippines. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/456399/Philippines>
- Rogers, E. (1936). *Landscape Design: A Cultural and Architectural History*. New York, NY: Harry N. Abrams, Incorporated
- Shandong. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/538614/Shandong>
- Shikoku. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/540568/Shikoku>
- South Korea. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/322280/South-Korea>



Switzerland. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/577225/Switzerland>

Temperate forest. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/586555/temperate-forest>

Temperate forest. (2013). In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/586555/temperate-forest>

Asian Flora (2013). In PlantLife. Retrieved from <http://lifeofplant.blogspot.com/2011/12/asian-flora.html>

Europe Encyclopedia (2013). In InfoPlease. Retrieved from <http://www.infoplease.com/encyclopedia/world/europe-physical-geography.html>

European Flora (2013). In PlantLife. Retrieved from <http://lifeofplant.blogspot.com/2011/04/european-flora.html#more>

Elliman, W. (2001). Flora and Fauna in Israel. In Israel Ministry of Foreign Affairs. Retrieved from [http://www.mfa.gov.il/MFA/MFAArchive/2000\\_2009/2001/9/Flora%20and%20Fauna%20in%20Israel](http://www.mfa.gov.il/MFA/MFAArchive/2000_2009/2001/9/Flora%20and%20Fauna%20in%20Israel)

Moldova (2013). In Countries of the World. Retrieved from <http://www.theodora.com/wfb/Moldova>

Native Plants of California (2013). In Friends of the Regional Parks. Retrieved from <http://www.nativeplants.org/index.html>

New Zealand. (2013). In Countries of the World. Retrieved from <http://www.theodora.com/wfb/NewZealand>

Sherry, L (2013). Garden Types and Styles. Retrieved from <http://home.comcast.net/~lorraine.sherry/gardens/handouts/Examples.pdf>