

Yantalo's Healing Garden:

a more meaningful community space

by Tanweijing Marx
June 2012

The Yantalo Healing Garden: A More Meaningful Community Space

A Senior Project present to the faculty of the Landscape Architecture Program of the University of California, Davis, in partial fulfillment of the requirements for the Degree of Bachelors of Science in Landscape Architecture.



Dr. **Luis Vasquez**, President of Yantalo Foundation
Committee Member

Prof. **Patsy Owens**, Chair of the Department
Committee Member

Gerrie Robinson, Landscape Designer
Committee Member

By **Tanweijing Marx**
June 15, 2012

Prof. **Heath Schenker**
Faculty Senior Project Advisor

ABSTRACT

This thesis focused on creating a conceptual design of the Yantalo Healing Garden, in Yantalo, Peru. Healing gardens are commonly found at hospitals, which limits community access to them. Research shows that stress hinders the performance of our immune system. Healing gardens do not solve the problem, but they provide an environment that comforts us and allows us to release emotional stress. They certainly provide an environment where we can “escape.” This project includes research on the benefits of healing gardens. I visited Yantalo and extensively analyzed the site. With that information I have created a design that maximizes the use of this space, by providing a private healing garden for patients, family members, and staff, while also providing enough space to accommodate community activities. This project proposed two healing gardens: a public and a private. Within the public healing garden, a school garden is provided, but it is important to mention that this is not a community park. It is a space for the community to restore their well-being.

DEDICATION

This project is dedicated to my grandfather, 譚國禧 ,
Mr. **Jose Marx Robles**, my aunt, 林秀雲 , (Ms. **Helen Yau**), my boyfriend
Luis Noe Donjuan, and for patients with life-threatening illness.

It is possible to fight back and survive!

ACKNOWLEDGEMENT

This thesis would not have been possible without the guidance and help of several individuals who in one way or other contributed and found time for me in their busy schedules.

First and foremost, my utmost gratitude goes to my **family**, my **boyfriend**, and my **friends** for all the support and encouragement. For all those all-nighters and for being there when that I needed you.

To **Dr. Vasquez** for giving me the opportunity to dedicate this to my loved ones and to offer a healing garden to a community.

To Professor **Patsy Owens**, **Gerrie Robinson**, and **Gayle Totton** for all their support and guidance.

To **Larry Greer**, Writing Specialist, for helping me polish my thesis

To the **Yantalo community** for all their love, help, and knowledge.

TABLE OF CONTENT

1. Process

Introduction . . . . .	.1
Personal Experience . . . . .	.2
History . . . . .	.4
Non-Profit Organization. . . . .	.7
Yantalo Foundation . . . . .	.9
Vision . . . . .	.10
Trip to Peru . . . . .	.11

2. Research

Healing Garden . . . . .	.16
Design Features . . . . .	.23

3. Design

Design . . . . .	. 30
Yantalo Climate . . . . .	. 31
Master Conceptual Plan . . . . .	. 32
Patient's Active Healing Garden. . . . .	. 33
North Waiting Area . . . . .	. 34
Staff's Private Healing Garden . . . . .	. 35
Laboratory and Educational Setting . . . . .	. 36
Additional Features . . . . .	. 37
Plant location . . . . .	. 38
Yantalo Healing Garden . . . . .	. 39
Yantalo Healing Garden Conceptual Plan . . . . .	. 41
Educational Site. . . . .	. 42
Labyrinth . . . . .	. 46
Private Island . . . . .	. 47
Seating Options . . . . .	. 48
Planting Zones . . . . .	. 49

4. Appendix

Appendix list	51
-------------------------	----

LIST OF ILLUSTRATIONS

- 1.1. 1999. Radclyffe Infirmary, in Oxford. *Healing Gardens: Therapeutic Benefits and Design Recommendations*: Marcus & Barnes, p. 14
- 1.2. Penn History. 1999. Tuberculosis patients in an outdoor patients room: Penn's Base Hospitals in World Wars I and II, Retrieved 06, 2012, from <http://www.archives.upenn.edu/histy/features/alum/992.html>
- 1.3. 1998. Active healing garden (left) and Passive healing garden (right). *Restorative Gardens: The Healing Landscape*: Gerlach-Spriggs, Kaufman, & Warner, p. 34, 93
- 1.4. Diaz Favela, Veronica. 2011. Hospital Belisario Dominguez green roof. Retrieved 04,2012, from: <http://ipsnoticias.net/nota.asp?idnews=92844>
- 1.5. 2012. Therapeutic Landscapes Network Website. Retrieved 11, 2011, from <http://www.healinglandscapes.org/about/mission.html>
- 1.6. 2011. Yantalo Foundation Logo. Retrieved 02, 2012, from <http://www.yantalo.org/clinic/yantaloclinic.html>
- 1.7. 2011. Graphical representation of the Adelanía Soplin, Yantalo Clinic and Diagnostic Center. Retrieved 02, 2012, from <http://www.yantalo.org/clinic/yantaloclinic.html>
- 1.8. 2011. Night graphical representation of the Adelanía Soplin, Yantalo Clinic and Diagnostic Center. Retrieved 02, 2012, from <http://www.yantalo.org/clinic/yantaloclinic.html>
- 1.9. CKL Designs. 2011. Universal design accommodates different users. Retrieved 06, 2012, from <http://ckldesign.com/services/>
1. 10. Marx. 2012. Peru location in South America
- 1.11. Marx, T. 2012. Two-and-half hour drive from Tarapoto into Moyobamba

- 1.12. Photo taken by author. 2012. View of the jungle from the school in Yantalo
- 1.13. Photo taken by authors. 2012. Yantalo community gathering around the main plaza
- 1.14. Photo taken by author. 2012. Paved street in Yantalo
- 1.15. Photo taken by author. 2012. Muddy sand street in Yantalo
- 1.16. Photo taken by author. 2012. Thesis project site showing the existing conditions
- 1.17. Photo taken by author. 2012. Dionisio Ocampo Chavez school entrance
- 1.18. Photo taken by author. 2012. School facilities
- 1.19. Photo taken by author. 2012. School's nursery
- 1.20. Photo taken by author. 2012. View of Mayo River
- 2.1. World Health Design (2012). Graham Garden at Saanich Peninsula Hospital in Victoria BC, Canada. Retrieved 06, 2012, from <http://www.world-healthdesign.com/Patient-specific-Healing-Gardens.aspx>
- 2.2. 1998. Healing garden in Wausau Hospital with design features like raised bed planters.: Restorative Gardens: The Healing Landscape: Gerlach-Spriggs, Kaufman, & Warner, p. 136
- 2.3. Marcus & Barnes. 1999. Healing gardens offer the opportunity for social interaction. Healing Gardens: Therapeutic Benefits and Design Recommendations: p. 138
- 2.4. 1999. The Comfort Garden located in San Francisco. Healing Gardens: Therapeutic Benefits and Design Recommendations: p. 14
- 2.5. 2012. Most common internal consequences of stress. Retrieved 06, 2012, from <http://www.stress-management-for-health.com/physical-effects-of-stress.html>
- 2.6. 2010. Nature has calming effects on individuals. Retrieved 06, 2012, from <http://www.freoo.net/living/yoga-and-meditation-way-to-release-stress/>

- 2.7. William Bond and Pamela Suffield. 2012. Early humans in a savannah environment. Retrieved 06, 2012, from http://www.squidoo.com/aquatic-ape-mystery?utm_source=google&utm_medium=imgres&utm_campaign=framebuster
- 2.8. 2011. Adelina Soplin, Yantalo Clinic and Diagnostic Center. Retrieved 06, 2012, from <http://www.yantalo.org/clinic/yantaloclinic.html>
- 2.9. Marcus & Barnes. (1999). Healing garden need to provide a sense of privacy. *Healing Gardens: Therapeutic Benefits and Design Recommendations*: p. 125.
- 2.10. Melton, Paula. 2012. Discovery Garden in Stanford's Lucile Packard Children's Hospital. Retrieved 06, 2012., from <http://greensource.construction.com/news/2012/04/120430-Healing-Gardens-Make-Hospital-Stays-a-Walk-in-the-Park.asp?page=2>
- 2.11. 2011. Water features increase the calming effect of a healing garden. Retrieved 06, 2012, from <http://http://www.facebook.com/media/set/?set=a.132649696886.119441.119939131886&type=3>
- 2.12. 2011. BUTTERFLY. Retrieved 06, 2012, from <http://www.healinglandscapes.org/blog/2011/06/butterfly-magic-st-louis-childrens-hospital-healing-garden/butterfly-021/>
- 2.13. 2011. A quiet place allows you to hear what is in your surrounding. Retrieved 06, 2012, from <http://www.hortmag.com/blogs/gardening-blog/best-garden-blog-therapeutic-landscapes-network>
- 2.14. 2012. Patients can do light exercise, like walking, around the garden. Retrieved 06, 2012, from <http://www.healthcaredesignmagazine.com/sites/healthcaredesignmagazine.com/files/imagecache/570x360/stenzel%20summer%20garden%20act%20july%2008%20113.JPG>
- 2.15. Edwards, Heather. Circular seating add interest to the garden and encourages social interaction. Retrieved 06, 2012, from <http://www.gapphotos.com/imagedetails.asp?imageno=143118>
- 2.16. 2012. Proper vegetation provides shade in the area. Therapeutic Landscapes Network Website. Retrieved 11, 2011, from <http://www.healinglandscapes.org/about/mission.html>
- 2.17. 2011. Water feature. Retrieved 06, 2012, from <http://patti-latebloomerboomer.blogspot.com/2011/07/01archive.html>
- 2.17. Collins, Amanda. 2011. Color features. Retrieved 06, 2012, from <http://blog.amandacollins.me/creating-a-feng-shui-healing-garden/>
- 2.17. 2010. Healing gardens need to include vibrant and attractive designs. Retrieved 06, 2012, from <http://joyofnesting.blogspot.com/2010/04/>

sacred-spaces-healing-in-garden.html

2.18. 2010. *Achillea millefolium*. Retrieved 06, 2012, from <http://www.kiksi.lv/?pageid=634>

2.19. Photo taken by author. 2012. *Etinglera elatior*

2.20. Photo taken by author. 2012. *Alpinia purpurata*

2.21. *Eugenia uniflora*. Retrieved 06, 2012, from <http://www.tradewindsfruit.com/surinamcherry.htm>

2.22. *Crocsmia x crocosmiiflora*. Retrieved 06, 2012, from <http://www.carolscornwall.com/Plants%20Lichens%20and%20Fungi/garden-plants.html>

2.23. *Pyrostegia venusta*. Retrieved 06, 2012, from <http://toptropicals.com/pics/garden/ml/raznozwyroystegiavenusta4285.jpg>

2.24. *Hemerocallis fulva*. Retrieved 06, 2012, from <http://wildflowerswest.org/NewImages/Red-OrangePg2/hemerocallisfulva.jpg>

2.25. 2011. *Pachystachys lutea*. Retrieved 06, 2012, from <http://ocultivoavida.blogspot.com/2011/01/camarao-amarelo-ou-pachystachys-lutea.html>

2.26. 2010. *Ixora 'Thai Dwarf'*. Retrieved 06, 2012, from <http://garden-frenzy.blogspot.com/20100201archive.html>

2.27. 2010. *Oncidium bawerii*. Retrieved 06, 2012, from <http://www.altomayoperu.com/ORCHIDS.htm>

2.28. *Tecoma stans*. Retrieved 06, 2012, from <http://www.mgonlinestore.com/Tecoma/>

2.29. *Adiantum capillus-veneris*. Retrieved 06, 2012, from <http://www2.hawaii.edu/~strauch/herbs/LaaulKaPali.html>

2.30. *Anthurium crystallinum*. Retrieved 06, 2012, from <http://www.sciencephoto.com/media/35253/enlarge>

2.32. *Sansevieria trifasciata*. Retrieved 06, 2012, from <http://www.hear.org/starr/images/images/plants/full/starr-080610-8435.jpg>

2.33. *Agapanthus africanus*. Retrieved 06, 2012, from http://www.olelantana.com/index.php?mainpage=product_info&productsid=668

2.34. Penick, Pam 2008. Retrieved 06, 2012, from <http://www.penick.net/digging/?p=619>

- 2.35. 2011. Water feature. Retrieved 06, 2012, from <http://healinggardenproject.blogspot.com/2011/11/circular-water-features.html>
- 2.36. Photo taken by author. (2012). *Dichorisandra thyrsiflora*
- 2.37. *Limonium perezii*. Retrieved 06, 2012, from <http://www.types-of-flowers.org/pictures/statice.jpg>
- 2.38. 2011. *Salvia leucantha*. Retrieved 06, 2012, from <http://waterwisebotanicals.com/?p=1170>
- 3.1. Marx, T. .2012. Conceptual map, highlighting the different proposed zones
- 3.2. 2010. Healing garden allow patients to do light exercise. Retrieved 06, 2012, from <http://www.thompsonhealth.com/SeniorLiving/MMEwingContinuingCareCenter/PostHospitalServices/tabid/269/Default.aspx>
- 3.3. Horticulture therapy. Retrieved 06, 2012, from <http://www.mainlinehealth.org/oth/Page.asp?PageID=OTH005591>
- 3.4. Seating areas should be provided in this area. Retrieved 06, 2012, from <http://tbg-inc.com/folio/dell-childrens-medical-center-of-texas-austin-tx/>
- 3.5. Informal settings allows the community to personalized the space. Retrieved 06, 2012, from <http://www.arborday.org/explore/classroom/certified/WestlakeCDC.cfm>
- 3.6. 2012. Vegetation can work as a screen that will prevent people to see inside the building. Retrieved 06, 2012, from <http://plantthis.com.au/plant-information.asp?gardener=25605&tabview=photos&plantSpot=>
- 3.7, 2010. A gazebo gives the opportunity for the staff to have outdoor meetings, while enjoying being outdoors. Retrieved 06, 2012, from <http://suitel01.com/article/how-to-make-a-healing-garden-with-outdoor-flowering-plants-a244333>
- 3.8. 2012. Hospitals staff also need their own healing space, which will ensure a better service
- 3.9. 2012. Basic furniture can create an outdoor gathering area. Retrieved 06, 2012, from <http://www.smc.edu/arboretum/pastevents.html>
- 3.10. 2008. Trees and shrubs are located in parkings. Retrieved 06, 2012, from <http://www.baconsrebellion.com/Issues08/07-07/Bacon.php>
- 3.11. The amphitheater uses the side of the Convention Center wall, where movies can be screen. Retrieved 06, 2012, from <http://laonabudget.wordpress.com/>

- 3.12. 2012. Outdoor amphitheater can be used by the community and the foundation. Retrieved 06, 2012, from <http://www.scottarboretum.org/gardentour/amphitheater/>
- 3.13. 2012. Marx. Seed model
- 3.14. Allorge, Lionel. 2010. Showing its age. Retrieved 06, 2012, from <http://commons.wikimedia.org/wiki/File:DesertdReetzreeStump.jpg>
- 3.15. 2012. Marx. Tree model indicating the parts of the tree
- 3.16. Chuck B. (2010). Example of an interpretative sign. Retrieved 06, 2012, from <http://www.flickr.com/photos/82479320@N00/4515943852/sizes//in/photostream/>
- 3.16. Chuck B. (2010). Overall view of an educational garden. Retrieved 06, 2012, from <http://www.flickr.com/photos/82479320@N00/4515255701/sizes//in/photostream/>
- 3.17. Dan B. May (2008). Example of interpretative sign in a tree. Retrieved 06, 2012, from <http://www.flickr.com/photos/danbmay/2447522292/sizes//in/photostream/>
- 3.18. Dan B. May (2008). Example of interpretative sign with relevant environmental conditions. Retrieved 06, 2012, from <http://www.flickr.com/photos/danbmay/2446700293/>
- 3.19. Marx. (2012). Section view of 3D model
- 3.20. 2010. A simple labyrinth in this garden outstands against a savannah-like environment. Retrieved 06, 2012, from <http://wisdomwayscenter.org/planning-your-labyrinth-garden.html>
- 3.21. Wettach, Lynn. Gazebo. Retrieved 06, 2012, from <http://goflorida.about.com/od/floridastateparks/ss/spwashoak2.htm>
- 3.22. Photo taken by author. (2012). Trellis
- 3.23. 2009. X. Seating options are crucial in a healing garden. Retrieved 06, 2012, from <http://www.gardenvisit.com/design-ideas/2010/01/12/good-quality-garden-furniture-helps-with-the-design-process/img6356/>
- 3.24. Eves & Lewis Landscape Design. (2011). Trees provide shade and comfort. Retrieved 06, 2012, from <http://www.flickr.com/photos/evesandlewis/5827973965/>

Appendix

Images from planting list were provided by the Western Sunset Book and Website. Retrieved 05, 2012, from <http://www.sunset.com/garden/>

PREFACE

I ventured into this major, Landscape Architecture, because I want to change the world. I want to inspire people to get better and healthier each day. I believe I can achieve my goal step by step. Back in my admissions portfolio, I said, "I want to create liveable places on a small scale that will affect and interact with larger scale places." My life experiences have showed me that life is difficult and stressful and with the knowledge Landscape Architects have, we can make the change. We constantly live under pressure and determine our value based on the material objects we acquire, rather than on the quality of our soul. As a student from the University of California, Davis, I believe that we need to take the lead and spread our knowledge to communities and countries in need.

INTRODUCTION

We all encounter different problems that create different levels of stress. For example, patients with life-threatening illnesses suffer high levels of stress, which directly affects their immune system and delays the process of healing that illness. Family members of these patients also suffers high levels stress as they see a loved one in pain, and in some cases have economic problems due to health care costs. Sometimes, family members lose a loved one during this process, and this lost prevents them from reaching a balanced sense of well-being. Healing gardens do not solve the problem, but it do provide

an environment that comforts us and allows us to release emotional stress. They certainly provide an environment where we can “escape.”

Personal experience has worked as evidence that stress affects the emotional and psychological balance of a person, which then reduces the capacity of the immune system to fight a disease, delaying the healing process. Healing gardens provide a space for one to feel comfortable, to release emotional pain and start over. Patients with life-threatening illnesses or any illness need healing gardens. Those who are not ill also can experience high levels of stress. Life is not easy, and everyone have their own problems that require their own space to restore their emotional well-being in order to recover their strength and to keep fighting.

PERSONAL EXPERIENCE

In 2007, my grandfather's health started to deteriorate rapidly. A strong gentleman who kept a routine of walking as much as he could, ate frugally all types of food, and was emotional and mentally tough. At the age of 92, he (and the whole family) had an extremely stressful event that affected his health. Despite all private medical care, his health declined very rapidly. By 2009, I got a call from an aunt saying he was not well and was taken to the hospital. He passed away that night. In only two years, a healthy man who had fought in war and survived, was gone. I did not cry at first; I couldn't. I didn't feel comfort-

able crying in front of my family. I had to be strong for them. I patiently waited and later walked out of the hospital and unconsciously directed myself to a small garden and cried.

By 2010, my boyfriend, who was 25 years old at the time, went through a tumor removal surgery in a public hospital in Mexico City. During his first recovery I visited him and was surprised to see how depressive the hospital setting was. Several "hot-spots" had the potential to be gardens, but instead were just spaces with soil. After two weeks he went back to the hospital for his chemotherapy sessions, that lasted 4 days every three weeks for 4 months. Although I was not a direct family member of this patient, I felt the stress caused by this life-threatening illness. In addition to this personal stress, I had to turn in my portfolio application to get into the major I am passionate about. Life was not easy, and I remember taking a breaks from work and walking straight to the Arboretum and to relax. Those 15 minutes in front of a majestic view of the pond, and observing how leaves were blown by the wind, just allowed me to forget about my problems for a while. After his surgery, he not only had to recover physically, because he lost 45

pounds, but also mentally. He was traumatized. He is terrified of needles and hospitals. But now he owed the hospital, and his family went bankrupt with his treatment.

In 2011, my aunt was diagnosed with lung cancer that metastasized into her bones. Visiting my aunt on the weekends was mentally exhausting and depressing. She was constantly in pain; the tumor was eating her bones. The pain was just too much; she had to take several pills every couple of hours. I felt frustrated because I couldn't help her. I tried to make small conversation to distract her mind, but she only needed company. She had several surgeries, chemotherapy, and radiotherapy. They weren't enough. I lost her on May 24, 2012. I was actually in studio, working on this project, when a friend told me she passed away. I didn't believe it. I frantically ran to our Hunt Hall Courtyard and tried to call my uncle. I called home, but the line was busy. I tried his cell phone. He didn't answer. I walked into one of my classmate's courtyard design, one that felt enclosed and gave me a little bit of the privacy I needed. I couldn't help but cry and call my mom. I tried his cell phone again and after four times try-

ing, he picked up. My voice broke and just asked him if it was true. When he said yes, his voice broke too and we both cried. We tried to talk for a couple of minutes, but we couldn't, so we hung up. I kept crying, trying to cover my mouth and not cry too loud. I sat near the wall and behind a fountain that was there as a centerpiece and just stared at the native meadow grass. Viewing this natural landscape allowed me to find some tranquility within my soul.

HISTORY

Marcus and Barnes, authors of *Healing Gardens: Therapeutic Benefits and Design Recommendations*, state that the healing process has three phases in patients. First, the patient feels a *relief from physical symptoms*, then an *immediate stress reduction* allows the patient to feel comfortable, which is an important coping mechanism for patients to deal with physical and emotional stress caused by hospital settings, he/she will relax. As a result, the patient will have an overall *improvement of his/her sense of well-being*, which increases the individual's immune system.



1.1. Radclyffe Infirmary, in Oxford.

Dr. Esther Sternberg, an expert in rheumatology and internationally known for her contributions related to stress and the immune system, explained in her book *Healing Spaces. The Science of Place and Well-being* that hospitals in the 19th century were designed to allow sunlight to come through high windows and tall ceilings. Although the main purpose was to

illuminate the room, it allowed patients to obtain vitamin D naturally, which is “essential for getting calcium into bones” and also improves the immune system (Sternberg, 2009). The idea that “sunlight



1.2. Tuberculosis patients in an outdoor patients room

and open windows were thought to be among the most effective means of purifying the air” was really influential in the architectural design of hospitals (Sternberg, 2009). Two modernist

architects portray this importance in their designs: Richard Neutra and Alvar Aalto. Both architects designed structures that took advantage of the natural settings and related to the healing properties of the environment.

During the 1920s, tuberculosis patients were taken to hospitals located at high altitudes, hoping that “air at those altitudes would snuff out the infection” (Sternberg, 2009). The Paimio sanatorium, a tuberculosis sanatorium, located in Finland, was designed by Alvar

Aalto, is believed to have been the standard design for future hospitals. This sanatorium had rooms, filled with natural sunlight, faced south, and overlooked the surrounding landscape (Sternberg, 2009).

In 1984, in Science magazine, Roger Ulrich published the first research study on the value of natural settings in the healing process (Sternberg, 2009). This study used data on vital signs to look at the rate at which patients healed. Some of the 46 patients in the study saw views of the landscape, others saw bricks. Ulrich found that patients who viewed trees outside their rooms left the hospital “a full day sooner than those with views of a brick wall” (Sternberg, 2009). But this idea that nature helps the healing process is not new. It’s been around since



1.3. Active healing garden (left) and Passive healing garden (right)

classical times, when the Romans believed in the “Greek god of healing” (Sternberg, 2009).

There are two types of healing gardens: passive and active. An active healing garden, where the user is in a participatory mode, is engaged in a de-stressful activity, and its mind is distracted from the stress factor or pain. Active healing gardens helps patients or users to “[gain] a sense of accomplishment, self-esteem, and control over [his/her] surroundings” (Francis, et al., 1990). The passive healing garden, where the user is in an observational mode, provides sensory distractions, and allows an effortless desired to be in the garden.

NON-PROFIT ORGANIZATION

I wanted to change the world of someone out there. Someone in a Third World country. Healing gardens are not only needed in developed countries, but also in those still developing. In Mexico City, the public hospital named Hospital General provides “39 medical specialty services, [and also provides] diagnosis, treatments, and rehabilitation” (Hospital General Website). It offers no green areas for patients to rest in or even admire. The hospital has small pockets of open space that can provide these benefits. Unfortunately, the government does not pay as much attention to these details in public

hospitals as they should. The ambience of the hospital is depressing –only a couple of trees grow on the entire hospital grounds.

Public hospitals tend to be overcrowded, creating a higher need for patients to have access to a place where they can de-stress and heal their psyches. It wasn't until 2008 that a green roof was built for the Hospital Belisario Domínguez. It is a 1,000 square meter of roof transformed into a green area for patients, family members, and staff. According to the hospital director, the

space was used primarily by smokers, then staff members, but when patients learned about the site, they asked to be

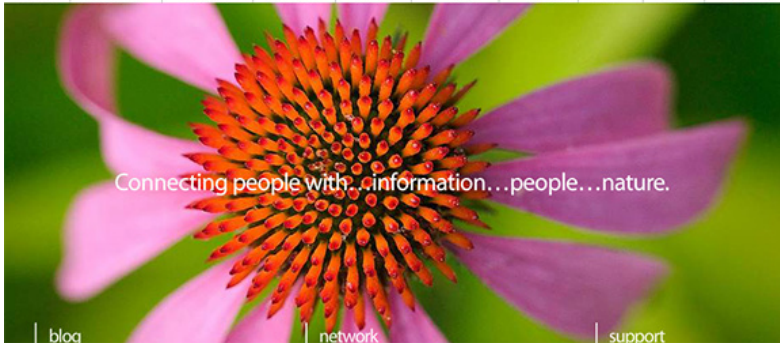


1.4. Hospital Belisario Domínguez green roof

taken to the space. This is the prototype of a garden that helps the healing process, and now the government is promoting the same concept in

TherapeuticLandscapesNetwork The resource for gardens and landscapes that promote health and well-being

[about](#) | [resources](#) | [designers](#) | [gardens](#) | [related](#) | [sponsors](#) | [support](#) | [shop](#) | [blog](#) | [network](#)



1.5. Therapeutic Landscapes Network Website

28 more hospitals.

I wanted to take the opportunity to travel to unfamiliar places, and to take advantage of knowing Spanish to gain a deep level of communication with the community. With that in mind, I researched different non-profit organizations and asked them if they knew any project that needed volunteer work.

After several weeks of looking, I found the Therapeutic Landscapes Network (www.healinglandscape.org) and got a reply from the founder of the website, Naomi Sachs. She mentioned in her email that she

previously worked on a healing garden project in Yantalo, Peru. She helped me get in contact with the president and founder of the Yantalo Foundation, Dr. Luis Vasquez.



1.6. Yantalo Foundation Website

YANTALO FOUNDATION

Yantalo Foundation's mission is to "[deliver] outstanding quality programs in the areas of Health, Education and Culture" (Yantalo Foundation Website). It is a foundation that serves the rural community in the Moyobamba District and the nearby communities. The founda-



1.7. Graphical representation of the Adelania Soplin, Yantalo Clinic and Diagnostic Center

tion is based on volunteer support. It is a non-profit clinic called "Adelina Soplin, Yantalo Clinic and Diagnostic Center" in honor of Dr. Vasquez's mother, who was originally from Yantalo.

This clinic will be "the first green clinic in Peru" (Yantalo Foundation Website) and will house 16 in-patients, will apply solar panels as its energy source, and its architec-



1.8. Night graphical representation of the Adelania Soplin, Yantalo Clinic and Diagnostic Center

tural design will take advantage of natural resources. In addition to the medical service, the clinic will also provide Peruvian medical students the opportunity to learn from foreign medical volunteers.

The clinic already plans to accommodate five healing gardens - three indoors and two outdoors. My project site will be near the main entrance to the Yantalo Clinic and Diagnostic Center in Yantalo, Peru and the design will be presented to the Yantalo Peru Foundation through the director of this non-profit organization, Dr. Luis Vasquez.

in the documentary *The Science of Healing with Dr. Esther Sternberg*, being exposed to a pleasing natural view “could reduce stress, thus support [the] immune system” (2009).

VISION

Dr. Vasquez’s vision is to have a healing garden that follows a universal design, based on the principle of providing the same facilities for all types of users, from kids to senior citizens to users with special needs. Healing is a process that not only occurs physically, but also emotionally. This project opens the possibility of using a healing garden as a tool not only to help individual patients cope with their pain, but also the community, which is constantly stressed due to economic, social, and physical problems. Healing does not only apply to sick patients, but to the community as well. According to Dr. Irving Biederman, interviewed



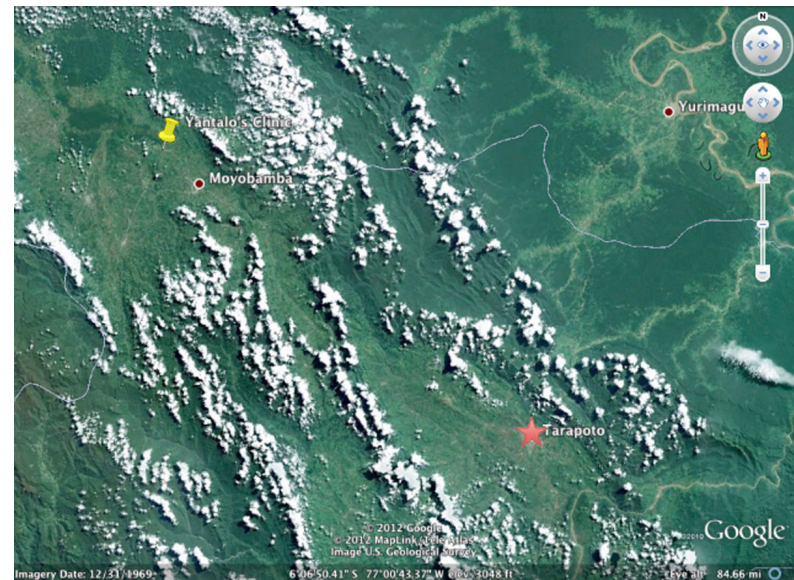
1.9. Universal design accommodates different users

TRIP TO PERU

Peru is located in South America. As shown in the picture, it is bordered to the North by Ecuador and Colombia, to the East by Brazil and Bolivia, to the South by Chile, and to the West by the Pacific Ocean. Peru is consisted of several districts. One of them the San Martin District. There you will find small towns like Moyombamba, Calzada, Habana, Jepelacio, Soritor and Yantalo. The capital of the San Martin District is Moyombamba and Yantalo is located 15 minutes away. Yantalo is small



1.10. Peru location in South America



1.11. Two-and-half hour drive from Tarapoto into Moyombamba

town located in the north part of the Amazonian jungle.

To get to Yantalo, one must fly into the capital city of Peru, which is Lima. Then take an hour flight into Tarapoto, which is the closest airport to Yantalo, and drive two and a half hours into the Amazonian jungle. The goal of this trip was to perform a site analysis. It included many hours spent on-site studying of the opportunities and constraints, learned



1.12. View of the jungle from the school in Yantalo

about the environmental and built conditions. In addition, I conducted interviews with the community to learn about the native plants and took advantage of the human resources available like the agricultural knowledge of the community.

about the environmental and built conditions. In addition, I conducted interviews with the community to learn about the native plants and took advantage

Learning about the culture and the community is imperative for me, because one of the goals of this garden project is to help create a sense of community pride, and the only way to reach this goal is through understanding what is significant for the community. This will be achieved through the community meetings and the constant exposure to the local people during the trip.

Yantalo is a rural town, with a population of 3,000. The town is suffering from deforestation due to development. Yantalo has a vibrant community, but lacks social gathering areas, beyond the main plaza, the school, and churches. Yantalo has an uncontrolled problem with street dogs, most of which have skin lesions. These street dogs, contaminate the streets with



1.13. Yantalo community gathering around the main plaza



1.14. Paved street in Yantalo

their feces, are not the only animals on the streets. One also sees a variety of poultry, which contaminate the soil as well.

Yantalo's streetscape design lacks tree coverage, which is essential in a hot climate. Yantalo has two types of streetscape:

paved street with no tree coverage or muddy sand with natural landscape as a buffer.

The paved street, even though it is just in a limited space, does not provide shade and even increases the heat as the sun rays bounce off by the material into the atmosphere. The other street type, muddy sand, although it provides shade, is difficult to walk over. Sand fleas, which are



1.15. Muddy sand street in Yantalo

very common in Yantalo, live in this type of soil. Yantalo should consider a new street design, one that combines the different advantages of the two current designs- smooth surface for traveling on and shade. Ideally streets would be narrower, with a maximum of 12' for vehicles and the rest would be a pedestrian zone, where shade is provided by trees and other vegetation buffers the pedestrians from the vehicular zone. During my trip, I observed that kids like to play outdoors, but they have little space to play. Yantalo can become a model, for nearby towns, exemplifying the best aspects of a streetscape.

Yantalo is in a great need of the new clinic being built, the Adelina Soplin, Yantalo Clinic and Diagnostic Center. Currently, the community has access to a small, temporary clinic near the main plaza. This clinic provides limited services, as it run by volunteers mainly and has a small staff. If a Yantalo citizen needs other services, he/she has to drive to Tarapoto or fly to Lima.

The Adelina Soplin, Yantalo Clinic and Diagnostic Center is sponsored by the Yantalo Foundation. The clinic actively supports the reforesta-

tion project Peru is conducting, and so far the clinic has replanted 1452 trees and is still planning to reach 6000 trees by the end of the construction phase. The clinic takes advantage of existing natural resources. It has roofing at four meters on the west side, five meters in the center, and six meters at the east side, which takes advantage of natural wind patterns, and allows the clinic to be naturally ventilated and not dependent on air conditioners.



1.16. Thesis project site showing the existing conditions

The people who participated in the design realized that water naturally settles in this area. Taking advantage of this feature, they built a pond, which is only 30 cm deep

f o r

safety

reasons.

As mentioned, the clinic includes five healing gardens, three that will be located indoors and two outdoors. One of them will be a more private and active healing garden located behind the clinic. So far, one-third of the clinic has been built, and the construction team is working very hard to start the second phase of construction.

Aside from the clinic project, the Yantalo Foundation is a strong advocate for education. Dr. Vasquez, for example, improved



1.17. Dionisio Ocampo Chavez school entrance



1.18. School facilities

the school system and was able to increase the time spent for the English classes at the school, called *Dionisio Ocampo Chavez*. The school owns 12 acres of land and only uses a very small portion for school facilities. The rest is divided into open space and garden plots for teaching. It has 600 students in total, and most of them normally go to work on their parents' plot or help their parents with whatever they need assistance in. This causes problems in these children's education because their focus is not only on school, so they don't pay as much attention to their education as they should. Unfortunately, parents play a big role in this, because they take them out of school earlier.

Within these 12 acres, teachers built a nursery as an additional



1.19. School's nursery

teaching tool. Unfortunately, the location of this nursery does not take full advantage of the existing natural resources on this site, and it will soon be relocated. The school supports all the students who are interested in having their own piece of land to plot, giving them some space within the site. Students need to have committee members as part of their personal project. At times teachers choose this activity as a positive reinforcement. The school is also participating in Yantalo's reforestation project and have planted approximately 380 bamboo plants around the school's property.

Once the trip concluded, I re-directed my focus to finalizing the research part for this project.



1.20. View of the Mayo River

HEALING GARDEN



2.1. Graham Garden at Saanich Peninsula Hospital in Canada

Gerlach-Spriggs, Kaufman, & Warner believe that a healing garden intends “by its planners to evoke rhythms that energize the body, [informs] the spirit, and ultimately [enhances] the

recuperative powers inherent in an infirm body or mind” (1998). In order to de-stress, it is important for an individual to release and let go of the problem. Healing gardens goal is to vitalize one’s soul. According to Messer, et al. “today’s built environment could make significant contributions to

heart disease, cancer, and other maladi-

es. Despite the increased life span of today’s population, there is strong medi-

cal evidence pointing to our built environments as the cause of these illnesses.” (2002). For Marcus & Barnes, a healing garden “promotes overall well-being.” They define healing as a three-step process: “*relief from physical symptoms, ..., stress reduction, ..., [and] improvement in*



2.2. Healing garden in Wausau Hospital with design features like raised bed planters

the overall sense." This process occurs in a garden that "encompass any green outdoor space within a healthcare setting" (1999). The three-step process can occur in any outdoor space, it needs to accommodate design features where users can find comfort.

The authors of *Interaction by design: Bringing people and plants together for health and well-being. An International symposium*, interpret healing gardens as how "human beings experience holistic healing of their souls by relating to nature sometimes through activities while they are conscious, and sometimes by sensing

nature while they are unconscious" (2002). The unconscious plays an important role in healing gardens, be-



2.3. Healing gardens offer the opportunity for social interaction

cause they allow the individual to instantaneously divert their attention from their problems to admire nature.

After reading different healing garden definitions,



2.4. The Comfort Garden located in San Francisco

I believe that a healing garden is a comfortable outdoor open space that takes advantage of the aesthetics of nature and provides a place for the individual to reduce his/her stress and therefore improve their "overall sense of well-being."

As mentioned at the beginning of the book, stress lowers the functions of an individual's immune system. The living style of modern society produces great stress. Stephen and Rachel Kaplan see "contemporary society as burdened by ever-increasing stress. The requirements



2.5. Most common internal consequences of stress

and blandishments of highly technological societies force us into 'directed attention' - the kind of attention that requires concentration, effort, and ultimately, if it continues unabated, produces stress and fatigue."(Gerlach-Spriggs, Kaufman, Warner, 1998). We have a system that demands our maximum effort in following a strict schedule that has diverted our focus from taking care of ourselves.

The documentary *The Science of Healing with Dr. Esther Sternberg*. Dr. Sternberg emphasizes constant physical pain during a stressful event. Her mom had just passed away and work had become to stressful it was causing her to have swollen legs. It wasn't until she took a break in Greece that she realized her diet and schedule were not helping her cope with her stress and were harming her health.

Furthermore, stress affects directly our nervous system; it elevates our blood pressure, which increases our heart rate, our muscle tension, and in fact changes our brain function and our focus on getting better (Gerlach-Spriggs, Kaufman, Warner, 1998).

We all need stress to survive, as it activates our brain to be more attentive to our surroundings. This adrenaline rush is good in certain amounts, but at excessive levels of stress “have deleterious effects on health and recovery time” because they fatigue our system leaving us unable to fight back in a stressful environment.

Our emotions are tied to the amount of stress we feel. Research has shown that an individual’s emotions have a direct effect



26. Nature has calming effects on individuals

on what we feel in our body. Dr Sternberg explains in her book that our emotions control our nervous system and hormones, directly affecting the capacity of our immune system to fight disease (Sternberg, 2009). Furthermore, stress is connected to our

endocrines and immune systems.

According to Gerlach-Spriggs, Kaufman, and Warner, high levels of stress can “suppress both T-lymphocyte transformation into killer cells and B-lymphocyte differentiation into antibody producing cells. We need both kinds of lymphocytes and their products to fight off various infections and cancer.” The mental fatigue associated can be relieved by allowing oneself to be mentally distracted from our problems. This distraction has to be involuntary, and research

has shown that the most calming environments are natural settings. All individuals, in a health related field or not - do experience soothing effects at a physiologi-



27. Early humans in a savannah environment

cal level when they are in these settings (Gerlach-Spriggs, Kaufman, Warner, 1998).

Our relationship with nature has an evolutionary history. Edward O. Wilson suggests that our connection with nature “is biologically based and [is] part of our evolutionary heritage.” Wilson introduces the concept of biophilia, explaining that humans come from a long interaction and connection with other species, both flora and fauna.



2.8. Adelina Soplin, Yantalo Clinic and Diagnostic Center indoor healing garden

We seek places that are savannahs, a place that has grass, dense vegetation, and tree coverage. This natural tendency comes from early Homo sapiens, who preferred this landscape for survival. According

to Jay Appleton, individuals look for landscapes that make them feel safe and hold the promise of providing food. Biophilia explains why today we seek out a savannah-like environments. We may no longer depended on this environment for survival, an attraction to it is embedded our in neural pathway. We feel tranquility and relaxation when we are in savannah-like parks or gardens (Gerlach-Spriggs, Kaufman, Warner, 1998).

We respond to nature in two stages. First, we instantaneously weight whether we want to stay or leave the place. Then, we act on our decision. For patients looking for comfort, the first impression a place makes is important. Research shows that our responses to nature are very fast, which “[suggests] that the parasympathetic nervous system ... must also be involved in the calming effects experienced in response to nature” (Gerlach-Spriggs, Kaufman, Warner, 1998).

Research has shown that the soothing effects of nature reduce blood pressure and anxiety. For patients suffering delirium, physicians have seen that when they are exposed to nature, they require less intense

care. When in contact with nature, one's "immune system works better, hormones that promote healing are activated, neuropeptides that ease pain are produced" and instantly one's feel better. According to Rachel Kaplan's concept of "thereness," individuals unconsciously know that nature is available for them and "it seems to have beneficial and restorative effects" (Gerlach-Spriggs, Kaufman, Warner, 1998).

Most people have the wrong conception of a healing garden. It is a space that allows you to restore your well-being. It provides a sense of privacy and comfort. It creates a healthy distraction. It allows our minds to divert our attention away from our stressors. Patients suffer high levels of stress and "healing must be considered in its broadest sense, not just as recovery from illness, but as



2.9. Healing garden need to provide a sense of privacy

a way to live as healthfully and as well as possible" (Gerlach-Spriggs, Kaufman, Warner, 1998). Healing gardens are necessary in hospital settings because they provide that space for patients to be independent (at least with small decisions), to have a sense of control over what they want, and to have their own space. Healing gardens are also potential spots for social gathering and social support. Also, these environments

attract patients to the outdoors, and to engage in physical movement, even exer-



2.10. Discovery Garden in Stanford's Lucile Packard Children's Hospital

cise. Lastly, they allow patients to interact with nature, from listening to birds, to feeling the wind, to smelling the flowers. A healing garden needs to provide shade, but also some sunlight, because "our brain and bodies contain circuitry which allows

the light around us to change our moods, the rhythms of our stress response, and the way our immune cells fight infection.” (Sternberg, 2009). Sunlight provides natural vitamin D, which releases a large amount of immunity molecules to fight disease and speeds healing at a neural level. This exposure to sunlight needs to be controlled, so that just enough molecules are excited. Too much will burn these molecules.



2.11. Water features increase the calming effect of a healing garden

DESIGN FEATURES

Healing gardens need to be designed carefully because research has shown that poor designs have caused “detrimental effects such as higher anxiety, delirium, increased need for pain medication, elevated blood pressure, and sleeplessness” (Marcus & Barnes, 1999). A successful healing garden, according to Kaplan, needs to create the feeling of being away, away from stress factors. It needs to be “perceived as extensive,” which increases the notion of being away, of being in a different place. It should have “sufficient coherence or connectedness to be understood.” The healing garden needs to

capture the individual’s fascination; this criterion is the most important, because as mentioned, for nature to be restorative and provide relief, our reception of its benefit needs to be effortless and involuntary, this fosters tranquility. Lastly, the healing garden needs to be compatible with the user’s needs (Gerlach-Spriggs, Kaufman, Warner, 1999 & Francis, et al., 1990). In addition to Kaplan’s criteria, healing gardens need to provide a sense of privacy the user need to feel comfortable in doing what he/she feels



2.13. A quite place allows you to hear what is in your surrounding

is right to release the emotional stress. If this criterion is not met, the design will be an “environmental-social stressor” – the user will not feel comfortable (Marcus & Barnes, 1999). In hospital settings, noise also contributes to stress. The non-ill are also

affected by noise. Healing gardens should provide a quiet, meditative space, but they should have “congruent or fitting nature sounds (e.g., birds, brook, breeze)” that produce positive effects on one’s well-being (Marcus & Barnes, 1999).

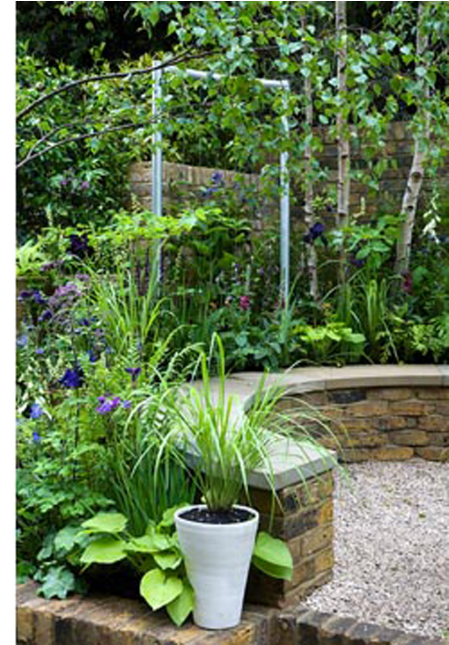
According to Marcus & Barnes, authors of *Healing Gardens: Therapeutic Benefits and Design Recommendations*, the effects of a healing garden can be more powerful if the garden encourages social interaction. Social support helps the individual overcome stress and



2.14. Patients can do light exercise, like walking, around the garden

encourages patients with life-threatening illness to keep fighting. A healing garden should provide enough space for this interaction.

A successful healing garden encourages “vigorous exercise, ... being in the sun or shade.” If these requirements are not considered, a healing garden will not stimulate patients or the community to be outdoors. As mentioned, we are unconsciously attracted to a savannah-like environment, and the planting decisions should be based on creating this effect. Designs should include “verdant plants, calm or slowly moving water, [with] some spatial openness,” and plenty of seating options. Seating encourages users to socialize as they admire nature



2.15. Circular seating add interest to the garden and encourages social interaction

(Marcus & Barnes, 1999). In his experiment Ulrich found that “scenes of vegetation and water together were the most pleasing and affect enhancing.” (Gerlach-Spriggs, Kaufman, Warner, 1998). Seating of-

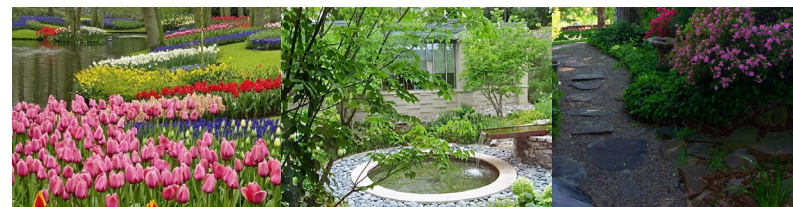


2.16. Proper vegetation provides shade in the area offers the possibility for patients to feel comfortable enough to do light exercise and feel the security of having a place to rest. It is also important to prevent overcrowding within the site, to preserve the sense of privacy and safety (Marcus & Barnes, 1999).

One way to maintain this privacy is by using the proper vegetation: “the bush cannot be too dense, lest we get lost in it; the trees cannot be so high that they offer us no protection.” Ulrich suggests that this might lead to biophobia (Gerlach-Spriggs, Kaufman, Warner,

1998). In the hospital setting, providing the proper vegetation gives the sense of enclosure and comfort so patients can exercise. Exercise “is as effective as any form of psychotherapy in reducing depression ... [it] produces other positive psychological changes in physically impaired older adults.” Comfortable pathways also need to be provided for patients and stressed individuals. In order for them to do outdoor exercises, paths should not have dead-ends, because they produce anxiety, but the users should have the freedom to choose where to go. The paths and other elements within the site should be easy to find, should promote “accessibility and independence” (Marcus & Barnes, 1999).

This sense of independency is important, because “upon being admitted to an inpatient facility, patients are deprived of their ability to make choices,” thus affecting their confidence and lowering their self-esteem



2.17. Healing gardens need to include vibrant and attractive designs

(Messer, et. Al, 2002).

When designing a healing garden, it is important to keep in mind that emotions influence how we perceive our surroundings, and when their emotions are negative, users' perceptions can be detrimental and can increase stress. Patients are already stressed, and life generally is stressful enough, thus designers need to facilitate patients' de-stressing process by including simple and natural scenes (Marcus & Barnes, 1999). Naturalistic scenes include features like organic-shape paths, water, and colorful vegetation. Color plays an important part in a healing garden, because "monochrome planting schemes" have no healing potential (Rawlings, 1998). In a research conducted in March 2006, by the Architectural Digest Home Design Show, three rooms of 18x20 feet and ten feet tall were painted in three different colors (red, blue, and yellow) and used as cocktail party spaces. All these spaces were furnished the same way with the same elements. "The results of the study seemed to support the general consensus that blue is calming and red and yellow are stimulating." Clearly, color influences our mood (Sternberg, 2009). Color "aims to restore harmony and stimulate the patient's inner

resources to aid the recovery of health." During the design phase, the designer needs to balance the color palette within the healing garden, in order to ensure a "balanced treatment and do not 'overdose'" (Rawlings, 1998).

In the next pages, a list of the relationship between color and mood provided by Romy Rawlings author of Healing Gardens will be provided:

RED: represents love and fertility; “keeps you alert, helps you cope with the demands of life, removes negativity and provides courage.”

ORANGE: represents joy; “warm and welcoming, optimistic and sociable, it is bursting with earthly energy.”



2.18. *Achillea millefolium*

2.19. *Etinglera elatior*



2.20. *Alpinia purpurata*

2.21. *Eugenia uniflora*



2.23. *Pyrostegia venusta*

2.22. *Crocosmia x crocosmiiflora*

2.24. *Hemerocallis fulva*

YELLOW: represents the sun; provides energy, “encourages agility of mind,” and “bring feelings of optimism, ..., self-worth, and lifts depression.”

GREEN: represents nature; “restful and relaxing, it offers sanctuary from the outside world and engenders a feeling of peace.”



2.25. Pachystachys Lutea



2.26. Ixora 'Thai Dwarf'



2.27. Oncidium bawerii



2.28. Tecoma stans



2.30. Adiantum capillus-veneris



2.31. Anthurium crystallinum



2.32. Sansevieria trifasciata

BLUE: represents water; “ideal ... for places of healing, since it encourages relaxation and tranquility.”



2.33. *Agapanthus africanus*



2.34. *Hydrangea aspera*



2.35. Water feature

VIOLET: portrays “knowledge, self-respect, spirituality, nostalgia, dignity and wealth.”



2.36. *Dichorisandra thyrsiflora*



2.37. *Limonium perezii*

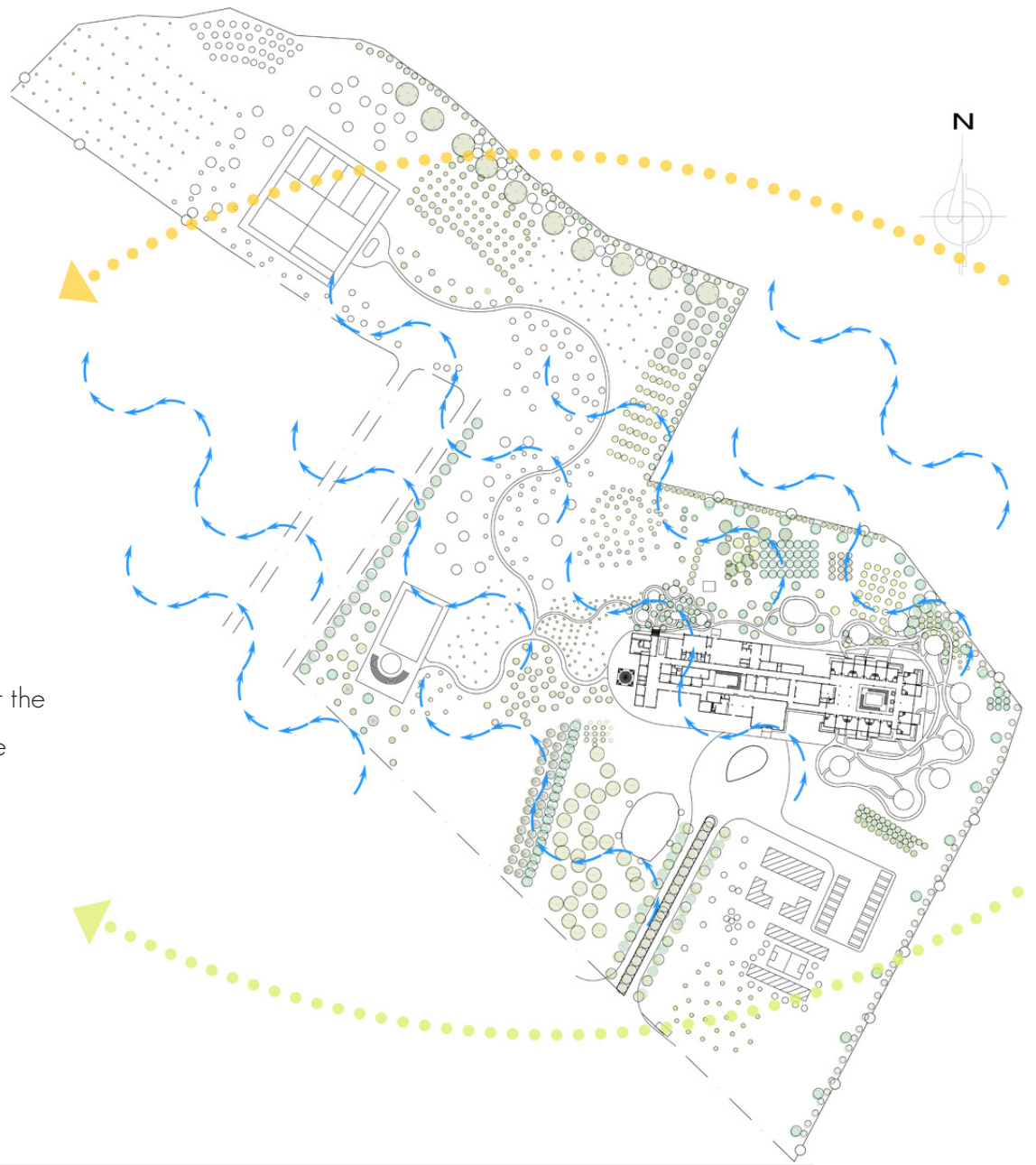


2.38. *Salvia leucantha*

YANTALO CLIMATE

Yantalo's weather fluctuates between being to hot to hot and rainy.

Yantalo only has two seasons: winter and summer. But the difference between each season is determined by the amount of rain.



DESIGN

The Yantalo's Healing Garden goals are:

1. Create a community identity in Yantalo
2. Provide a healing garden for the Yantalo community
3. Create social gathering areas for all the users
4. Create a learning experience within the site
5. Promote the use of annuals and perennials as groundcover

Further site analysis was done, which determine the location of all design features.

During this process, a master conceptual plan was created as a suggested plan for future foundation's development.

All planting zones should follow the planting conceptual zones designed for the Yantalo Healing Garden

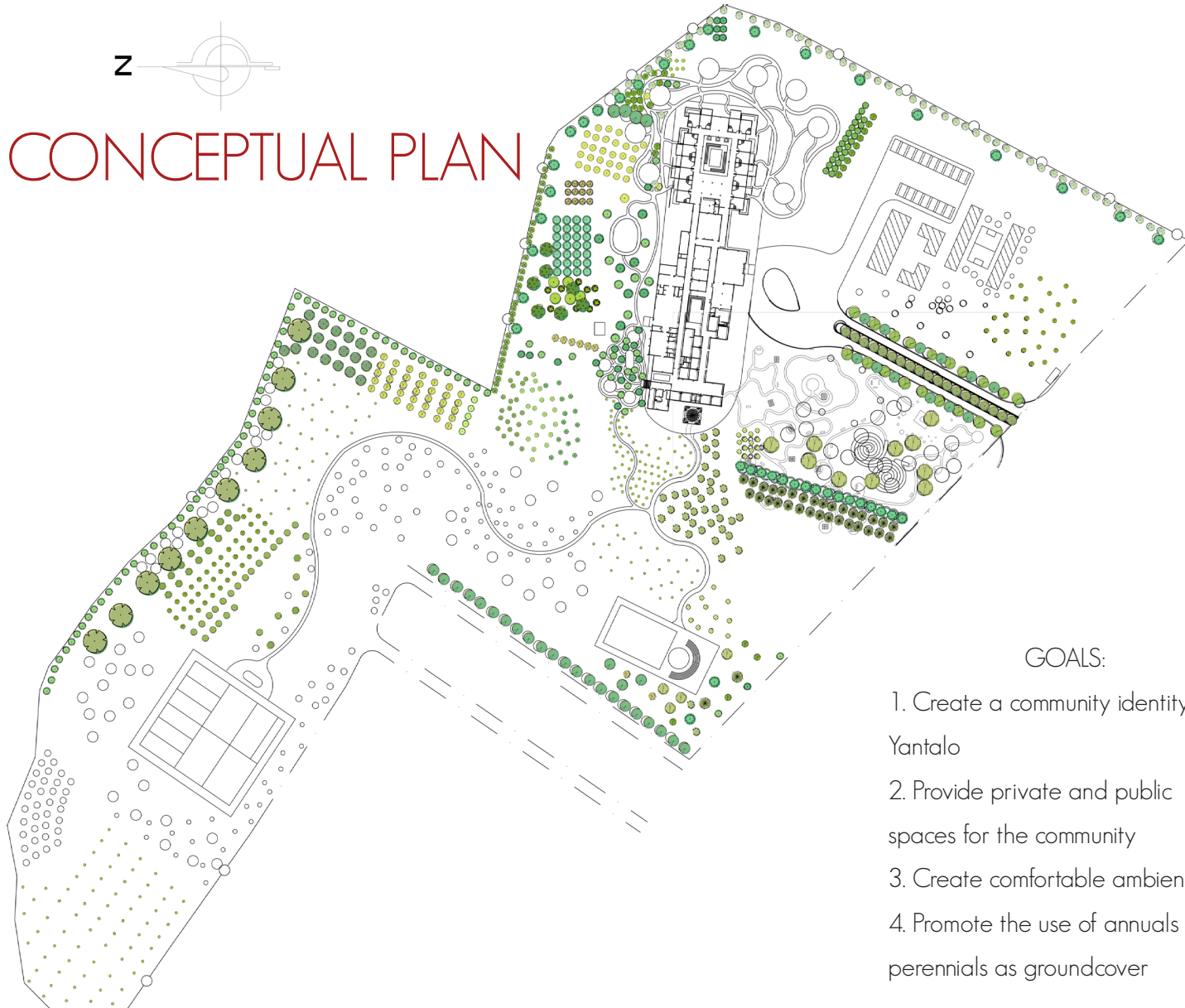
Planting list provided in the Appendix



3.1. Conceptual map, highlighting the different proposed zones



MASTER CONCEPTUAL PLAN



GOALS:

1. Create a community identity in Yantalo
2. Provide private and public spaces for the community
3. Create comfortable ambience
4. Promote the use of annuals and perennials as groundcover

PATIENTS' ACTIVE HEALING GARDEN

GOAL: Provide an active restorative garden only for patients.



NOTES:

- All patient's room should include a direct entrance to the walking path
- Planting designs should follow the planting conceptual plan for the Yantalo Healing Garden



3.2. Healing garden allow patients to do light exercise

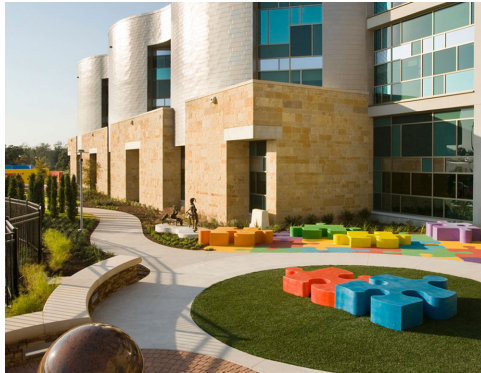


3.3 Horticulture therapy

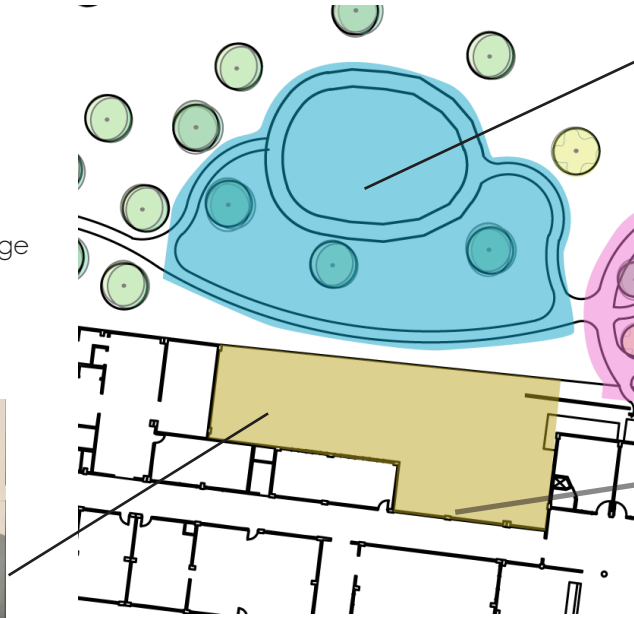
NORTH WAITING AREA

NOTES:

- A mixture of medium and tall size vegetation should be used along the perimeter of the building
- Trees should be used to provide shade coverage



3.4. Seating areas should be provided in this area.



GOAL: Provide a outdoor gathering areas for family members



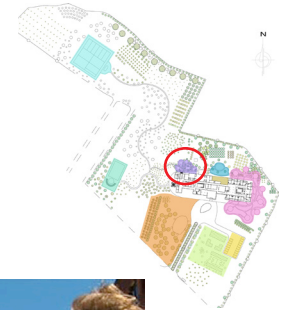
3.5. Informal settings allows the community to personalized the space



3.6. Vegetation can work as a screen that will prevent people to see inside the building

STAFF'S PRIVATE HEALING GARDEN

GOAL: Provide a private healing garden for staff



NOTES:

- Planting designs should follow the planting conceptual plan for the Yantalo Healing Garden



3.7. A gazebo gives the opportunity for the staff to have outdoor meetings, while enjoying being outdoors



3.8. Hospital's staff also need their own healing space, which will ensure a better service



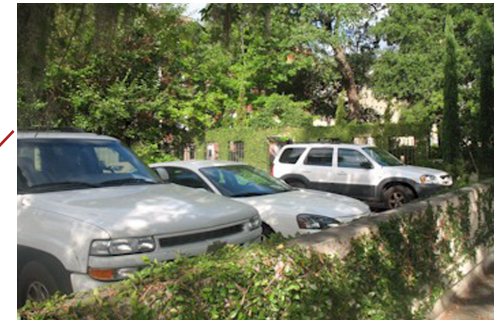
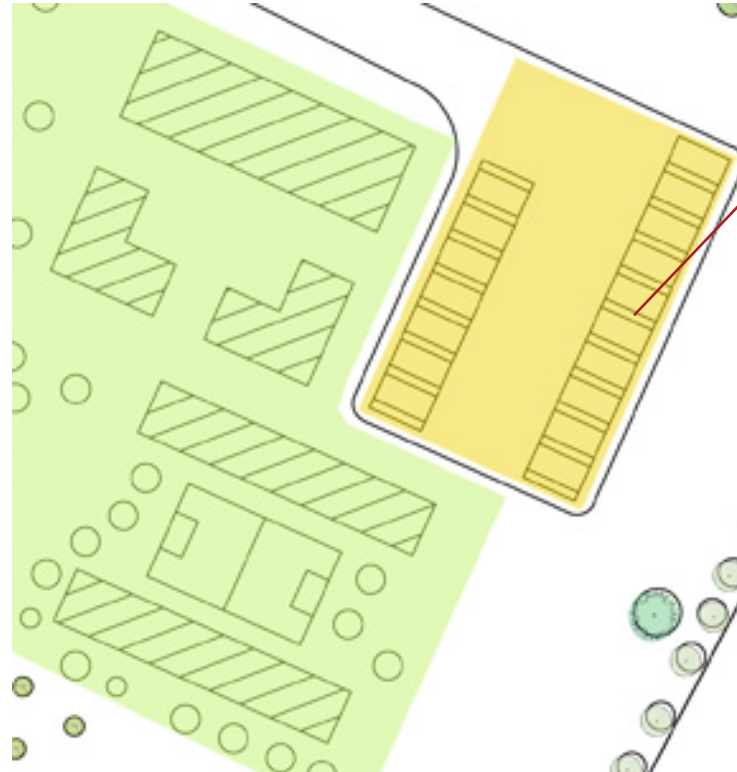
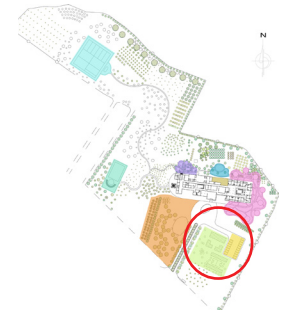
3.9. Basic furniture can create an outdoor gathering area

LABORATORY & EDUCATION FACILITY

NOTES:

- Planting designs should follow the planting conceptual plan for the Yantalo Healing Garden
- Parking will accommodate trees to provide coverage
- Concrete will be used only in roads

GOAL: Relocate parking lot and design a sustainable parking lot

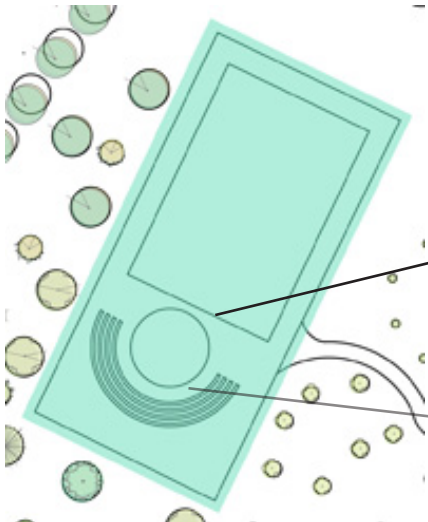


3.10. Trees and shrubs are located in parkings

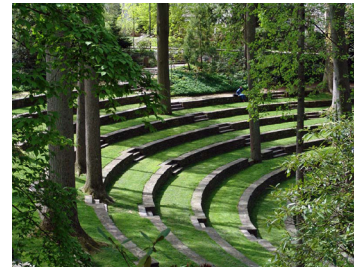
ADDITIONAL FEATURES

NOTES:

- Planting designs should follow the planting conceptual plan for the Yantalo Healing Garden
- Parking will accommodate trees to provide coverage
- Concrete will be used only in roads



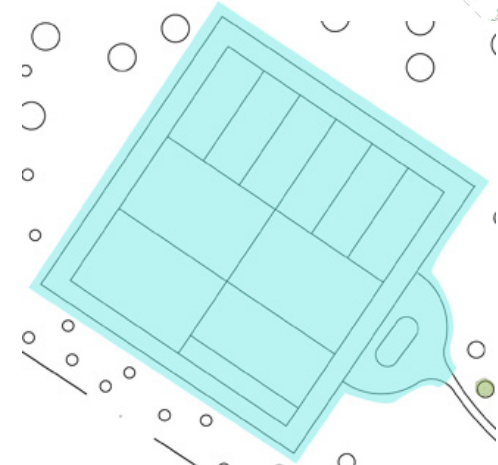
3.11. The amphitheater uses the side of the Convention Center wall, where movies can be screen



3.12. Outdoor amphitheater can be used by the community and the foundation

Amphitheater and Convention Center and use trees along the perimeter to buffer the sound

GOAL: Provide a private healing garden for staff



Medical students living facility



PLANT LOCATION



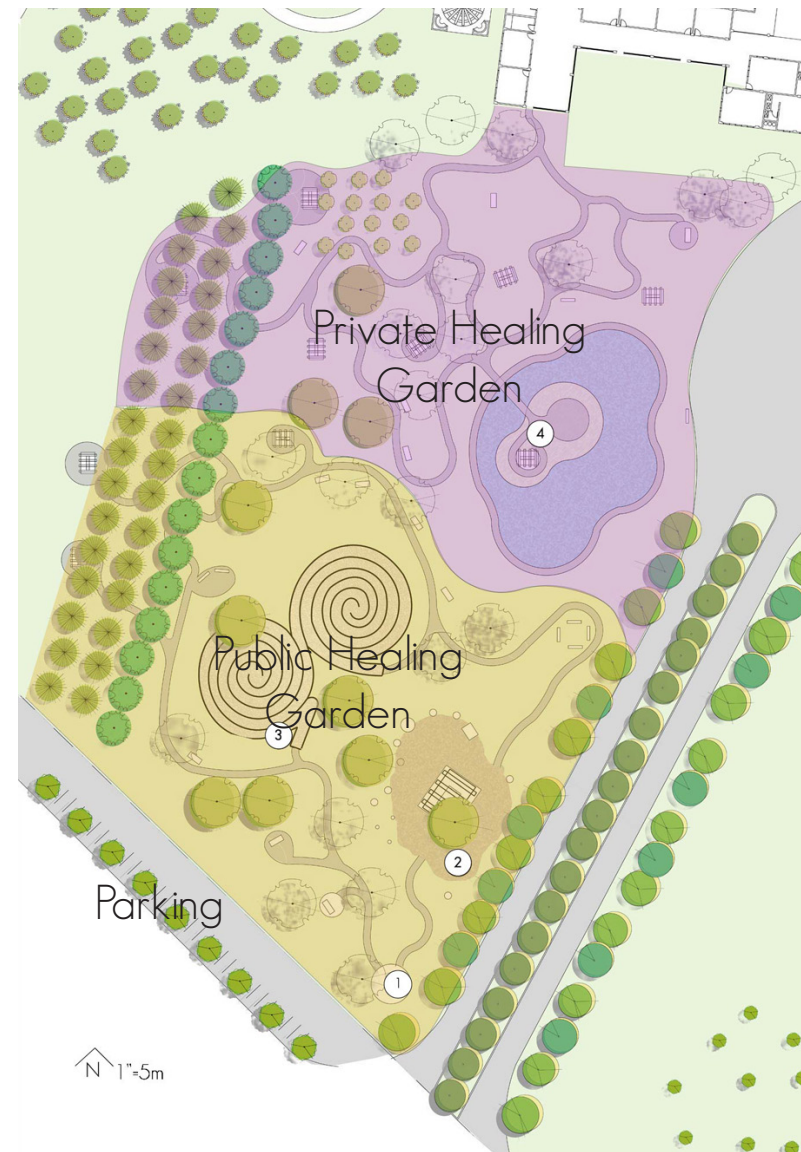
Some existing plants were relocated, please refer to the map.
Plants that are not rendered are suggested places for future plants

YANTALO HEALING GARDEN

This is the master conceptual plan is the YANTALO HEALING GARDEN. Design features:

1. Main entrance
2. Educational Site
3. Labyrinth
4. Private island

Two healing gardens are provided in this area: public and private healing garden. It is important to mention that this section of the garden is not a community park. It is intended for the community to de-stress and find comfort within nature. The paths are curvilinear and allow the user to meander through the area. Also, tree stumps are located within the site, thus allowing the community to personalize and move the stumps around in order to accommodate it to their needs. The gardens are not



connected and utilize different types of vegetation in order to maintain the sense of privacy and comfort. The paths located in the private healing garden are connected in small and long loops, which give the opportunity to the patients to choose the level of exercise they are willing to do in the garden. All seating options, trellises, tree stumps, and benches are strategically accommodate to have interesting views and unconsciously divert the users mind to nature.

The shape proposed for the pond resembles for a more naturalistic form, which includes a small island that only patients and staff can have access. The pond will include aquatic plants that will attract bacteria to their roots.

A small parking is provided in the south-west entrance for motorcars and motorcycles.

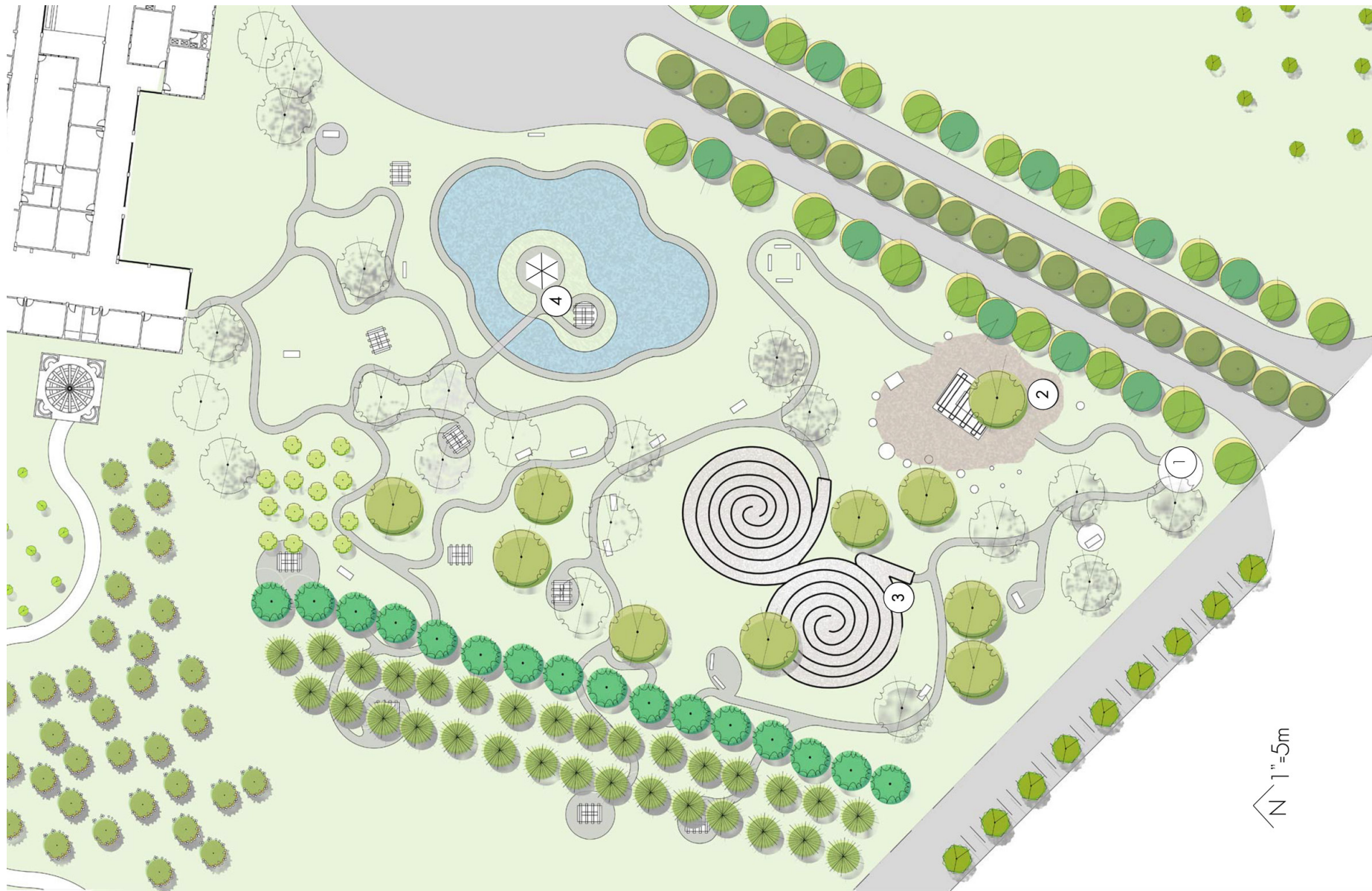
The chosen planting palette for the site are based on the Western Sunset Garden book. This book is the essential horticulture book, where designers find plant's characteristics like size, color, and climate

zone. Plants were chosen from zones 23, 24, H1, and/or H2. All the plants from this zone can handle moisture and extreme temperatures.

This project reuses recycled material, like pieces of wood trunks as seating options at the public healing garden or to construct trellises.

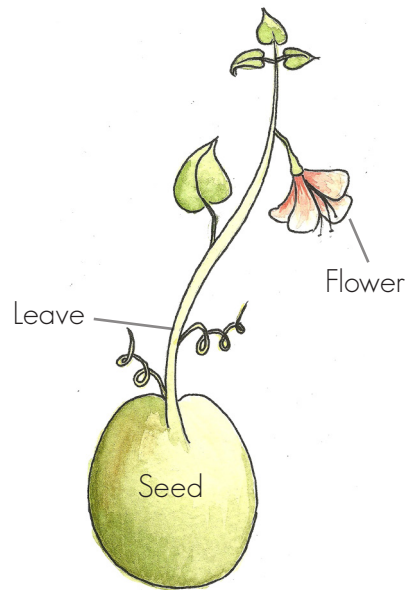
Please refer to the page 49 to see the trees that are proposed to be removed or relocated. For the trees with white background please refer to the list of trees provided at the end.

YANTALO HEALING GARDEN CONCEPTUAL PLAN



EDUCATIONAL SITE

GOAL: The students and community are exposed to the importance of taking care of the environment at different scales, from a seed to a mountain, and teach students about annuals and perennials groundcover

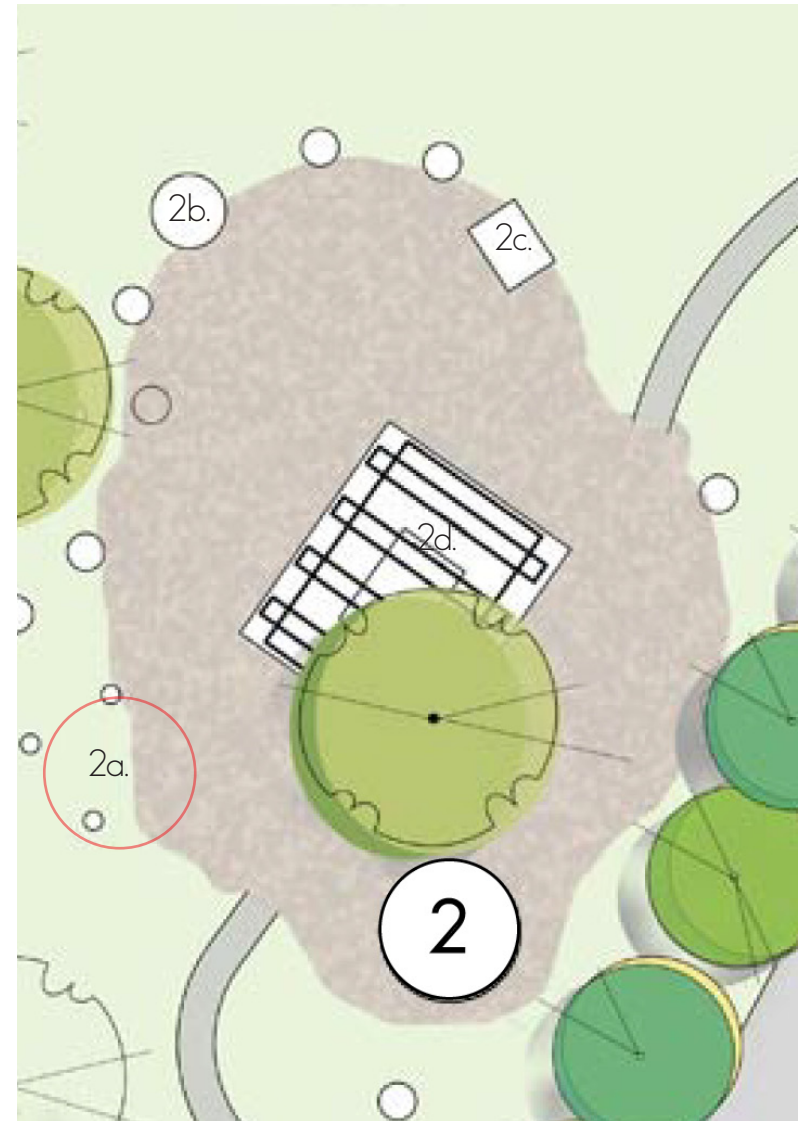


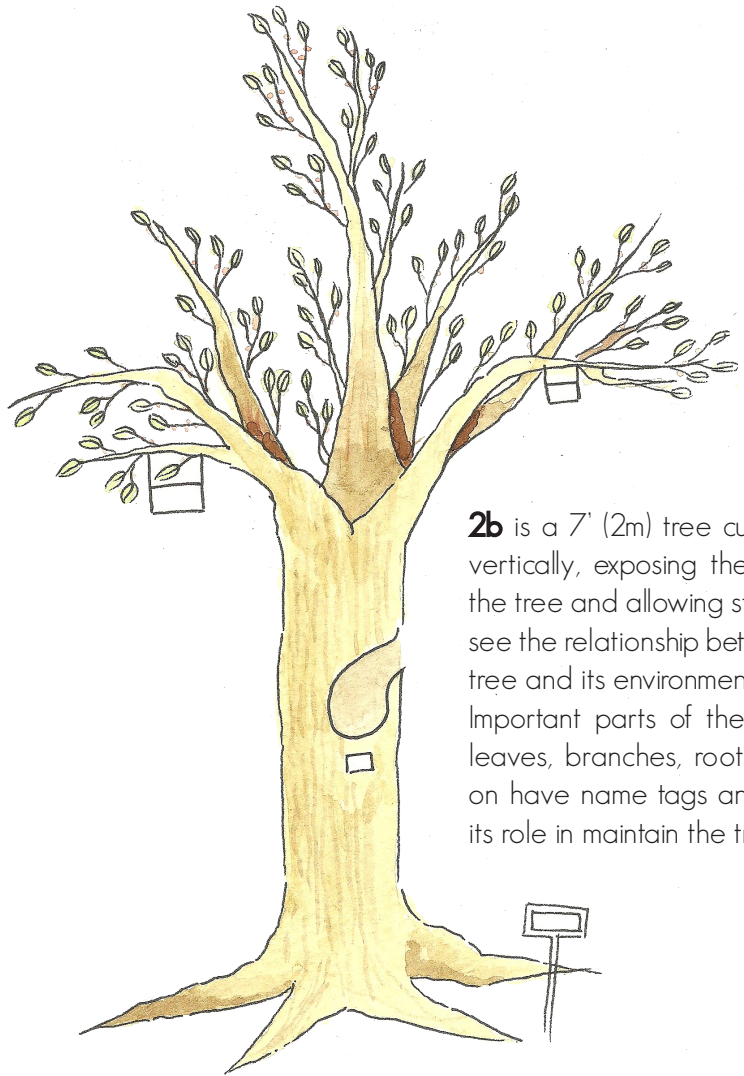
3.13. Seed model



3.14. Tree showing its age

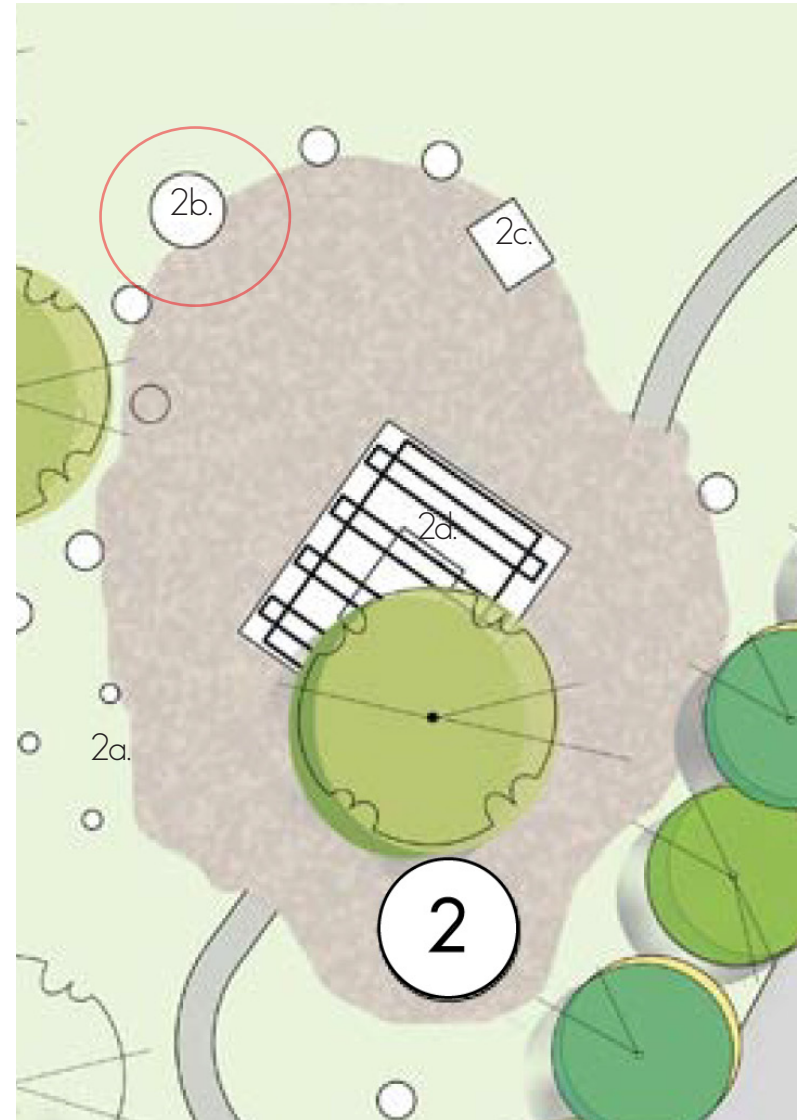
2a is the first stop in this mini tour, where the student learns about the parts of the plant and the important information a tree stump can provide





2b is a 7' (2m) tree cut through vertically, exposing the parts of the tree and allowing students to see the relationship between the tree and its environment. Important parts of the tree like leaves, branches, roots, and so on have name tags and explain its role in maintain the tree life.

3.15. Tree model indicating the parts of the tree





3.16. Example of an interpretative sign

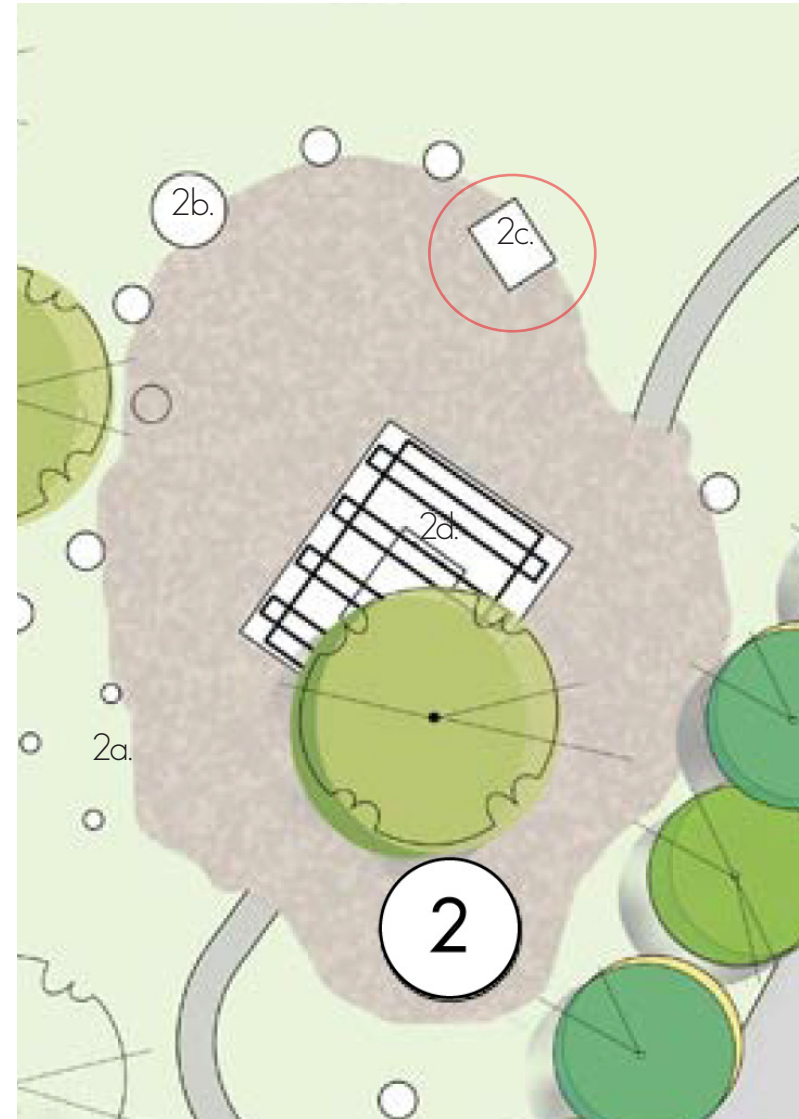


3.17. Example of interpretative sign with relevant environmental conditions



3.18. Example of interpretative sign with relevant environmental conditions

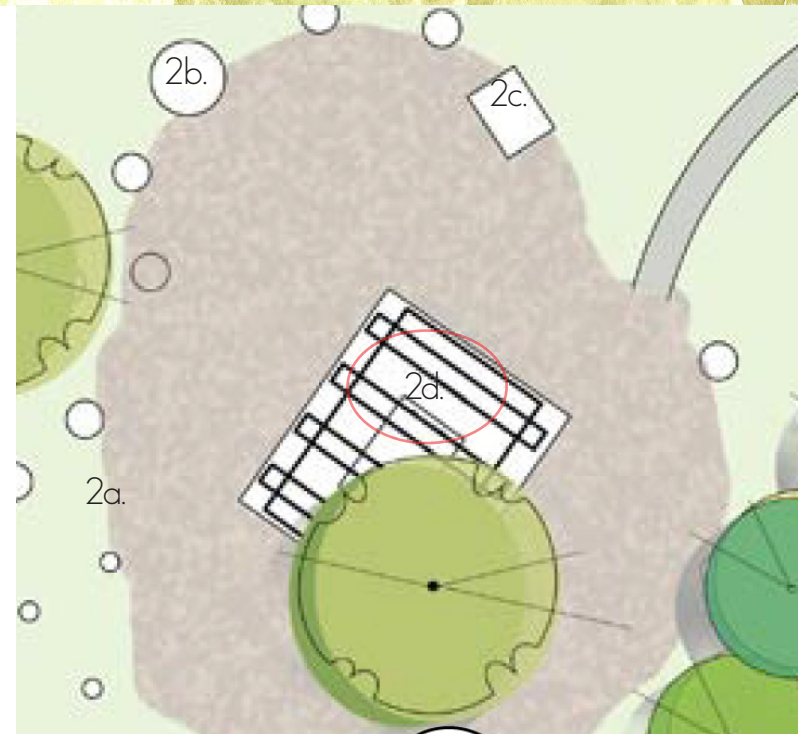
2c is an interactive question-and-answer board, where frequent questions and answers. The board will be a 1.5 by 2 meters long and students will be able to gather around and interact with it





3.19. Section view of 3D model

2d is 3D model of Yantalo and its surrounding mountains. This model explains how Yantalo gets water. With this model professors to explain how the water in Yantalo is polluted. The model is located under a trellis for weather protection

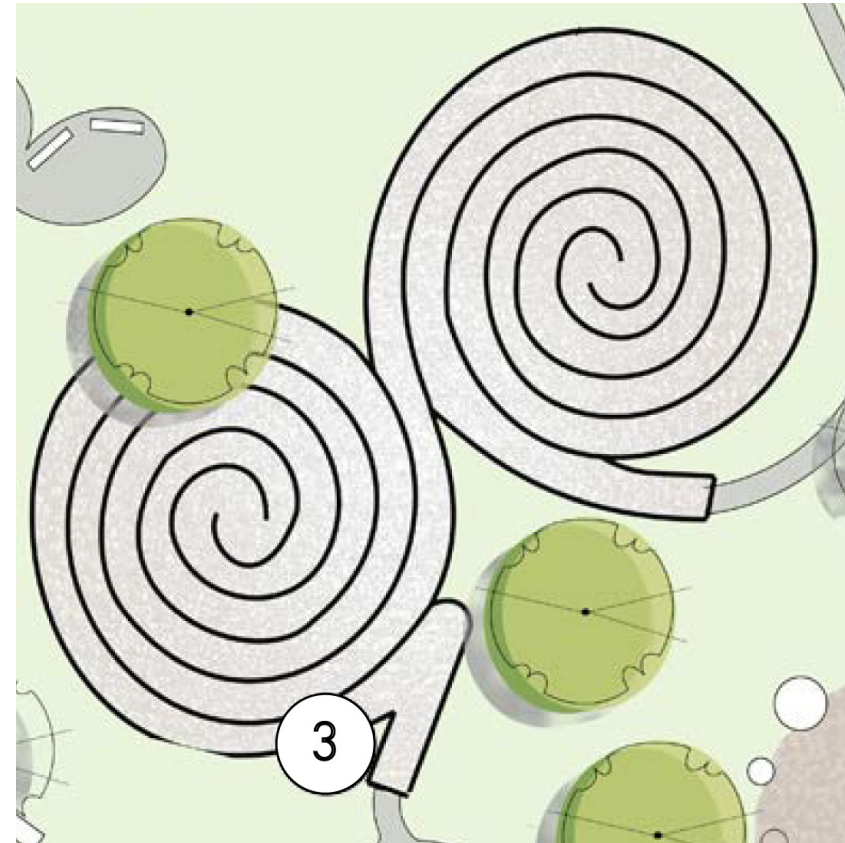


LABYRINTH

GOAL: Simple puzzle like a labyrinth allows the user to distract his/her mind from a stressful event



3.20. A simple labyrinth in this garden outstands against a savannah-like environment



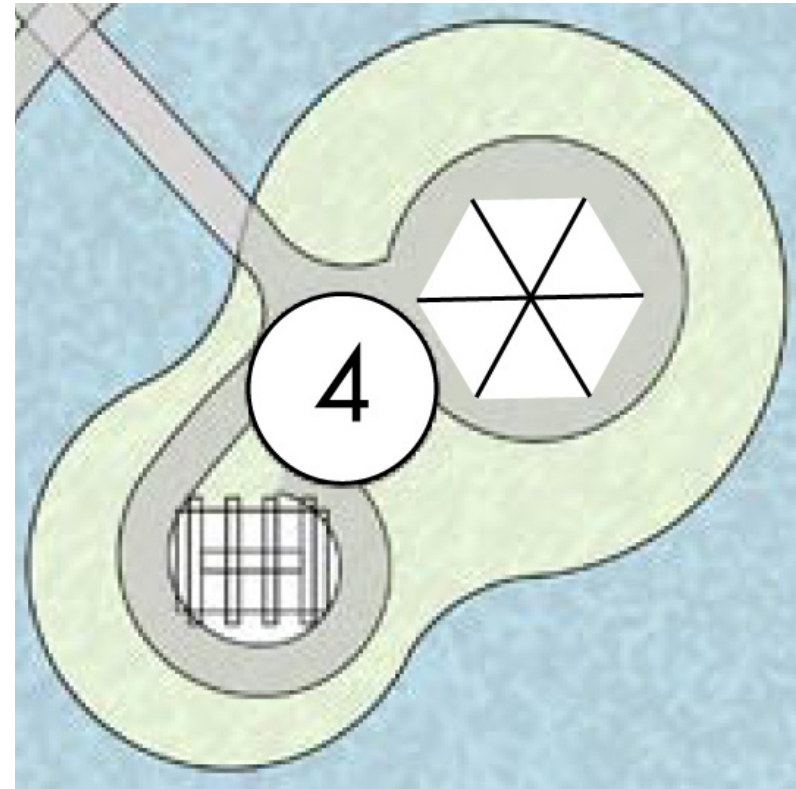
Seating provided around the labyrinth increases social interactions and also provides the opportunity to the viewers to distract their minds

PRIVATE ISLAND

GOAL: Water is an alternative method to sooth our stress



3.21. A gazebo and a trellis are the focal point in the private healing garden



Perennial plants are proposed as a buffer as a safety feature. These plants can handle being under water during heavy rain seasons. Also, they help clean the pond.

SEATING OPTIONS



3.22 Seating options are crucial in a healing garden

Circular seating provides the opportunity to the user for social interaction or privacy. It also adds an organic shape to the garden.





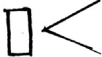



3.23. Trees provide shade and comfort

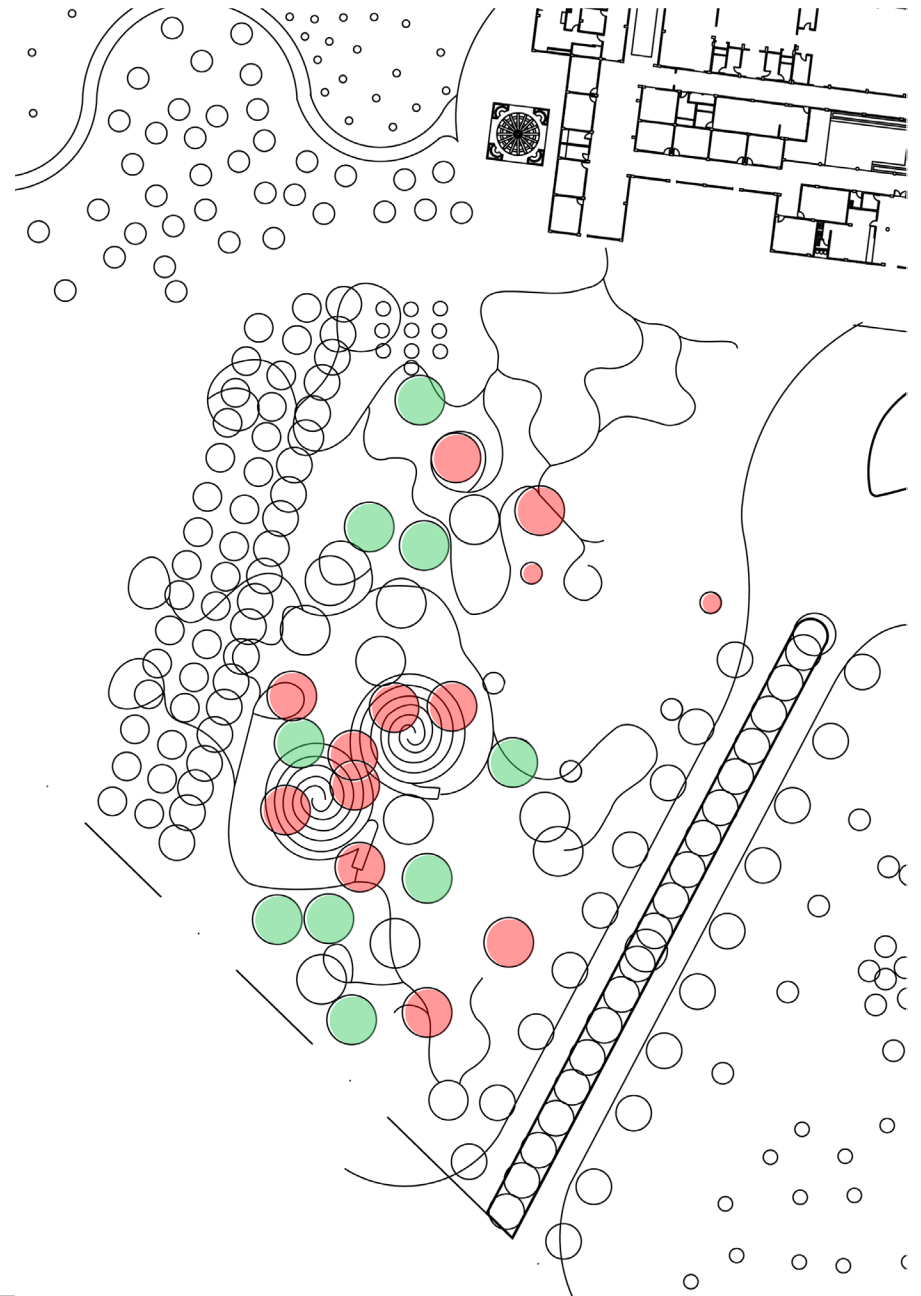
PLANTING ZONES

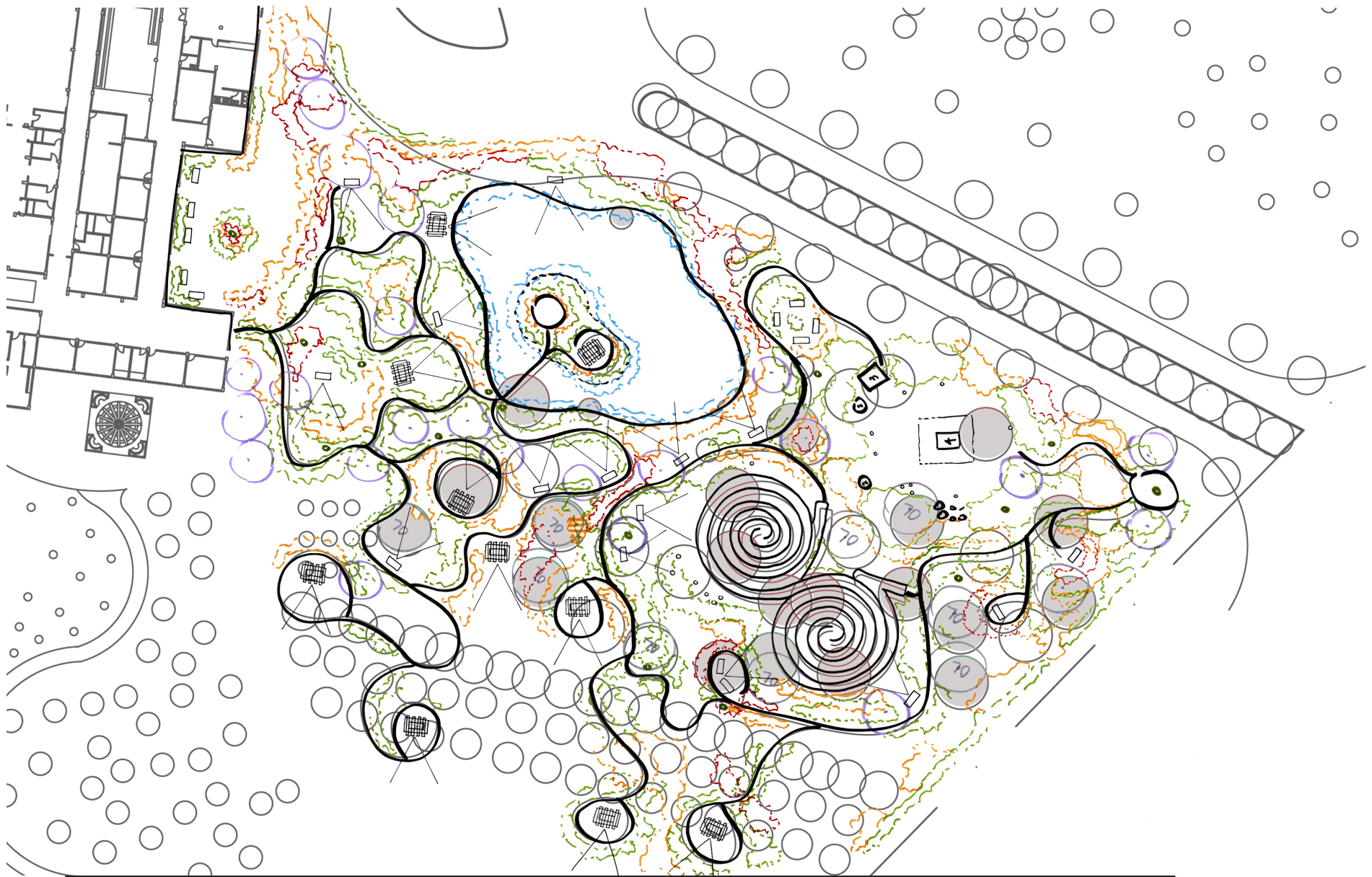
Before planting anything, it is important to remediate the soil, as it is really acidic.

** Please refer to the planting list included in the Appendix **

LEGEND

-  Relocate trees
-  Remove trees
-  Seating & View Direction
-  Short vegetation
-  Medium vegetation
-  Tall vegetation





Yantalo's Healing Garden: A More Meaningful Community Space

APPENDIX LIST

Glossary . . . . .	. a
Trip to Peru (Diary) . . . . .	. c
Planting Data Sheet . . . . .	. m
Planting List . . . . .	. p
Bibliography . . . . .	. ac

GLOSSARY

- Healing:

“the process of becoming sound or healthy again” - New Oxford American Dictionary

“beneficial process that promotes overall well-being” - Marcus & Barnes, 1999

- To heal:

“cause to become sound or healthy again; alleviate; correct or put right” - New Oxford American Dictionary

- Garden: “a piece of ground, often near a house, used for growing flowers, fruit, or vegetables” - New Oxford American

Dictionary

“preselected habitat. It is nature tamed, nature brought down to a human scale. A garden is a pure refuge” - Gerlach-Spriggs, Kaufman, & Warner, 1998

“encompass any green outdoor space within a healthcare facility” - Marcus & Barnes, 1999

“garden is a healing tool” - Marcus & Barnes, 1999

- Healing garden: “space to look out at, and a space for passive or quasi-passive activities” - Marcus & Barnes, 1999

“A comfortable outdoor open space that takes advantage of the aesthetics of nature and provides a place for the individual to reduce his/her stress and therefore improve their “overall sense of well-being” - Marcus & Barnes, 1999

- Comfortable: “providing physical ease and relaxation” - New Oxford American Dictionary

- Metastasis: “development of secondary malignant growths at a distance from a primary site of cancer” - New Oxford American Dictionary

- Sense of well-being: “the condition of perfect bodily, spiritual and social well-being and not solely the absence of illness and injury” - the World Health Organization in Rawlings, 1998

- Restorative garden: "intended by its planners to evoke rhythms that energize the body, inform the spirit, and ultimately enhance the recuperative powers inherent in an infirm body or mind" - Gerlach-Spriggs, Kaufman, & Warner 1998
"an environment that fosters [a balanced sense of well-being] recovery" - Francis & Hester, 1990

TRIP TO PERU (DIARY)

On Friday, March 23, I arrived at 9:20 pm local time (11:20 pm PST time). As I stepped out off the plane, the humid and warm weather hit me. The airport was very small, and it was surrounded by dense tree vegetation with a mixture of palms. I felt as if I was arriving at a warm beach. I stepped into the terminal and found the person who would drive me to the hotel. The city was dimly lit by streetlights, but it didn't matter. It seemed that the city was gathering at the main plaza, because as we drove through the plaza, one could see motorcycle after parked motorcycle. As we passed the

plaza, I was surprised to find two teenage girls jump onto a motorcycle and drive away. I was also excited to see that not many cars were in the streets. Most people used motorcycles and motorcars - a version of a bike taxi, but with a motorcycle.

The next day, on Saturday, March 24, Dr. Vasquez reserved me a taxi that drove me to Yantalo. The driver was from another town near Tarapoto called Iquitos. He drove everyday to Tarapoto to go to work. During the trip he told me that the only way to get to Tarapoto was by the highway. As we drove along the highway the landscape view was beautiful - grassy land with heavy dense trees populating the hills. It was a misfortunate to find some big patches of burnt grass with cut-down tree trunks. The highway was abandoned, but at some high points one could find people waiting, seated next to the highway. After a long drive, we finally arrived at Moyobamba. The streets were filled with motorcars. It was like a normal city where finding parking is a nightmare. The only difference is that instead of automobiles, one gets motorcycles and motorcars. We stopped here for a while, because I wanted to buy a local phone and Yantalo is such a small town that there are no telecom-

munication stores there. Upon arriving in Yantalo, we were stopped by two citizens - an old woman and a man, standing next to a gate and holding a rope. We needed to pay a fee before we got into Yantalo. Once I was at the clinic, Dr. Vasquez welcomed me and introduced me to Wuilman Perez, the project coordinator, Engineer Jorge A. Seclen, and the construction team. Seclen gave me a tour around the site and told me about Peru's reforestation goal, which the Yantalo Foundation is pleased to participate in. The Yantalo Foundation is trying to reach a 6,000 trees of reforestation on their site. Along the entire site, there are five different types of ant infestation that killed several newly planted trees. Then we walked around the site this thesis will present. It is roughly one acre and it includes a man-made pond. They realized that the water naturally settle in this area and wanted to take advantage of this feature. The pond is 30 cm (about a feet) deep, for safety reasons. They added drainage pipes that would divert the water to a nearby sloped green area that will cleanse the water before it reaches the Mayo River. Currently, the water is collecting debris from the area, which does not make it appealing at this time. Dr. Vasquez emphasized that a fountain is planned in the pond, because as long

as the water is in constant motion, it will prevent insects from leaving their larvae.

During the tour, Seclen also explained to me that the clinic's design, with roofing at wfour meter on the west side, five meter in the center, and sixmeter at the east side, takes advantage of the natural wind patterns, allowing the clinic to be naturally ventilated and not dependent on air conditioners. As we walked through the clinic, Seclen mentioned that there are five healing gardens in this project, three that will be located indoors and two outdoors. One of them will be a more private and active healing garden located behind the clinic. So far, one-third of the clinic has been built and the construction team is working very hard to start the second phase of construction.

By 2 pm, we were done with the tour, and Dr. Vasquez and I headed for lunch. Someone from the construction team gave us a ride in his motocar. As we drove over the muddy road, I saw several street dogs with severe skin lesions. It was also interesting to see a really big pig, the biggest pig I'd ever seen in my life. At some point the muddy roads changed to asphalt and we were close to the main plaza. We arrived at the Las Palmeras restaurant, located in this one block main plaza. Dr.

Vasquez and I took a table near the entrance. As we waited for our food, I couldn't help but notice two peculiar roosters walking freely in a planter box. After finishing our lunch, Jessica, the restaurant's owner, explained to me that all the water used for cooking and drinking was boiled.

We then headed to the house where I stayed during this trip. It was located two blocks away from this main plaza. It was interesting to find that most of the streets from the surrounding areas were not developed.

After we crossed the second road, there was a nude-colored simple house in the corner. Dr. Vasquez knocked on the door and an old man opened the door. His name is Luis, but we called him "Don Lucho." Dr. Vasquez then introduced me to him, and Don Lucho explained to me that the two volunteers who were staying there were not at home. So, he decided to give me a tour of his humble house. It had a small living room and his main room. Then, two more rooms were added as wings to this main house - the volunteers' rooms. We then walked into his beautiful garden. There was no grass, but there were plenty of ornamental plants on the site. His house was

not like any other house; his kitchen, bathroom and living areas were not in the same structure. All of them had their own space within his land. His kitchen was very humble. He built it using local and natural materials. It has no windows, the roof is made out of palm leaves and provides enough air to ventilate the kitchen. Only one lightbulb lights this room. The bathroom is located a couple feet away too. We sat outside the kitchen, and Don Lucho welcomed me with a fruit called sapote, a very sweet orange fruit. While I was trying to eat this fruit without getting anything on my clothes, I started to observe his garden. Dr. Vasquez then left and Don Lucho started to talk. During this conversation, I realized the important role of the "Adelina Soplin, Yantalo Clinic and Diagnostic Center." Don Lucho told me that his wife was out of town, staying in Lima with one of their kids because she broke her nose and had to fly to Lima (remember I told you it was a two and half hours ride to the nearest airport and then an one hour flight to Lima). She was previously an in-patient at the Lima hospital because she had ovarian cancer and had undergo a removal surgery. He was emotionally stable, but he missed his wife. Don Lucho also suffered from hepatitis and had to regularly go to the doctor. His case is not as severe, so he can attend a clinic in Tarapoto.

I was curious to know how it was that he didn't move with his wife to Lima, like his three kids. He explained to me that he owned his own chacra, or agricultural land, and did not want to move to the "big city" because he felt comfortable in Yantalo. Don Lucho further explained that most people in Yantalo either own their own chacra, or work for someone who owns one.

On Sunday, March 25, I began to photograph Don Lucho's plants and use them as part of my own planting palette. This garden has an interesting design feature. It uses a natural planter, a huingo, the shell of this fruit is very thin, but it can support delicate plants that do not produce heavy roots. I started to learn the common names of the plants around the area. I went for a walk, and saw how everyone receives others with a big smile and a warm hello or good morning. During my mini-tour, a bamboo project called my attention. Yantalo was also growing bamboo as one method to fight deforestation. As mentioned, agriculture is the main business, and walking around the town, one sees how most of the homeowners use extended black plastic covers for drying up coffee and cocoa beans along the front of their house and into the streets. Children get involved in this activity,

periodically turning over the beans. As I walked around for a couple blocks, I realized that the streets were too wide for its users. They were like a normal (10' for each lane) width of a two-way lane in the United States. As mentioned, the main transportation modes are motorcycles and motorcars. It is not common to see cars; during my trip I only encountered three cars in Yantalo. This space could be used to improve the streetscape. Since the existing design does not provide a comfortable street, because it lacks tree coverage, which shortened my adventure because I was getting dehydrated.

Further in the day, I took a motorcar with my roommate (a volunteer studying epidemiology) to Moyobamba to access Internet access. Moyobamba is the capital of the district. But the majority of the community sees Tarapoto as the capital. On our way to Moyobamba, we shared the highway with few cars. As we traveled on the highway, at one point a heavy acid and disgusting smell hit my nose, I saw that the trash disposal was next to us. There were piles and piles of trash wrapped in plastic bags and several vultures flew over the trash. Midway to Moyobamba, we were stopped by uniformed men with guns. My roommate explained to me that they are like a security patrol that

takes care of the highway and the people who traveled on it. The motorcar driver stopped and gave them a donation. We arrived at the central and most active market plaza in Moyobamba. There were two Internet cafes in the city, and it being a Sunday, it was popular for teenagers and kids to hang out in these places and play videogames or otherwise use the computer.

I realized that education should be a major component of this project. So, on *Monday, March 26*, I decided to talk with different teachers at Yantalo's school, called Dionisio Ocampo Chavez school. I was warmly received by Luis Silva, who teaches communication science. He explained that there are two systems in Peruvian education: at the elementary level only one professor covering all the subjects, and at the middle to high school level several teachers cover different subjects. The school has 600 students in total, and most of them normally go to work on their parents' plot or help their parents with whatever they need assistance in. This causes problems in these children's education because their focus is not only school, and most don't pay as much attention in their education as they should. Unfortunately,

parents play a big role in this because, if needed, they take their children out of school because there is a lot of work.

Mr. Silva, also mentioned that the school owns 12 acres of land, most of which is just being left in its natural state. Within these 12 acres, teachers have built a nursery as an additional teaching tool. Unfortunately, the location of this nursery is not taking full advantage of the existing natural resources at this site and will soon be relocated. The school supports all the students who are interested in having their own plot of land, by giving them some space within the site. Students need committee members as part of their personal project. At times teachers choose this activity as positive reinforcement. The school is also participating in the reforestation goal and have planted approximately 380 bamboo plants around the school property.

In the afternoon, I re-visited the clinic to do a site inventory of plants with the help of Wuilman. The trees within this site - are either used for their fruits or reforestation purposes. Wuilman told me that some days early in the morning he has seen monkeys towards the north part of the clinic. During the tour, Wuilman showed me one plant and accidentally moved the trunk. To our surprise a bat came flying out of the tree. Several trees

had ant and wasp infestations, but Wuilman said they are not worried because the community is well aware of them and these insects had become beneficial as they help protect the plant. Wuilman clearly illustrates all the knowledge a Yantalo citizen has about the plants around the area. Even though he didn't know the scientific names, he knew the benefits of each plant.

As mentioned, the clinic actively supports the reforestation project Peru is conducting, and so far, the clinic has planted 1452 trees and still plan to reach 6000 trees by the end of the construction phase.

The next day, *Tuesday, March 27*, I went back and met with Max and Luis Selis, both of whom teach environmental science to the middle and high school students. We discussed what topics we could use within the site. During the meeting, I asked Max to please describe me in detail his class and the Environmental Committee at school. He explained that November is environment month, when the teachers prepare a one-day program for students from 4th level to high school. In this program students attend seminars about different environmental topics like air, water, and soil pollution. Yantalo's air pollution problem

is mainly due to burning debris, plastics, and trash. The school has been conducting different programs throughout the year and teaching students about the detrimental effects of these activities. Yantalo also has a big problem with soil pollution due to pesticides and chemical waste. Additionally, the trash disposal is only 2 km away from Yantalo and contaminates the soils. Water pollution is one of the main problems in Yantalo, as the clinic often receives families with stomach infections. I went back to the host home with environmental science books of all school levels, and analyzed the material to decide what cohesive and multidisciplinary topics could be used for the site.

On my way back to Don Lucho's house, I stopped at the Municipality and looked for the person in charge of the environmental department to see if there was a native planting list that I could use. I met Levi Aguilar, who told me to come on Thursday for the list.

Later in the afternoon, I went to Moyobamba and visited two nurseries: *Vivero Selva Verde* and *Agrovivero Oriente*. The goal was to learn the local ornamental plants. At Yantalo most of the landscape consisted of trees and some shrubs. The landscape was monotone green, without a variance in colors, and the groundcover lack veg-

etation and exposed the soil. The Vivero Selva Verde nursery did not have ornamental plants. Then, I visited the first orchid nursery in the area - Agrovivero Oriente. Peru is home to the world's third widest variety of native orchids. There are two main types of orchids: terrestrial and aerial. There are only 3 terrestrial orchid varieties. The aerial orchids will require special accommodations.

On *Wednesday, March 28*, I took the books back to the school and decided to narrow the options for the clinic's educational site. I met again with Max and Selis to find a topic, broad enough, that was flexible to cover most environment themes. After a long discussion, we decided to focus in the environment month on November. So, after the seminars, students will visit the educational garden in the Yantalo Healing Garden and interact with the designed features.

After the meeting, I went to the clinic and met with Seclen and Wuilman. We discussed the material availability and the site designs I had in mind. The most common material is wood and concrete and their feedback helped me re-think the design. During the meeting,

Seclen provided me information of an environmental engineer that could help me identify plants and recommend plants for the area. The environmental engineer Juan Jose Pinedo and was a professor at the Universidad Nacional de San Martin in the Environmental Engineer college.

After the tour, I visited the other house volunteers stayed. It wasn't surprised to find couple trees and heliconias in her backyard. I was then introduced to Paola Ruiz, who had two kids and a husband. Both kids attended the school and her husband worked at a mechanical store in Moyobamba. She has a baccalaureate degree in agriculture and explained me that the owner of the Agrovivero Oriente - Engineer Renato Villena Ruiz, is well-known world-wide environmental engineer and currently, teaches at Instituto Superior Tecnológico Alto Mayo in Moyobamba, Engineer Renato and she could help me get in contact with him for more knowledge.

Later that day, Paola and I headed to the Universidad Nacional de San Martin to look for Pinedo. We were stopped by uniformed men and Paola explained to me they fought during the civil war. After the civil war, they decided to patrol the highway and accepted donations. Once at the University, we didn't find him and came an hour later. During that

an hour period, we were able to have lunch and come back in time to have a tour within the school and learn more about plants. Pinedo is very knowledgeable and his passion allowed us to have a stepping stone between the volunteer program with the University. Pinedo introduced us with the director of the college and she was excited to see this project go forward and will love to have their students participate in this innovative project. Moyobamba has two environmental engineer institutions that can work with the Yantalo Foundation. These students have the knowledge, foreigners don't, of local plants, and their benefits.

During our way back to Yantalo, we were amazed by the flowers that were hanging over the house's fence. She suggested to stop and knock on the door to see if we could look at their plants' collection. To my surprise, we actually did it. We parked the motorcycle and knocked in the door. An old woman attended the door and was surprised to see strangers at her door. We introduced ourselves and explained that we loved her garden. She was a bit busy, but gladly showed us around. Her garden was beautiful. It had grass. She has several planters and propagates her own plants. It was interesting to

see how warm and inviting the Peru community was. Even though she didn't know us, she was glad to share her knowledge with us, and she even gave us some plant samples to propagate. It was getting late, and I was getting concerned, because we had to go on the highway and it was not safe to be on the highway so late. It was getting dark and finally left. It was nerve-racking going over the highway this late. The only light source came from the motorcycle. Everything was dark. The starts were beautiful. Paola wasn't nervous or scared. She told me that she has done it several times and hadn't encounter anything that scared her. Halfway through our way, a flashlight was pointed towards us; it was the highway patrol, and as we passed them we said goodbye and thank you.

This night was different than any other night, because a social event was programmed in the main plaza. An event that included live-music and bingo. Even with a blackout, a lot of people showed up.

On Thursday, March 29, I met with Levi Aguilar, who gave a planting list. The list was short. It was divided by the plant's family member, and included the plant's common name and scientific name.

During the morning, I'd met with Professors Max and Selis and finalized the designs for the site. The design includes a seed sculpture, a tree sculpture, and an interactive questionnaire board. During the meeting, a last piece was designed, as the teachers explained me Yantalo's environmental problems. The community from Yantalo received their water from the mountains. This rain water runs down the mountain. During its journey to Yantalo, the water collects chemicals from pesticides and bacteria from feces. This water creates health problems because the community drinks polluted water. Yantalo is also going through the deforestation, which is spreading to the mountains. After talking about the issues, I realized that a model explaining the water trajectory to Yantalo will be more effective for student to understand the problem. This model will be interactive, small pieces of the model will be able to be moved and relocated. Allowing students to generate a model that will represent the ideal sustainable solution for this problem. This design piece will require materials that are not provided locally. So, I called Dr. Vasquez and asked about this idea's feasibility and he responded that he could make it happen, by searching for an institution that will be willing to

help us with it.

Then, in the afternoon, I headed to the Instituto Superior Tecnológico Alto Mayo and met with Engineer Renato Villena Ruiz. Villena explained to me that in this zone, the normal pH of a soil is 3.5 in the zone, because as it rains, the rain washes out all the ions from the soil and deposits them at the Atlantic Ocean. He then emphasized that the soil in the clinic needs to be treated in order for it to be better for plants. Some of his suggestions was to mix the soil with volcanic rocks, salt, or sawdust. Any material that will give back its salinity to the soil with work. One of the best solutions is to mix it with organic material. But if the soil is not treated, it will have to accommodate plants that can stand really acidic soils. At the end of the meeting, Villena invited us on Sunday to his private nursery.

At the end of this night, teenagers and kids were playing and socializing at the main plaza.

On **Friday, March 30**, I met Max and Selis one last time and went over the final concept. They were thrilled and excited about for this new opportunity. They will encourage their students to volunteer during

the planting phase.

During the afternoon, Paola took me to another nursery that was located near the Universidad Nacional de San Martin, but found the nursery to be closed. Within this land, a house was located. A family lives in this house and takes care of the nursery's. We were unable to walk into the nursery, but we stayed in their frontyard and observed the plants the lady had. The family was so welcoming and shared their knowledge about the plants they had in their front garden. It was interesting to see that a tree accommodate orchids in its branches. It was nice to see them in a "natural" growth pattern.

On my last weekend, I visited Villena's nursery and was surprise to see a great variety of coleuses, heliconias, plants from the ginger family, and a wide variety of orchids and I was able to learn more about some gardening techniques Villena shared with me.

PLANTING LIST

Special	Common Name	Scientific Name	Zone	Sun	Water	Type	Height	Wide	Flower Color
	Yarrow	Achillea millefolium	23, 24	F	L	Perennial	90 cm		yellow, pink, red
	Huingo	Crescentia cujete							
		Pachystachys Lutea							
	Cresta de gallo	Celosia cristata	23, 24, H1, H2		M	Annual	45 cm	45 cm	yellow, orange, crimson, purple, red
	Buganvilleas	Bougainvillea 'Barbara Karst'	23, 24, H1, H2	F	M-R	Evergreen	2.4 m		violet
	Cucarda	Cucarda hibiscus						1.5m	several
	Hawaiian White Hibiscus	Hibiscus arnottianus	23, 24, H1, H2	F	R		9 m	7.6 m	white
	Dalia	Dahlia variabilis híbrido octaploide	23, 23	S	R	Perennial			
Edible/ Kitchen	Aji								
	Impatient Jungle Gold	Impatiens auricoma 'Jungle Gold'	24, H1, H2	S	R	Perennial	50 cm	45 cm	yellow
	New Guinea hybrid	Impatiens New Guinea hybrids	24, H1, H2		R	Perennial	60 cm	60 cm	varies
		Impatiens walleriana	24, H1, H2	S	R	Perennial	60 cm		varies
	Fuchsia	Fuchsia campos-portoi	23, 24			Shrub			
		Fuchsia denticulata	23, 24						
Edible/ Kitchen	Torch ginger	Etilingera elatior	H2	S/P	R	Perennial	6 m		
	Anturios	Anthurium crystallinum	H2	P	R	Perennial	45 cm	30 cm	
		Anthurium scherzerianum	23, 24, H2	P	R	Perennial	60 cm	30 cm	varies
Edible/ Kitchen	Blue Ginger	Dichorisandra thyrsiflora	23, 24, H1, H2	S	R	Perennial	90 cm	2.4 m	
		Brugmansia 'Peaches and Cream'	23, 24, H1, H2	S	R	Shrub	1.5 m	1.5 m	peach and cream
Edible/ Kitchen	Red Ginger	Alpinia purpurata	23, 24, H1, H2	P	R	Perennial	3.6 m	90 cm	red
Orchid		Cattleya Rex	H2	S	R	Orchid			
Edible/ Kitchen	Garlic vine	Pseudocalymma alliaceum		F	M	Perennial			Light or dark pink
Edible/Kitchen/Medicinal	Achiote	Bixa orellana		F			3 m		Light pink
Garden		Crococsmia x crocosmiiiflora	23, 24, H1, H2	F/P	R	Perennial	1.2 m	60 cm	orange
Garden/Seasonal		Heliconia angusta	24, H1, H2	F/P	RR	Perennial	3 m	90 cm	white
		Heliconia brasiliensis	24, H1, H2	F/P	RR	Perennial	1.5 m	70 cm	white or red
		Heliconia caribea	24, H1, H2	F/P	RR	Perennial	4.5 m	1.5 m	white
		Heliconia pendula	24, H1, H2	F/P	RR	Perennial	2.4 m	90 cm	yellow, orange, red
Edible/ Kitchen/Smelly	Cerezo	Eugenia uniflora	23, 24, H1, H2	F/P	R	Shrub	7.6 m	4.5 m	white
	Escudo del emperador								
		Koellenyteinia graminea							
		Lycaste ciliata							
Garden/Screening	Crotos	Codiaeum variegatum 'Pictum'	H2	P	RR	Shrub	60 cm		

	Planta persa								
	Falso trebol								
	Lentejita								
	llama planta								
Orchid	Zapatito del rey	Paphiopedilum spp.		P	R	Orchid			
Orchid	Zapatito del nino			P	R	Orchid			
Orchid	Zapatito del bebe			P	R	Orchid			
		Estenia pallida							
		Ciscueinfia emarginata							
	Galatea??								
	Begonias								
		Schifflera							
	Gitana "coleus"								
	Cordiline								
	Hydrangea	Hydrangea aspera		P	R				
Trellis	Lluvia de oro	Pyrostegia venusta	23, 24, H1, H2	F	M	Vine			orange
		Esparragus officinalis							
Oncidium	Oncidium	Oncidium bawerii	23, 24, H1, H2	P	R	Orchid		30 cm	
		Phragmipedium epifitas							
		Oncidium Sharry Baby 'Sweet Fragrance'	23, 24, H1, H2	P	R	Orchid	10 cm	20 cm	
Focal ground cover		Ophiopogon planiscapus 'Nigrescens'	23, 24, H1, H2	F/P	R	Perennial	20 cm	30 cm	light pink, almost white
		Encyclia randii				Oncidium			
		Oncidium fuscatum				Oncidium			
		Lycaste denningiana				Orchid			
		Mimosa julibrissin							
	Agapanto Azul	Agapanthus africanus	23, 24, H1, H2	F/P	L	Perennial	45 cm	60 cm	deep blue
	Cola de Zorro	Acalypha hispida	24, H2	P	R	Shrub	3 m	1.8 m	red
Edible/ Kitchen	Mustard			F	R	Annual			

	Althernanthera	Sanguinaria alternanthera							
Screen		Sansevieria trifasciata	23, 24, H1, H2	P	M	Perennial	1.2 m	60 cm	
		Zephyranthes candida	23, 24, H1, H2	F/P	R	Perennial		10 cm	white
	Exora	Ixora 'Thai Dwarf'	H2	F	R	Shrub	1.2 m	1.2 m	red, orange, gold, pink, yellow
	Hydrangea								
	Hemerocallis	Hemerocallis fulva	23, 24, H1, H2	P	R	Perennial	1.5 m	1.2 m	orange-red
	Hemerocallis	Hemerocallis hybrids	23, 24, H1, H2	P	R	Perennial	1.2 m	90 cm	
		Pennisetum setaceum	23, 24, H1, H2	F/P	M	Annual	1.5 m	1.5 m	
	Kasandra	Coreopsis grandiflora	23, 24, H1, H2	F	L-M	Annual	60 cm	90 cm	yellow
	Culantrillo	Adiantum capillus-veneris	23, 24, H1, H2	F/P	RR	Ferns	45 cm		
Trellis		Antigonon leptopus	23, 24, H1, H2	F	M	Vine			pink
Trellis	Plumbago azul	Plumbago auriculata	23, 24, H1, H2	F	LM	Vine			
Edible/ Kitchen/Smelly	Romero	Rosmarinus officinalis	23, 24, H1, H2	F	LM	Shrub	1.8 m	1.8 m	
	Natal Ruby Grass	Rhynchelytrum nerviglume	23, 24, H1, H2	F	R	Grass	60 cm	60 cm	
		Riza maxima	23, 24	F	0	Grass	60 cm	30 cm	
	Blooming Reed Grass	Calamagrostis brachytricha	23, 24	F	R	Grass	75 cm	60 cm	white
	Mint Bush	Prostanthera rotundifolia	23, 24	F	M	Shrub	1.8 m	1.5 m	Purple-blue

PLANTING LIST ILLUSTRATIONS

Images provide by sunset western book

Achillea millefolium



Crescentia cujete



Pachystachys Lutea



Celosia cristata



bougainvillea barbara karst



Cucarda hibiscus



Hibiscus arnottianus



Dahlia variabilis hibrido octaploide



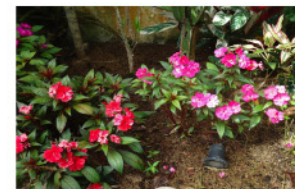
Impatiens auricoma 'Jungle Gold'



Impatiens New Guinea hybrids



Impatiens walleriana



Fuchsia campos-portoi



Fuchsia denticulata



Etilingera elatior



Dichorisandra thyrsiflora



Anthurium scherzerianum



Brugmansia cubensis 'Charles Grimaldi'



Brugmansia 'Peaches and Cream'



Alpinia purpurata



Lantana Camara



Cattleya Rex



Anthurium crystallinum



Pseudocalymma alliaceum



Bixa orellana



Crocosmia x crocosmiiflora



Heliconia angusta



Heliconia brasiliensis



Heliconia caribea



Heliconia pendula



Eugenia uniflora



Koellenyteinia graminea



Lycaste ciliata



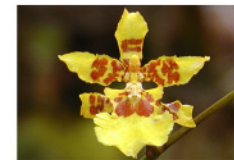
Codiaeum variegatum 'Pictum'



Alocasia plumbea 'Nigra'



Oncidium bawerii



Encyclia randii



Oncidium fuscatum



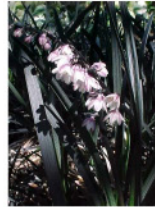
Lycaste denningiana



*Oncidium Sharry Baby 'Sweet
Fragrance'*



Ophiopogon planiscapus 'Nigrescens'



Mimosa julibrissim



Agapanthus africanus



Callistemon citrinus



Tecoma stans



Erythrina crista-galli



Magnolia 'Little Gem'



Solenostemon scutellarioides
Coleus



Salvia leucantha



Limonium perezii



Sanguinaria alternanthera



Sansevieria trifasciata



Zephyranthes candida



Zephyranthes grandiflora



Zephyranthes citrina



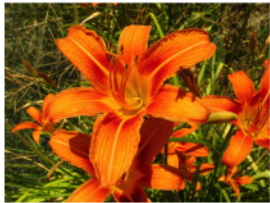
Ixora 'Thai Dwarf'



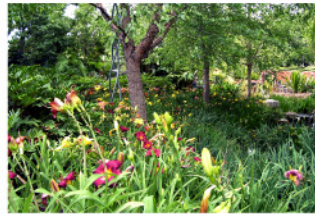
Hydrangea aspera



Hemerocallis fulva



Hemerocallis hybrids



Pennisetum setaceum



Coreopsis grandiflora



Adiantum capillus-veneris



Antigonon leptopus



Pyrostegia venusta



Plumbago auriculata



Rhynchelytrum nerviglume



Ricinus communis



Briza maxima



Calamagrostis brachytricha



Prostanthera rotundifolia



BIBLIOGRAPHY

Gerlach-Spriggs, Nancy, Richard Enoch Kaufman, and Sam Bass Warner. (1998). *Restorative Gardens: The Healing Landscape*. New Haven, CT: Yale UP.
(Gerlach-Spriggs, Kaufman, & Warner, 1998)

Francis, Mark, and Randolph T. Hester. (1990). *The Meaning of Gardens: Idea, Place, and Action*. Cambridge, MA: MIT.
(Francis, et al., 1990)

Marcus, Clare Cooper., and Marni Barnes. (1999). *Healing Gardens: Therapeutic Benefits and Design Recommendations*. New York: Wiley.
(Marcus & Barnes, 1999)

Rawlings, Romy. (1998) *Healing Gardens*. Minocqua, WI: Willow Creek.

Stark, Alex. "Buildings That Heal." Alexstark.com. Web. Mar. 2012. <<http://www.alexstark.com/pdfs/Buildings%20that%20Heal.pdf>>.

Sternberg, Esther M. (2009). *Healing Spaces: The Science of Place and Well-being*. Cambridge, MA: Belknap of Harvard UP.
(Sternberg, 2009).