



# Myakka City Lemur Reserve

A conservation education  
diamond in the rough

JABAZI TAYLOR

# Myakka City Lemur Reserve

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diamond in the rough*

A Senior Capstone by

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Bachelor of Landscape Architecture

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A special thanks to Lee Nesler and Pattie Walsh for touring me around the reserve, answering my questions and for passing along any necessary resources.

Additionally, a special thanks to Catherine Olteanu for giving my project a voice through LCF's web blog.  
I am forever grateful for this opportunity.

# Introduction

The Myakka City Lemur Reserve is a conservation institution belonging to the Lemur Conservation Foundation that is located in a small rural farm town called Myakka City in the eastern part of Manatee County, Fl. Surrounded on all sides by agricultural and rural residential land uses, this 100 acre site hosts an impressive gradient of different ecosystems. The reserve is home to 44 Madagascan primates called lemurs that are kept here in close to natural conditions in large forest enclosures. There are additional holding facilities that host several indoor indoor/outdoor enclosures of varying size (usually around 8x8) where lemurs are kept when not free-ranging within the large enclosures.

While the lemurs are not native to the Florida, they have adapted to live in these enclosures with the daily assistance of the Lemur Conservation Foundation staff. They have no detrimental impact on the landscape and interspecies conflict between the lemurs and native Florida fauna is prevented through various measures of security.

This institution is not a zoo, as it is not open to the public. It serves primarily as a research institution where scientists, collegiate level students, and other special guests can come and do behavioral research on the lemurs in the enclosures. The reserve also participates

in conservation breeding programs that ensure there will be a healthy genetic pool of these critically endangered primates outside of Madagascar that can fortify natural Madagascan populations if their numbers ever dwindle too low.

I was introduced to this project by a zoo designer's blog post about it. Her name is Stacey Tarpley and her blog's name is Designingzoos.com. She toured the reserve in September 2012, and after her visit she wrote a review post of her experience and her thoughts of it as a zoo designer. I thought that this place had unique potential to be made into a capstone project that isn't regularly done. It fits into a very specialized niche

that encompasses landscape architecture and wildlife ecology. One of the main components of this project takes an interesting look at how native Florida habitat can be designed to suit the needs of these Madagascan organisms.



# The Lemur Conservation Foundation

## History

In the early 90s, Penelope Bodry-Sanders visited Madagascar and fell in love with Lemurs and the cause to save them. While in Madagascar, she learned about the plight of the about 100 lemurs and how they are constantly losing habitat due to conversion to agricultural land and destruction from the harvest of rainforest trees. When she got back she decided that she had to dedicate herself to conserving and preserving these animals. She collaborated with lemur biologists in the United States, particularly at the Duke University Primate Center to come up with a way to have a huge impact on conservation efforts for lemurs. She was especially interested in conserving the “no room on the

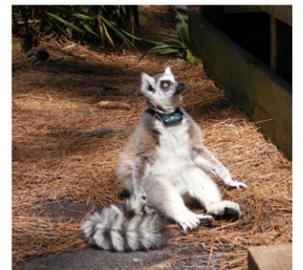
ark” species of lemurs. These are lemur species that aren’t “showy” and charismatic like the Ring-tailed (*Eulemur cat-ta*) or Red ruffed lemur (*Varecia rubra*) and don’t get as much conservation attention in most typical zoo venues because they aren’t as “marketable” to visitors. Examples of these species are:

- Mongoose lemurs (*Eulemur mongoz*)
- Brown lemurs (*Eulemur fulvus fulvus*)
- Collared lemurs (*Eulemur collaris*)
- Sanford’s lemurs (*Eulemur sanfordi*)

Thusly, in 1996, what is known today as the Lemur Conservation Foundation (LCF) was founded as the Lower Primate Conservation Foundation



Sanford's lemur



Ring-tailed Lemur



Mongoose lemur



Red ruffed lemur



Brown lemur

Examples of “No room on the ark” lemur species on left. Charasmatic/“showy” lemuts on right.

(LPCF) as a 501 C tax-exempt organization. In the coming years, the reserve would take crucial steps in acquiring generous donations to help with the development of the site including the creation of the first forest enclosure in 1998. The first 11 lemurs were brought to the reserve from the Duke University Primate Center in 1999. Up to today, the LCF has continued to develop and grow as a leading research institution for lemurs in the country



LEMUR  
CONSERVATION  
FOUNDATION



# The Lemur Conservation Foundation

## Mission

"The Lemur Conservation Foundation (LCF) is a small non-profit corporation dedicated to the preservation and conservation of the primates of Madagascar through captive breeding, scientific research, education, and reintroduction."

-LCF Mission Statement

The conservation breeding that takes place on site is a part of the Association of Zoos and Aquarium's (AZA) Species Survival Plan (SSP). These are national breeding programs aim to cooperatively breed threatened or endangered animals amongst AZA accredited institutions. As mentioned before, the LCF specializes in breeding lemur species that are underrepresented in zoos because of their lack of showiness.

Another facet of the LCF's mission is research. The naturalistic setting in which the lemurs are kept at the reserve would facilitate an easy transition to the MCLR's sister reserve in the rain-forest of Madagascar, if ever necessary. The large forest enclosures that the reserve hosts are meant to replicate habitat similar to what the lemurs would encounter in the wild. This setup makes it perfect for scientists and students to

come and do non-invasive observational research on the lemurs. This is the main reason that the reserve isn't open to the public. If visitors came to the reserve, they would disrupt the natural behavior of the lemurs. Additionally, the lemurs are often hidden within the canopy of the forest and it would be difficult for visitors even see them.

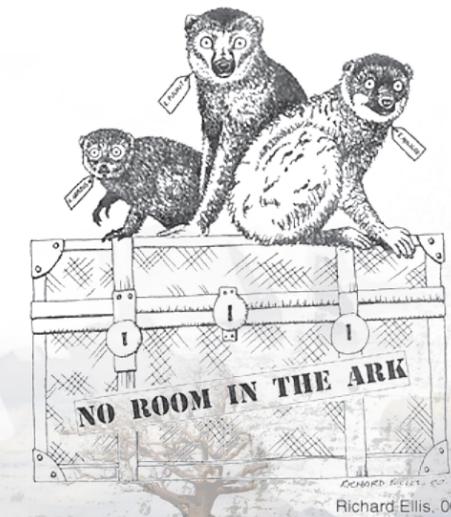
It takes a large amount of financial resources to go to Madagascar from the United States for lemur research.

The Myakka City Lemur Reserve is a place within the US that researchers can go and get close to the same experience. Over the years, students and faculty from across the nation have come to the reserve for their research.

Finally, the reserve also focuses a great deal of attention on education. College level students visit the reserve from various universities to do short term field training and techniques classes. The Mianatra Center for Lemur Studies, the newest building on the reserve, was started to be a unique educational resource that combines relevant books, papers, and journals for visitors to the reserve to utilize. Additionally, the re-

serve does presentations to schools and other youth organizations from the surrounding area about lemurs and biodiversity conservation in Madagascar.

The LCF has graciously allowed me to use their beautiful reserve as the site for my capstone project and I am very grateful to them. The mission of the Lemur Conservation Foundation is a very important one, and I hope that my project will act in tandem with the reserve's goals and mission to develop the reserve while ultimately conserving these organisms.



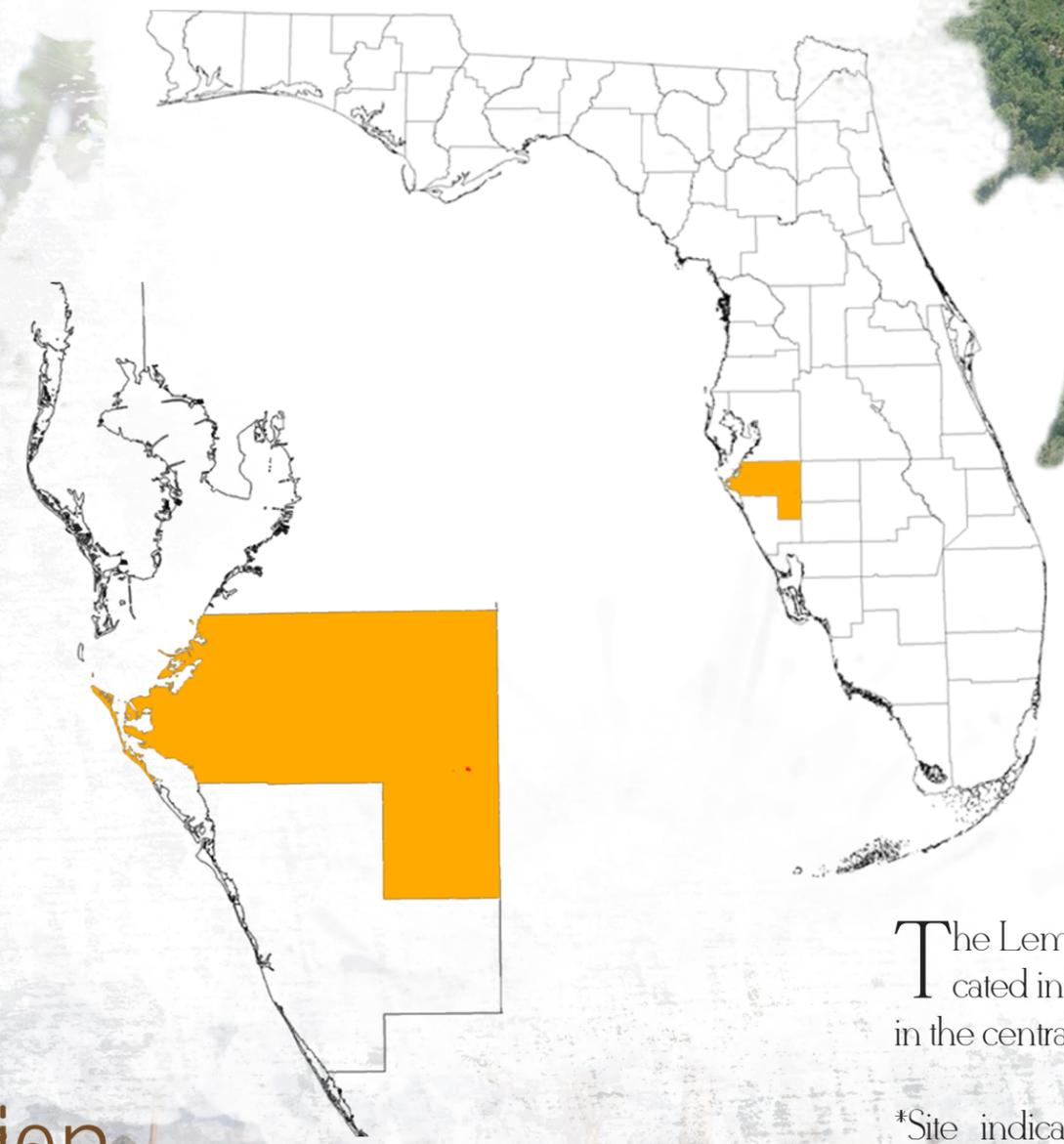


# Site Analysis



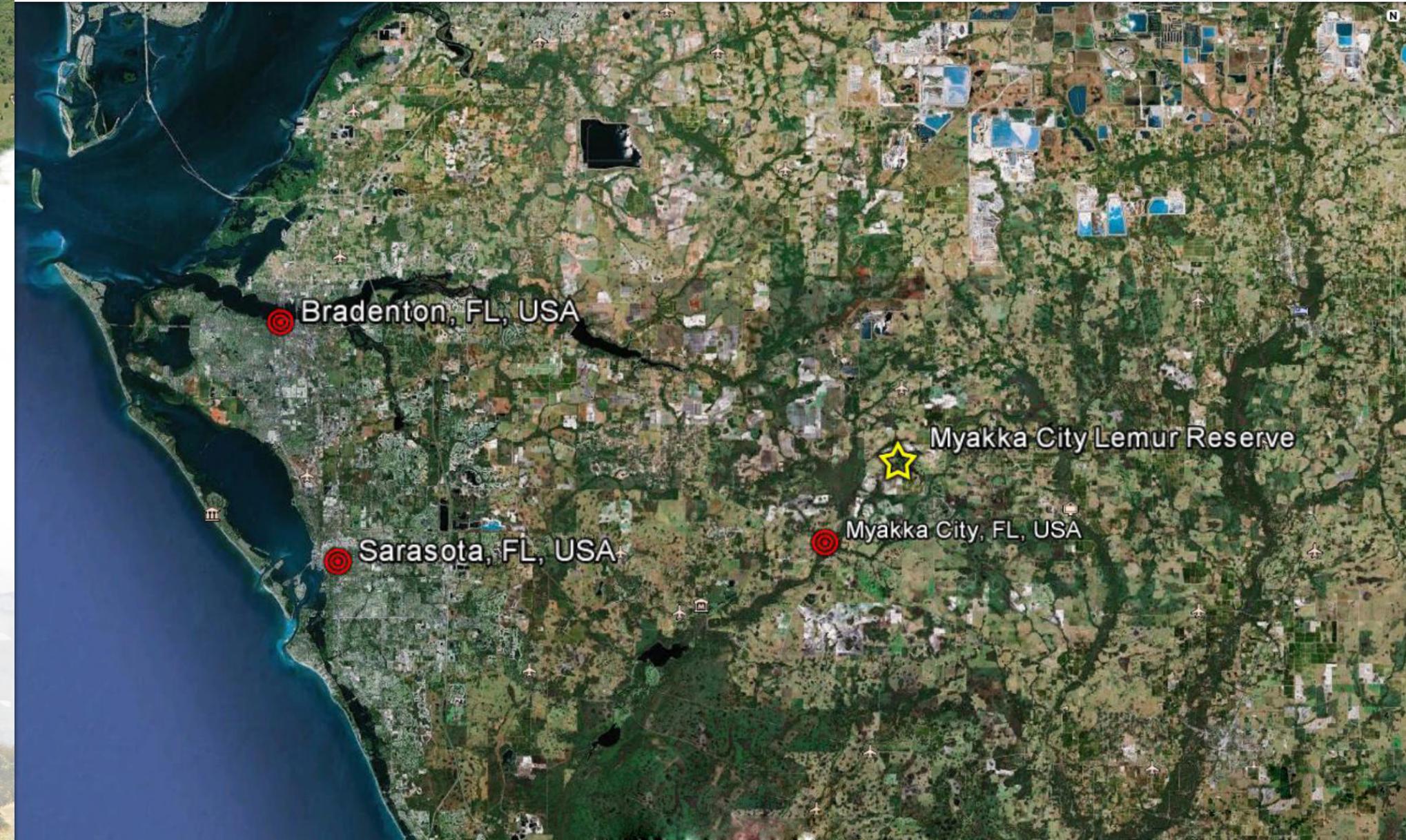
# Proximity

- Bradenton, FL - 27 miles
- Sarasota, Florida - 22 miles
- Tampa, Florida (not shown) - 45 miles
- Orlando, FL (not shown) - 95 miles



The Lemur Conservation Foundation is located in Manatee county which is located in the central southwestern portion of the state.

\*Site indicated by red dot within county.



# Location

# Topography

The topography of the site is VERY flat, with portions of the site having less than .5% slope. Water moves from south to north through the site into both Long creek and its associated wetland to the north east or the flatwoods marsh to the northwest. From the site, water drains into the Flatford Swamp Preserve which lies to the north. This site lies within the northern part of the Myakka River watershed.

## Legend

- Roads
- Lemur Reserve
- 5-foot Contours

0 260 520 1,040 Feet



# Soils

The soils on the site, given their close proximity to a swamp, are slow draining. The upland parts of the site consist of Florida's state soil, Myakka fine sand. The soils drain the fastest at the far southern tip of the property (indicated by yellow on the map).

## Legend

- Roads
- Lemur Reserve

## Soils

### Hydro Group

- A
- A/D
- B/D
- C
- C/D

0 260 520 1,040 Feet



# Site Features

**Researcher House**  
-4 Bedroom, 2 Bathroom



**Oak hammock within forest enclosure**  
-Canopy of mature *Quercus* spp., *Pinus* spp., and other associated hardwoods  
-Understory of *Serenoa repens*, *Asimina* sp., and other associated shrubs



Lemur dome within forest enclosure



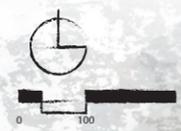
Creek running through forest enclosure



Miantra Center for Lemur Studies

Pine Flatwoods

Flatwoods Marsh (Typ.)



**Red Dog Woods**  
-Sparsely planted with oaks.  
-grasses and *Serenoa repens* dominate  
-Will become addition forest enclosure in the future



Stormwater Pond (Typ.)  
Service Road  
Reed and Barbara Toomey Lemur Pavilion  
Serenoa Scrub  
Informal trail  
Fire truck turnaround  
Marilyn K. North Lemur Lodge  
12' Chainlink Fence w/ 3' of Hot wire on top (Typ.)



**Lemur dome within Toomey Woods Enclosure**  
-Dense *Pinus elliotii* stand  
- Understory of *Sabal minor* and *Serenoa repens*



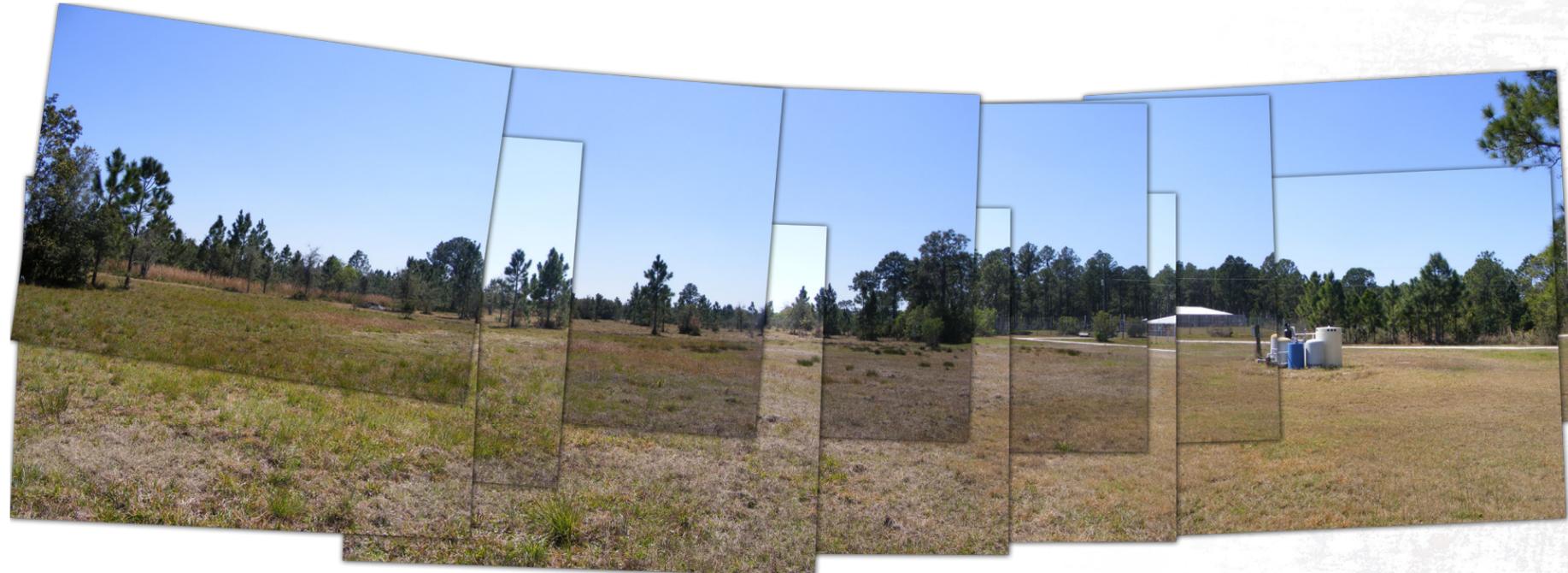
Below is a photo composition of a lemur dome in the main forest enclosure. These hurricane proof domes are where the lemurs are kept overnight and if climactic conditions aren't conducive to the lemurs being free-ranging.

Photos taken within the north enclosure. This is known as the "Main enclosure." Dominated by Oak hammocks, this enclosure hosts the "ideal" habitat for the lemurs. The architecture of the oaks and associated hardwoods is more conducive to lemur locomotion and replicates the natural habitat of the lemurs more effectively.





Above is a photo composition of Toomey Woods, the south forest enclosure. The habitat within this enclosure is very different than in the other enclosure. It is primarily Slash pine flatwoods. The slash pines do not offer the ideal habitat for the lemurs because the trunks of the trees are not easy to climb, and often break/fall off. A portion of the area was planted with oaks to modify the ecosystem into ideal habitat.



The area pictured above is named "Red Dog Woods." This clear serenoa prairie with sparse pines is one of the clearest, flattest, and driest areas on the site. Within the reserve's plan for future development, this area is set to become an additional forest

enclosure. The span of time needed for this to happen will be in excess of 20 years. To help with the conversion of this area to ideal forest enclosure habitat, several oaks have been planted in the prairie but compete with the very vigorous Saw palmetto.



# Users

## Lemurs

- 40 Lemurs on-site
- 74 Lemur catta
- 1 Eulemur coronatus
- 11 Eulemur collaris
- 75 Eulemur mongoz
- 1 Eulemur albitrons
- 5 Varecia rubra
- 23 Eulemur sanfordi
- 31 Eulemur fulvus fulvus

## Visitors

- Board of Directors
- MCLR Committee members
- Scientists
- Interns
- School groups

## Staff

- 12 FTE
- 15 Volunteers (varies)

There are various lemur species that live at the reserve. As stated before, the reserve specializes in breeding underrepresented lemur species. In fact, the MCLR has 5 Eulemur sanfordi (Sanford's brown lemur). These are the majority of the Sanford's brown lemur that are left in captivity in the world. However, the reserve does house "well represented" lemur species such as Ring-tailed lemurs and Red ruffed lemurs.

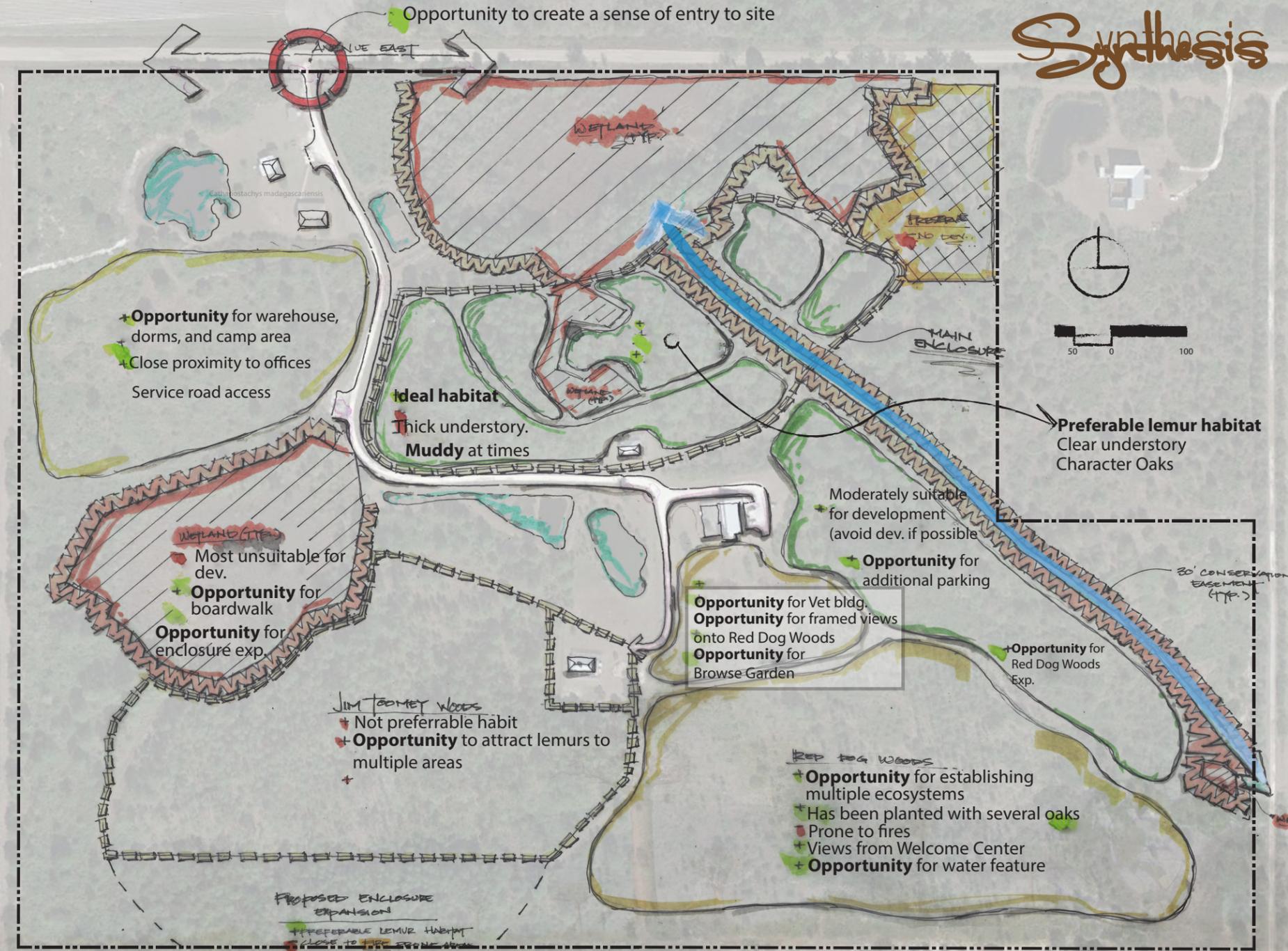
The site focuses a lot of resources on the researchers and students that come to the reserve from educational institutions and universities across the country. A special user group that comes to the reserve is field training student groups. These are small groups (usually 6-8 students, plus at least one instructor) that come to the reserve, usually from

undergraduate programs to learn field techniques within the enclosures. The reserve provides a unique and very real experience short of having to all the way to Madagascar. Currently, the reserve hosts about 2-3 of these groups per year while they would like to host anywhere from 10-15 per year. They are constrained by the space that they have to hold the students which is limited to the "Researchers House" that can only accommodate up to 8 people. However, the reserve does offer more primitive housing in the form of primitive campsites that can be rented over time.

Researchers come to the reserve as well to conduct non-invasive research on the lemurs. There is a strict proposal and approval process that all researchers must go through, and there are a lot of restrictions as to what sort of research can be done with the enclosures to ensure the lemurs safety and to maintain the various troops in their "natural" state.

There are about 15 staff people that run the reserve daily, as well as a fluctuating number of volunteers throughout the year. Collectively, the staff has an extensive and well tenured background in animal husbandry and veterinary services. Daily tasks include maintaining the enclosures, daily food preparation for the lemurs, and walking the grounds daily. The staff also facilitates presentations on conservation and biodiversity to school children on site and off site.

# Synthesis



# Goals and Objectives

There are three facets to this project. Lemur goals are the most prominent because lemurs are the group of users that require the most resources on site. I have chosen to include two new lemur species through my design. This will be achieved by designing Florida ecosystems that can accommodate these lemurs.

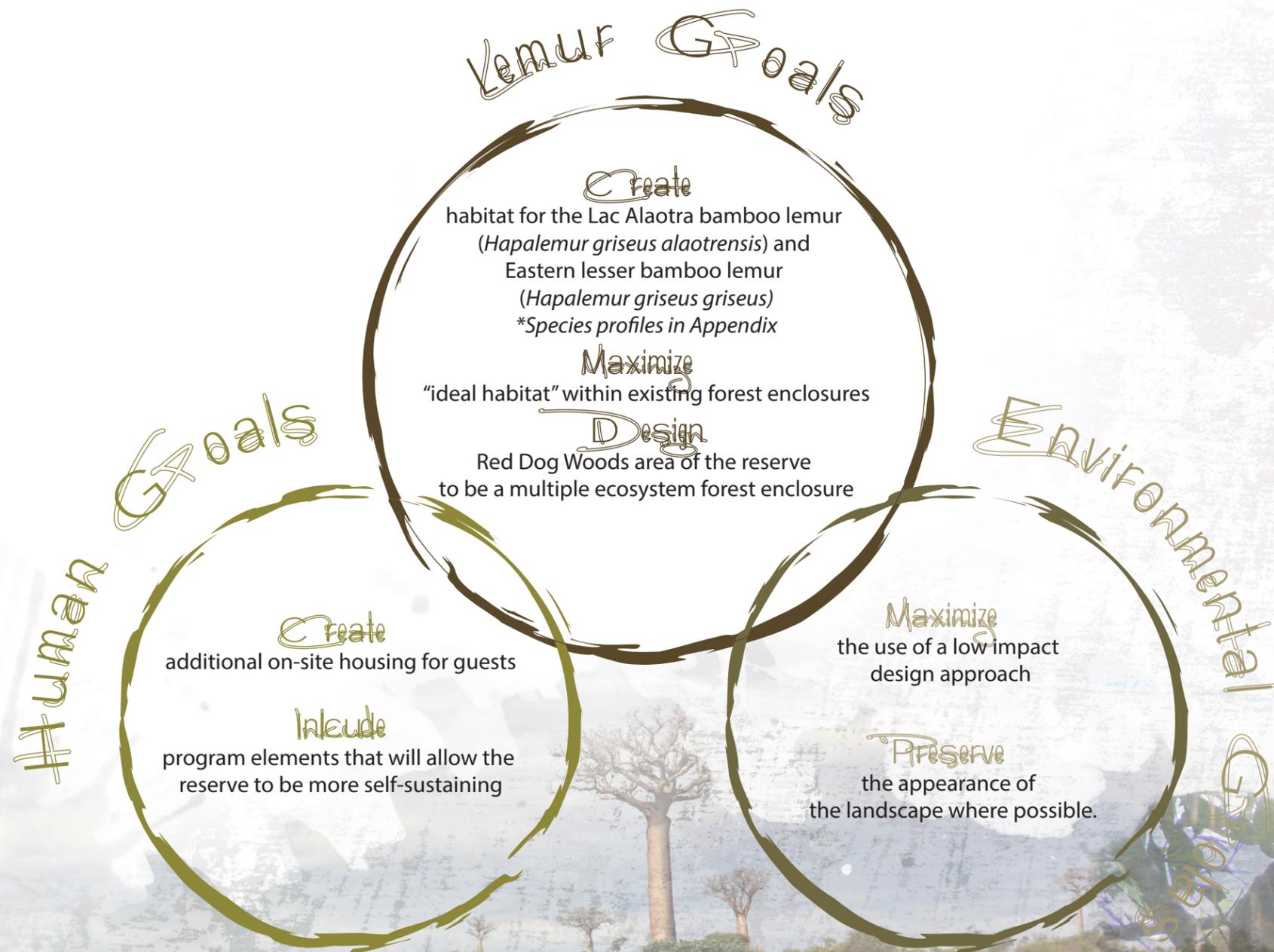
*Hapalemur griseus alaotrensis* (Lac Aloatra gentle lemur) is a critically endangered lemur species and there is little conservation effort for them outside of Madagascar. There is no SSP (Strategic Survival Plan) for this species in the United States, so providing suitable habitat and thus providing the foundation for a breeding program of the Lac Alaotran gentle lemur would be a large step for conservation of this species as well as the development and prominence

of the reserve as a conservation institution. *Hapalemur griseus griseus* (Eastern lesser bamboo lemur) was formerly kept at the reserve, however due to its specific dietary and habitat requirements the reserve was no longer able to accommodate the species. My goal is to create a species specific habitat for this lemur as well.

The human dimension for this project is important as well. In the coming years, the reserve hopes to be able to accommodate more visitors on the site at one time. The reserve also wants to have the resources to perform more veterinary procedures and produce more food for the lemurs on site. An important aim of this project needs to account for these expected development-plans. The researchers, student field research

training groups, and other various visitors are a main source of revenue for the reserve so augmenting the capacity for these user groups is vital to the reserve's growth.

Lastly, the reserve has a very admirable environmental view on development and how they create and modify habitat on site. The reserve doesn't plant nonnatives within the naturalized areas and wishes to keep the forest enclosures as native as possible. With the supplemental care of the keepers, the lemurs are completely capable of living in the free-ranging state that they do. Additionally, the lemur's impact on the landscape is very negligible and they do not compromise the ecological function of the ecosystems.





## Concepts

Based on my analysis, I have come up with this concept for my design. I arrived at this concept by analyzing each of the forest enclosures and areas of important use and deciding the best solution that could maximize their opportunities. The most important areas of the site have such varying uses that it was imperative that to take a "micro" approach to coming up with one composite design solution.

## Masterplan





# Site Plan

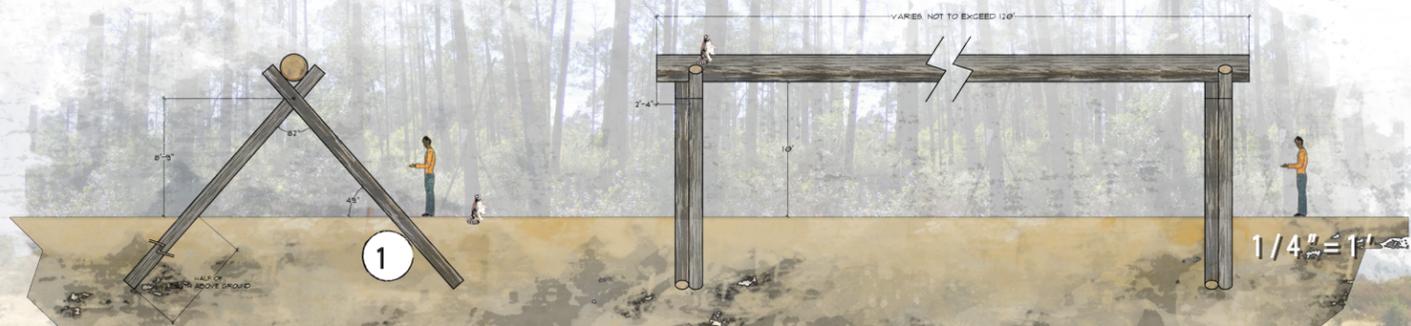
- ① Fruit Tree Grove & Browse Production Greenhouse
- ② Eco-bungalow Village
- ③ Enhanced Toomey Woods
- ④ Event Area
- ⑤ Penelope Island





# Toomey Woods

- 1 Lemur Transit System
- 2 Enclosure fencing (Existing to remain)
- 3 Marilyn K. North Lemur Lodge (Existing to remain)



The design solution chosen for Toomey woods is a renovation of the existing space. This is a direct response to the major constraint of this enclosure which is the architecture of the trees. The main design feature is named the "Lemur Transit System." This simple solution is a lateral system of elevated Cedar logs that will go through the enclosure providing enrichment and

more ideal habitat. The logs shall be around 2' in diameter and the lengths can vary but shall not exceed 120'. The logs will be suspended by a series of x-crossed logs that will be born into the ground. The lateral log will lie where the other two support logs cross.

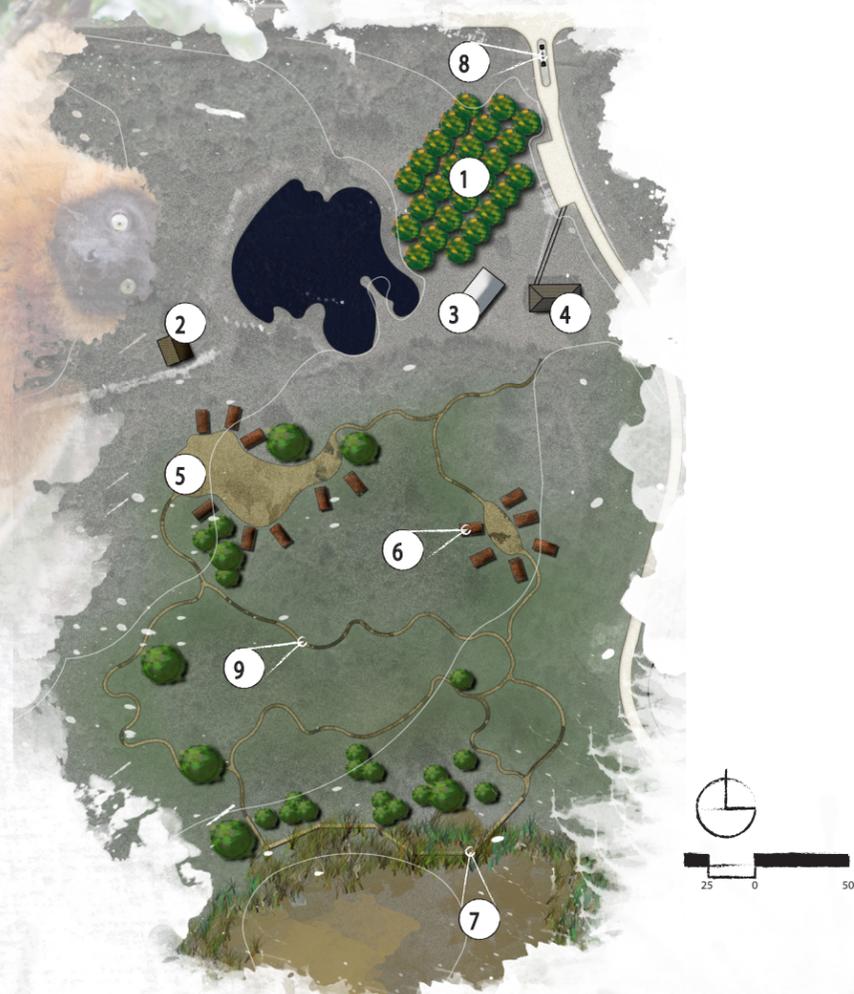


This transit system can be the building block as time goes on and can be augmented by laying fallen pine trees against the Lemur Transit System. Over time this can grow into a complex structure that will be enriching to the lemurs and allow them an easier and more safe way to and through the canopy of the forest. There have already been smaller scale efforts at modifying the enclosure in such a way but this will be a more permanent fixture to Toomey woods. The system will optimize its journey through the areas of the enclosure that are more pine dominated. The areas that have been planted with oaks or have naturally occurring oaks are less in need of habitat modification.



# Eco-Bungalow Village

- 1 Fruit Tree Grove
- 2 Warehouse (900 sq. ft.)  
-Connects to service road
- 3 Greenhouse (1800 sq. ft.)
- 4 Researcher House (Existing to remain)
- 5 Bungalow Village Gathering Area
- 6 Eco-Bungalow (roughly 10'x24')  
-14 Bungalows  
-Accommodates 2 people each  
-Materials to be local (from on site if possible)
- 7 Boardwalk over Flatwoods Marsh
- 8 Median with Entry Sign
- 9 Trail Through Pine scrub



The way in which I have chosen to accommodate the expected increase of visitors on site is by creating a village of eco-bungalows. These eco-bungalows are a sustainable way of creating housing on site. The bungalow village was arranged using the Ecolodge design guidelines and my goal was to develop the village in areas that were already relatively clear and I did not remove any large trees. The architecture of the bungalows will be a fusion of Mal-

agasy and Floridian bungalow architecture and will be made from local materials. If possible, the materials will be from the site.

In conjunction with the village, I have proposed a fruit tree grove and a greenhouse. Currently, the reserve receives donations of fruits and veggies from nearby grocery stores but the reserve would like to be able to produce food for the lemurs on site. The reserve has attempted a small "browse gardens" be-

fore but they are eaten by native fauna. A greenhouse will allow the browse (green such as lettuce that is fed to the lemurs) to be produced year round and under very specific and controllable conditions. A clustered fruit tree grove that can be fenced off will keep animals away from the fruit while allowing the production of a number of different native and non-native fruit trees. Fruit that could be grown the grove include: Persimmon (native), Loquats, Mangoes, and grape vines (native).



# Penelope Island

This 10-acre multi ecosystem forest enclosure was the main undertaking of this project and will become the focal point of the reserve. Surrounded completely by water, this enclosure could house several troops of lemurs of various species. Using the existing main enclosure as a model for ideal habitat, I have proposed the creation of several oak hammocks throughout the "island" that will be the centers for the various lemur troops. While the oak hammocks are the ideal habitat for the vast majority of the species housed at the reserve that come from dense rainforests in Madagascar, the Ring-tailed lemur (*Eulemur catta*) comes from arid deserts and has adapted to a versatile life on the ground or in the canopy of the dense forest. Therefore a troop of these lemurs could be centralized in a portion of the pine flatwoods area. For the other species of lemur, the pine flatwoods that surrounds the oak hammocks acts as a matrix that psychologically and physically defines the extents of the troop's territories.

The channel system around the enclosure also acts as a firebreak. Penelope Island sits on the highest area of the site which is prone to fires and has burned before. The habitat that has been created

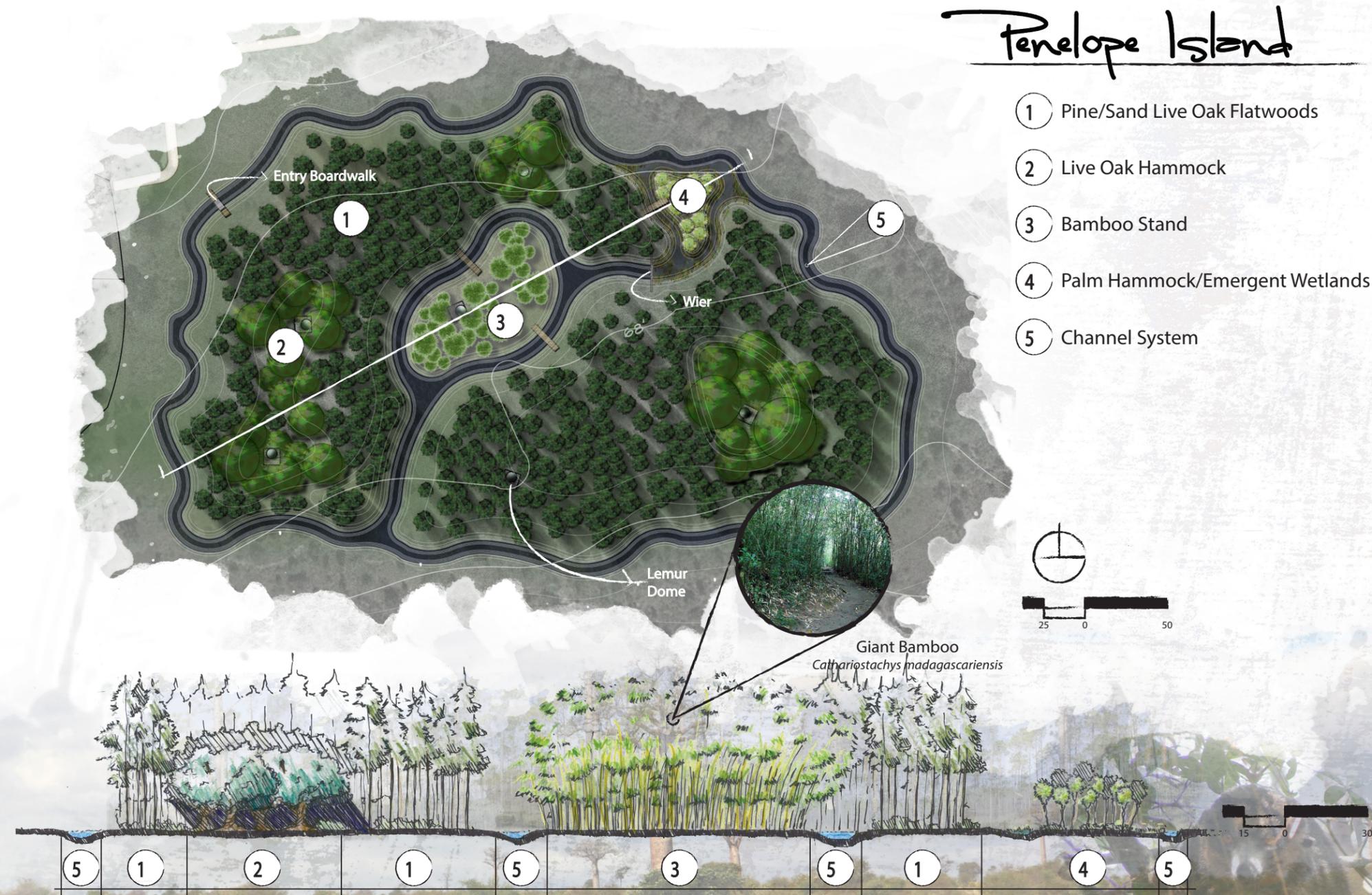
within the enclosure is very vital to the lemurs and the reserve so protecting it is of utmost importance. With at least a 20' foot width surrounding the whole enclosure, if a large fire ever threatened the reserve this enclosure would be safe from the fire's reach. In fact, I would advise the creation of an Emergency Action Plan that would have lemurs relocated into Penelope Island in case of a fire.

There are two species specific ecosystems that have been included in this design. The Palm hammock and surrounding emergent wetland is habitat for *Haplemur griseus alaotrensis* (Lac Alaotra gentle lemur) which comes from the reed marshes of the Lac Alaotra, the largest lake in Madagascar. This was one of the target species that the reserve doesn't (can't) house in my goals and objectives. The hammock is about 7000 sq. ft. and was designed after a Lac Alaotra gentle lemur habitat at the Jersey Wildlife Trust which is 8611 sq. ft. and houses a single troop of 8 lemurs.

The Bamboo island within Penelope Island has been designed for *Haplemur griseus griseus* (Eastern lesser bamboo lemur). This lemur was formerly kept at the reserve, however due to its very specific husbandry needs (constant supply of new

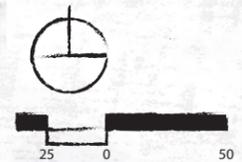
bamboo shoots) which the reserve couldn't accommodate at the time, they discontinued working with this lemur species. Given the growth habits of bamboo, it was important to isolate this habitat on an island of its own so that management of the bamboo could be easily monitored. The bamboo species needed to be the dominant species on this island is *Cathariostachys madagascariensis* (Giant bamboo). While this is not a native Florida species, its inclusion in this design is a critical step for conservation of a critically endangered species and the design has been executed with a very conscious effort to protect and conserve the Florida landscape.

A design feature such as this would take an immense amount of financial resources to complete but will produce a product that could make the Myakka City Lemur Reserve the leading research facility in the country. Island enclosures such as this one give a naturalistic feel to the enclosure, and the reserve as a whole and maximize the reserve's potential as a conservation institution aimed at the preservation of all lemur species.



# Penelope Island

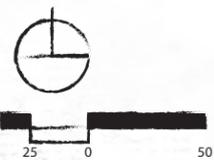
- ① Pine/Sand Live Oak Flatwoods
- ② Live Oak Hammock
- ③ Bamboo Stand
- ④ Palm Hammock/Emergent Wetlands
- ⑤ Channel System



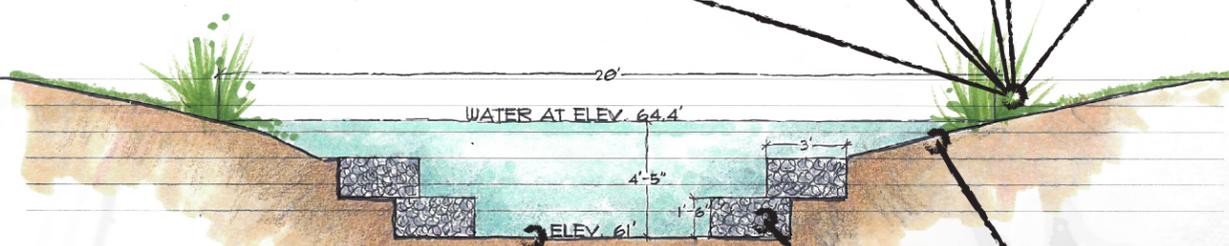
# Grading Plan

-  65' Elevational depressions (Oak Hammocks)
-  Emergent Wetlands
-  Channel

Special care was taken when grading this enclosure to make sure that it would function naturally. Again, using the main enclosure's ecological characteristics as a model, I graded the oak hammocks at a 65' elevation. This is the elevation at which the oak hammocks have developed in the main enclosure. This would make those areas mesic to hydric even and they might gather water during times of heavy rain. This is an issue that the staff of the reserve has come to deal with given the number of wetlands that intersect with the main enclosure.



Section A-A'  
\*5:1 Longitudinal exaggeration



Section B-B'  
1/4=1'

Lemur side of channel graded more subtly as a safety precaution

Pond diffusers needed throughout channel system to maintain healthy channel

The channel surrounding Penelope Island has been designed to function as a healthy water system that will stay filled year round. The perched water table in this area is at 64.4, so I graded the channel to a depth of 60'. A system of pond diffusers needs to be implemented to keep the water in the channel oxygenated so that it does not become stagnant. In order to maximize the area of within the enclosure, the bottom portion of the channel was graded with a 50% slope. Gabion boxes are proposed to hold the grade back in that portion of the channel. The "island side" of the channel has been graded with a 25% slope for the safety of the lemurs. In the past, water moats have been safety hazards for lemurs, but this design aims to minimize those concerns.

The bank vegetation should consist of plants that will both stabilize the shoreline and provide food for the lemurs. The proposed plants in the accompanying graphic are all native Floridian plants that are related to Madagascan plants that these lemurs have been observed eating by scientists in the wild.

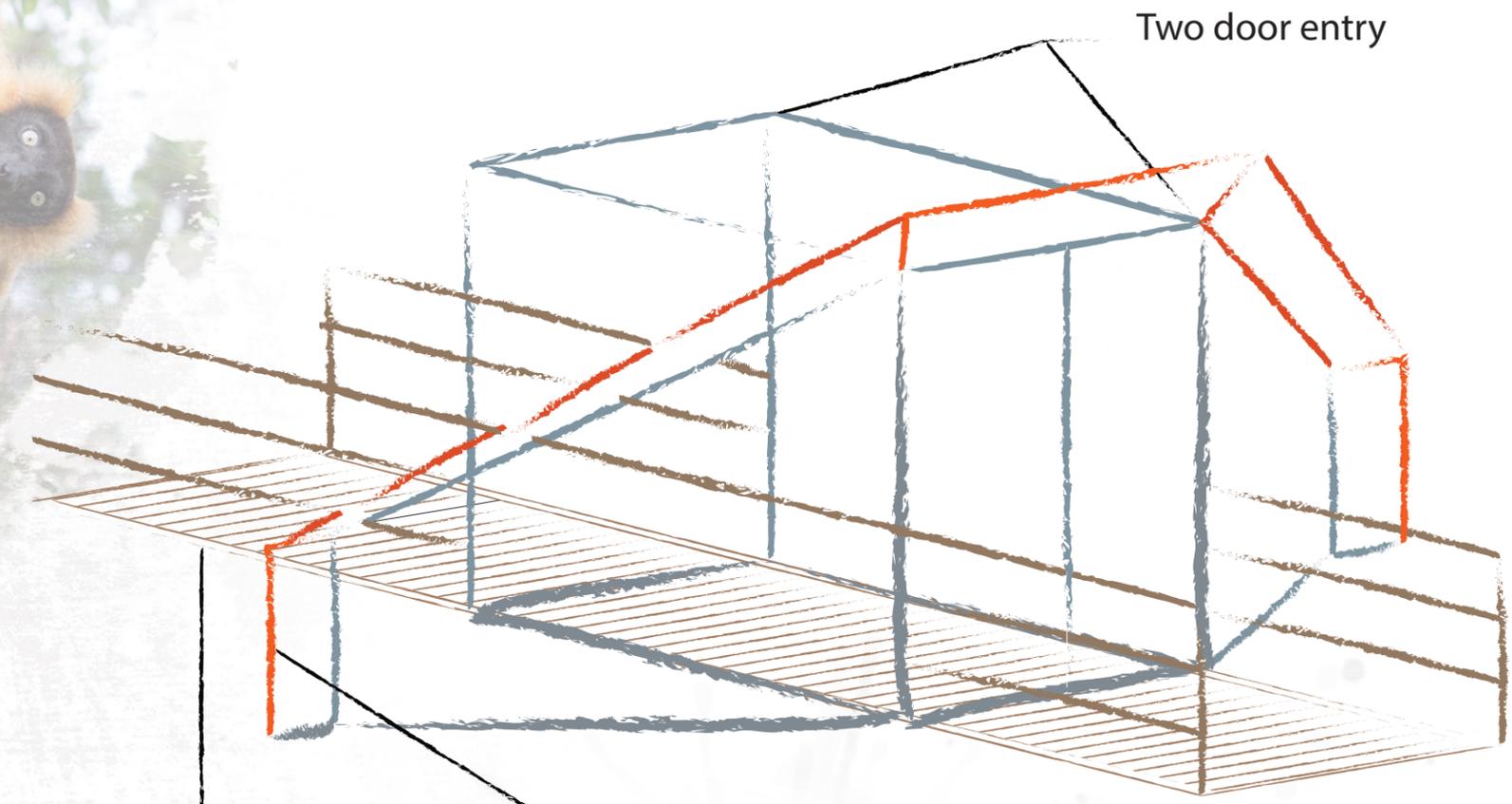
-Back up pump necessary for times of extreme drought.

-Water elevation at 64.4' for the majority of the year



# Lemur Use Analysis

"Right lemur, Right place."



Two door entry

Hotwire around entry to keep lemurs contained within Penelope Island

Boardwalk (Typ.)

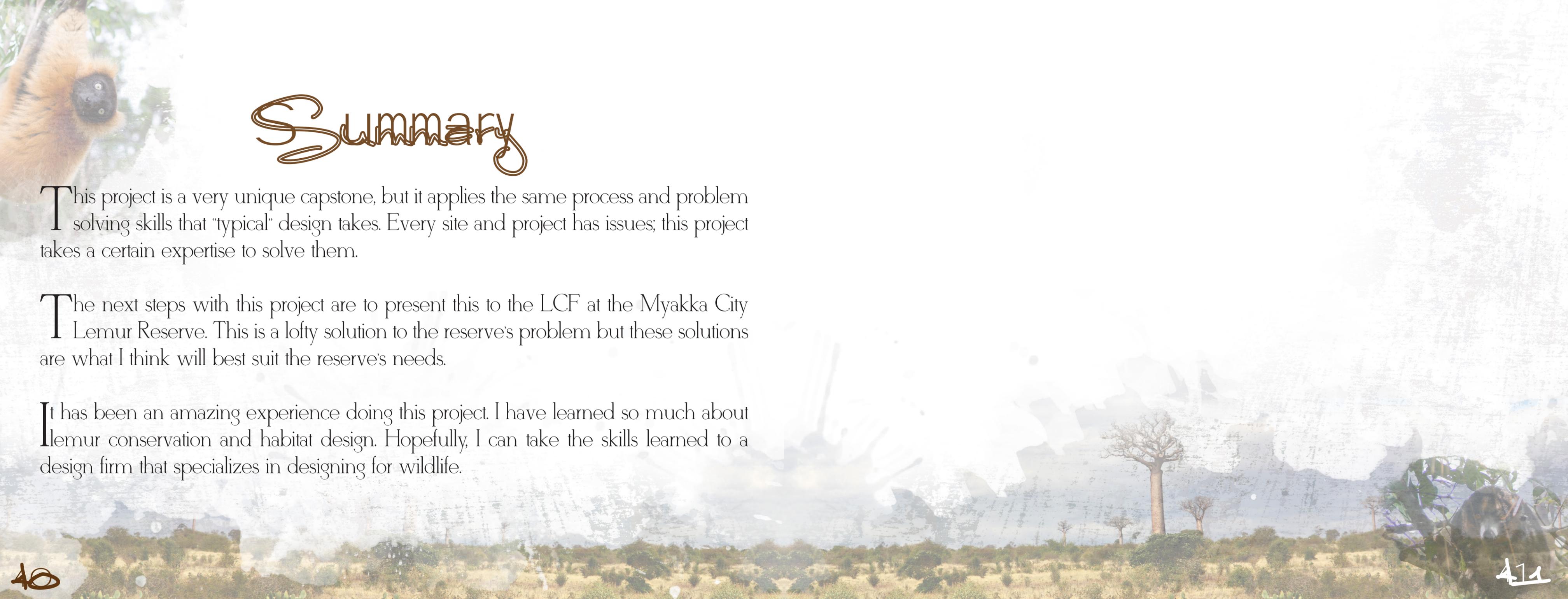


The issue with having an island enclosure such as this is getting in and out without the lemurs escaping. This conceptual diagram explores the concept of a functional "lemur-safe entry." The entries into the existing enclosures utilize a two door entry system that includes the hot wire on the top 3' of the fencing to ensure that the lemurs

do not escape. This design adapts that approach to a boardwalk entry. The same two door entry is used and hot wire is applied to the top of the inside door. Hot wire-tipped wings extend from both sides of the inside door and extend backwards into the channel. This will keep the lemurs in without having to extend a fence around the entire

enclosure which becomes a maintenance issue, as feral hogs have compromised the existing enclosure's fencing in the past.





# Summary

This project is a very unique capstone, but it applies the same process and problem solving skills that “typical” design takes. Every site and project has issues; this project takes a certain expertise to solve them.

The next steps with this project are to present this to the LCF at the Myakka City Lemur Reserve. This is a lofty solution to the reserve’s problem but these solutions are what I think will best suit the reserve’s needs.

It has been an amazing experience doing this project. I have learned so much about lemur conservation and habitat design. Hopefully, I can take the skills learned to a design firm that specializes in designing for wildlife.



# Appendix

# Species Profiles

**Description:** Small brown to gray housecat sized lemurs.  
- 2.1 lbs on average.  
Females - 26.4"  
Males - 26.7"

**Habitat:** Humid lowland montane forests. Sometimes found in forests without bamboo.

**Diet:** Mostly the tender new shoots of giant bamboo (*Cathariostachys madagascariensis*). Additional food includes grasses, other types of bamboo, fruit, and leaves of various plants.

**Conservation Status:** Vulnerable

**Description:** Small brown to gray housecat sized lemurs.  
- 2.7 lbs on average.  
Little to no sexual dimorphism in size

**Habitat:** Floating reed beds along the shore of Lac Alaotra in Madagascar.  
*\*The only primate whose habitat is strictly a wetland*

**Diet:** Strictly folivorous, eating the shoots of 11 recorded plant species. Eats mostly reeds, and wetland grass species.

**Conservation Status:** Critically Endangered



# Case Studies

## A penheul Primate Park

Apeldoorn, Netherlands

Opening its gates in 1971, The Apenheul Primate Park is one of the first zoological parks to explore a "semi-free ranging" design. The park started at a mere 1 hectare in the corner of Park Berg en Bos, but is now nestled on 13 hectares of dense *Fagus* and *Quercus* mixed woodlands. The unique visitor experience is distinguished by the visceral interactions with primates in a semi-natural environment. Walkways through the park are accessible to visitors and inhabitants alike. Large primates, however, such as the gorillas and orangutans are kept on large, spacious islands separated by moats from the public.

Apenheul is home to the largest captive gorilla troop in the zoo-world, tallying in at 18 members. Over 30 viable offspring have been produced from this troop and

have been utilized worldwide for various conservation efforts. The "semi-free range" design of the park aids in the stress reduction and emulation of natural reproductive indicators in the inhabitants, and therefore, such reproductive success has been possible.

The design and evolution of the park has been molded by a program that is pursuant to the park's mission: "to encourage visitors to develop a greater appreciation for primates." It has also had to respond to the climactic attributes of the site. The park is only open for a portion of the year; during the coldest months, the park closes to the public.

To reduce the amount of contact between the park's visitors and its inhabitants, there are clear rules regarding feeding and touching the animals. The park also has "escape paths" designed for the primates in areas where visitor crowding might occur to reduce potential stress on the animals.

The types of species kept in the open-air areas are also integral to the success of

this concept. New World primates (squirrel monkeys, gibbons, marmosets, etc.), which are often smaller and more docile than Old World primates are the ones that are free to roam in the heavily inhabited areas.

This park design concept has been the precedent for many other parks, but still remains one of the most embracing of this idea. My design for the Myakka City Lemur Reserve will use this concept as a precedent as a means of engaging its users and evoking a sense of conservation for these species.



# Case Studies

## A laotran Gentle Lemur Exhibit

Durrell Wildlife Park,  
Trinity, Jersey

The Durrell Wildlife Park (formerly the Jersey Zoo), is a 32 acre zoological park situated on pristine farmland in the town of Trinity, on the isle of Jersey in the English Channel. The park was founded in 1959 by naturalist Gerald Durrell. The park is also headquarters for The Durrell Wildlife Conservation Trust (formerly the Jersey Wildlife Preservation Trust), a conservation organization aimed at saving species from extinction.

One of the park's many conservation focuses is the Alaotran Gentle Lemur. A breeding program for this critically endangered species from Northeast Madagascar was established in 1988 as a conservation strategy. In 1997, the breeding program was fortified with 10 additional wild-caught lemurs to increase the genetic diversity of the breed-

ing program. Soon after the addition of the new lemurs, the park chose to create a larger exhibit for the conspiracy (group of lemurs).

A wetland habitat alongside a natural stream was modified to be the site for the new enclosure. Alaotran Gentle Lemurs are native to the reed and papyrus beds surrounding Lac Alaotra, Madagascar's largest lake.

The exhibit is 800m<sup>2</sup> and is planted with bamboo, papyrus (a specialization of wild Alaotran Gentle Lemurs), reeds, and various shrubs. There are also three mature willows in the exhibit that were already there. Any plants that have been known to be toxic to this lemur species were removed/avoided.

There is a heated shed for the lemurs to use as they please with its own outside mesh area. The exhibit is enclosed by a 1.24m electric fence. This was the first time this type of fencing was used for this species.

The exhibit is viewable to the public from a raised boardwalk and is adjacent to the

park's Madagascar Teal aviary which provides "a unique teaching opportunity." The lemurs seem to occupy the front portion of the exhibit and spend most of their time foraging in the willow trees. One of the major benefits (and goals) of this "naturalistic" enclosure is the evocation of natural foraging behavior. The exhibit design is limited by predation and the electrical fence that surrounds it. However, the design has proven to be a successful and the conspiracy has produced viable offspring, including a pair of twins.





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