

Jennifer Lusk

Lab 2

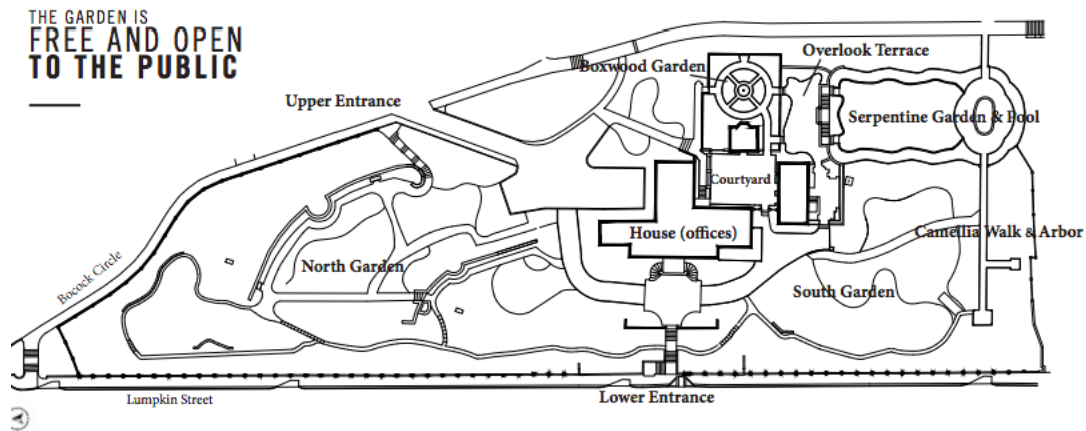
LAND 2310

T/Th 9:35

Lab Assignment 2 – Ecosystem Services on Campus

Landscape site: Founders Memorial Garden

The Founders Memorial Garden, created in 1939, is located between Lumpkin Street and North Campus. This 2.5 acre garden features a variety of plants, a pond, sculptures, and a relaxing outdoor space for studying. The garden is surrounding a brick historic house and is enclosed by a historic iron fence and brick walls.



Benchmark: Trail Network at the State Botanical Garden

Ecosystem Services Observations:

- **Global climate regulation:** The Founders Garden contains a variety of plants and large patches of grass that use the energy of sunlight, through photosynthesis, to remove carbon dioxide from the surrounding air and water. This small garden makes a small impact towards maintaining the global balance of atmospheric gasses and maintaining breathable air. Although the impact is small, a green area on this land is significantly better for global climate regulation than a potential parking lot or concrete building that could alternatively take up this land on campus. When compared to the Trail Network at the State Botanical Garden which is almost untouched by architecture, The Founders Garden has a high amount of gray landscape. Surrounding the garden is a gray stone sidewalk and gravel walkways. These gray areas are not beneficial in global climate regulation. The photo to the right showcases some of the greenery such as grass, bushes, and trees, along with a stone sidewalk.
- **Local climate regulation:** When comparing to global climate regulation, The Founders Garden has a more significant impact on local climate regulation. As you can see in the photo, the garden's variety of trees provides areas of shade while the large surface area of grass provides space for evapotranspiration. The local climate regulation in The Founders Garden is not as significant as the Trail Network at the State Botanical Garden. Those trails feature a great number of trees and soil that allow for significant shading, evapotranspiration, and windbreaks.
- **Air and water cleaning:** The pond featured in The Founders Garden has water plants that assist in purifying the air and water. Because the pond only has a small fountain, it must be regulated with organisms such as bacteria to ensure that the water is a healthy environment for the plants and animals that may live within the pond. The Trail Network at the State Botanical Garden features the Middle Ocoee river with surrounding plants, trees, and organisms that also assist in air and water cleaning.



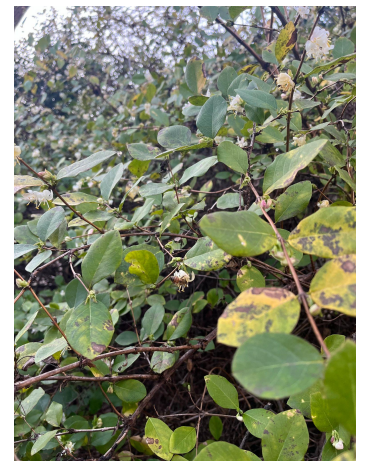
- **Water supply and regulation:** I am slightly concerned that the beauty of The Founder's Garden comes with a trade off of using heavy fertilizers. However, I have no way of finding out what types of fertilizers they use by simply observing the landscape. If the UGA landscapers do use harmful chemicals or fertilizers in this landscape, this may contaminate nearby water supplies. Fertilizers used in agriculture can also be a significant source of nutrient pollution to water like The Founders Garden pond. On the other hand, the Trail Network at the State Botanical Gardens is untouched by fertilizers and features the Middle Oconee River that supplies drinking water to the Athens residents.

- **Erosion and sediment control:** One of the most efficient and cost-effective ways to control erosion is with grass. The Founders Garden features a great amount of grass that can serve as erosion and sediment control. As shown in the photo to the right, I also found an area of ivy that may serve as natural erosion prevention. However, due to the garden being built on a mostly flat landscape, I do not believe that erosion and sedimentation are large issues in this area. The Trail Network at the State Botanical Gardens features some steep and bare sloped areas that may be more prone to erosion and sedimentation. However, the multitude of trees and shrubs allows for erosion control.



- **Hazard mitigation:** I do not think that The Founders Garden has a huge impact on hazard mitigation. I cannot think how a small landscape would have an impact on reducing vulnerability to damage from flooding, droughts, or other hazards. On the other hand, the Trail Network at the State Botanical Gardens has forestry that can help regulate flooding that may arise in the nearby river.

- **Pollination:** Even in the winter month that I observed the features of The Founders Garden, I was able to see a variety of pollinators actively pollinating the environment. The garden features many flowers that attract these pollinators. I have inserted a photo of a bee pollinating a honeysuckle shrub, my favorite plant! The Trail Network at the State Botanical Gardens also provides a significant amount of plants for pollinators to utilize.



- **Habitat functions:** The Founders Garden provides a habitat area for many plants and Animals. During my time in The Founder's Garden, I observed a few different and unique bird species. These birds have found habitat in the trees surrounding The Founders Garden. The garden is also home to a variety of plants, insects, and other organisms that contribute to the conservation of biological and genetic diversity in Georgia. The Trail Network at the State Botanical Gardens provides a larger area and variety of habitats for a diverse range of organisms.

- **Waste decomposition and treatment:** The Founders Garden has natural systems of breaking down waste and cycling nutrients. The fallen leaves gradually decompose where they land, eventually contributing to the nutrients within the soil. The same goes for The Trail Network at the State Botanical Gardens. The natural purpose of decomposers, such as bacteria or fungus, is to decompose organic material within both of these landscapes.



- **Human health and well being benefits:** The Founders Garden provides a space for students and staff at UGA to relax. I believe connecting with the beauty of nature is a vital part of human health and well-being. This can be easily practiced at The Founders Garden because the garden provides walking paths, benches, and many areas for human enjoyment. The photo features two of my friends who enjoyed the garden with me on a beautiful winter day. The Trail Network at the State Botanical Gardens also provides an area for human health and well-being by offering a space for human connection to nature and an area for human movement through hiking.



- **Food and renewable non food products:** The Founders Garden does not have sources of food, medicine, or other products for human use. I observed a few shrubs with red berries but do not believe these to be edible for humans. The Trail Network at the State Botanical Gardens may have plants that can serve as food for humans such as wild mushrooms.

- **Cultural benefits:** The Founders Garden provides significant cultural benefits as it is a landmark of the University of Georgia. This space has a rich history and serves as a memorial for American veterans and The Garden Club Georgia. The garden also allows for study spots and a relaxing area for students to unwind. The photo to the right features a student painting at a table in The Founders Garden. The Trail Network at the State Botanical Gardens also provides many cultural benefits as a relaxing and beautiful landscape for hikers.



Ecological Function Grade: I would give The Founders Garden a B grade. Although the Founders Garden is a special place on UGA's campus with many ecosystem services, I am hesitant to give this landscape a full A because of its few fallbacks. The Founders Garden has positive impacts on local climate regulation, pollination services, habitat functions for local Georgia species, and waste decomposition. It also has great human and well-being benefits and cultural benefits for students and staff on the UGA campus. Also, The Founders Garden has a medium impact on global climate regulation, air and water cleaning, erosion, and sediment control. However, this landscape has little to no impact on hazard mitigation or food and renewable nonfood products and shows potential negative impacts on water supply and regulation.

Improvement recommendations:

I would recommend that The Founders Garden incorporates more plant diversity and ensure that its landscaping practices are sustainable. First of all, I would recommend more plants in the small pond to ensure that the water is able to be properly filtered. Second, I would recommend that the landscaping techniques such as the types of fertilizer used to keep up with the grass be sustainable and will not negatively affect the surrounding water supply and native organisms. Next, I recommend a greater variety of native Georgia pollinating plants to help pollinators support the ecosystem. This is because pollinators are one of the most important parts of the interconnected ecosystem and contribute to the diverse group of species in Georgia. My last recommendation would be to incorporate fruits and vegetable plants into the plant variety. A food garden will add value for human use and ecological diversity.