

This past summer, I had the incredible opportunity to intern on St. Catherine's Island located off the coast of Georgia. Unlike most barrier islands, St. Catherine's is undeveloped and its primary usage is for research and conservation. My internship was in conjunction with another Sewanee student, Hali Steinmann, C'15. Together, we conducted forestry research and worked in the island herbarium.

Dr. Ken Smith advised our research investigating pignut hickory (*Carya glabra*) mortality on the island as well as monitoring several deer enclosures. We re-visited and re-evaluated 9 plots set up by Alistair Keith Lucas, C'12 with specific attention to hickory mortality. In addition, we were the first to enter 9 deer enclosures established in 2013. In each enclosure, we counted the number of seedlings and identified grasses growing in each enclosure. This data will be important for land managers in their future decisions regarding the deer and hog population on the island. Data taken in the field for this project will be analyzed, composed into a paper, and sent to a scientific publication as part of an independent study during the school year. This research allowed me to fully appreciate and fine-tune the skills that I have developed in my Sewanee classes.

Our second research endeavor, advised by Dr. Ken Smith and Dr. Deborah McGrath, examined the regeneration of the redbay (*Persea borbonia*) population on the island. In 2006, a beetle carrying a fungus called laurel wilt was responsible for almost entirely wiping out the redbay population on St. Catherine's Island. A study published in 2013 by Dr. Jonathan Evans and Sewanee students tracked the mortality of the species and predicted it would not be able to regenerate due to deer browse. Currently on the island, however, there are multiple, healthy re-sprouts from the dead redbays as well as few original trees that survived the blight. In this research project, Hali and I set up three different sites: a Holocene hammock, Pleistocene

forest with a land use history as an agricultural field, and Pleistocene forest without previous agricultural land use. In each site, we established three different transects where we took the DBH (diameter at breast height) and the height of each redbay tree living or dead. For each living tree, we also went through a series of foliar assessments and obtained a GPS location. We used the Licor 6400 to run physiological tests on a sample of redbay trees at each site. In these measurements, we tested for florescence. Measuring florescence essentially shows how efficiently the plant uses light, giving an indication if the redbays is stressed or not stressed. Similar to the hickory study, this data will be analyzed, written into a paper, and sent to a scientific publication as part of an independent study this year. I learned so much from this project. It boosted my confidence as a scientific researcher and field scientist and allowed me to take skills learned in the classroom out into a real research development. This research also allowed me to begin really thinking like a scientist as well as fine-tune some essential skills. It was an incredible study to help compose and work on, and I am looking forward to take a further look at our data this year.

Our work in the herbarium was under the guidance of Christa Hayes and it involved adding new species to the herbarium; updating botanical classification in the pre-existing herbarium; updating the St. Catherine's Flora powerpoint used by the Sewanee Island Ecology class for simple island plant identification; and creating a digital copy of the herbarium. We added twenty new specimen sheets to the herbarium, collected by both ourselves and Christa and Royce Hayes, as well as we added three specimens that added a fruiting body or more informative sample to the collection. With the help of Vikash Naran and Will Coleman, multiple pictures of every specimen were taken, featuring the entire sheet, the specimen label, and a close up of roots, fruits, and/or flowering parts. These images were placed in a series of folders organized identically to the St. Catherine's Island herbarium cabinet so that researchers

may view all items in the St. Catherine's Island Herbarium quickly and efficiently, without any unnecessary jostling of the fragile and historically important specimens. Finally, we re-made and refined a document established by the Sewanee Island Ecology Program that involves quick identification of common island plants. This document is now much easier to use and will benefit future Sewanee Island Ecology classes as well as botanically interested people. Our work in the herbarium allowed me to become familiar with many different botanical families and genera that I was previously unaware, and I now understand and view a forest on a different level than I had before.

This internship has played a significant role in my thoughts about life after college. It ensured my love of botany, forestry, fieldwork, scientific thought, research, and plant identification. It has made me think twice about entering into higher academia that I had previously thought I would not enjoy. While I am still certain I will not be entering graduate school directly after college, this summer allowed me to realize I could really enjoy doing research and fieldwork as part of a graduate program in my future. In addition, the island was relatively isolating in regard to a social community. This was one of the more difficult aspects of my experience and in turn has made me aware I need to find a job or career that consistently interacts with people. Finally, this experience confirmed it is really important to me to work in an ecologically-diverse place with people who understand and converse about their environment as well as the science behind how the earth works. I'm so grateful I've had this opportunity and am excited to build on my knowledge gained and see how it influences my future