

**Spatial Genetic Structure of Clonal Populations of the Recently Described Native
Bamboo species *Arundinaria appalachiana* (Hillcane)**

This summer I worked as a research assistant in the Sewanee Herbarium for Dr. Jonathan Evans. Originally, the project I was supposed to be working on for Dr. Evans was a population genetics study of a recently identified bamboo species, *Arundinaria appalachiana*. This project was designed in collaboration between Dr. Ashley Morris, a geneticist at MTSU, Dr. Evans, and Dr. Elise Kikis from the biology department at Sewanee. My responsibilities for this would have included the collection of bamboo leaves from several populations in Sewanee and the isolation of DNA from these plants. I would have also been involved in the interpretation of genetic analyses to determine the relatedness between individuals and populations. The data collected from Sewanee would have been compared to data collected from populations in Franklin County, TN, by my co-research assistant, Katie Kull (C'17). However, this project became impossible to complete this summer due to complications with the genetic markers we intended to use for the DNA. As a result, samples were sent to Cornell University to develop different markers, a process that takes approximately two to six months. Therefore, my responsibilities over the course of the internship changed drastically from my original expectations.

I, along with my co-research assistant Katie Kull (C'17), began the internship by assisting botanists from state legislation in a status evaluation of an endangered plant

(*Scutellaria montana*, large-flowered skullcap) in southern Tennessee and northern Georgia. We were instructed to write blog posts for the Sewanee Herbarium blog to draw attention to the plant as well as publicize the activities of the Herbarium. To this project I was able to bring my skills developed on The Sewanee Purple (the university newspaper) staff in my taking of pictures and assistance in writing the article. After the completion of this project (which took approximately 2-3 days) we worked intermittently with Dr. Kikis in attempting to perfect RNA extraction from *C. Elegans* to prepare us to perform DNA extractions on the bamboo plants.

Once it became clear that the genetic markers for our original project would not be available by the end of our internship, Dr. Evans shifted our duties so that we would enter and analyze data from a project Katie worked on the previous summer (2015). This project was an aboveground biomass estimation survey of Franklin State Forest in Franklin County, TN with collection data spanning 37 years. We worked on this project for the remainder of the summer, and my responsibilities (in collaboration with Katie) included data entry, data analysis, the production of a rough manuscript, and the completion of a poster to be presented at the National Botany Conference in Savannah, GA, at the end of the summer.

This internship expanded my writing skills and introduced me to the process of writing manuscripts intended for publication. It also helped me learn how to write within a group setting where multiple individuals are collaborating to create a single paper, a process that was considerably more difficult than writing a paper on my own. In

presenting the poster, I learned valuable skills in oral presentation with an audience that was entirely unfamiliar. Our inability to do the project I originally set out to do was actually very fortuitous to me, as it exposed me to the things that can and do often go wrong in genetics research, an avenue I was considering as a career. This setback allowed me to get a more complete picture of the subject area and take more of those aspects into consideration when determining my future career.

Coming into this internship, I had intended to pursue genetic counseling as my career of choice. However, this internship helped me to recognize that this is not the correct choice for me. The project, while centered on the responsibilities of a geneticist rather than a genetic counselor, made me realize how long it can actually take to obtain clear results from genetic experiments and motivated me to look deeper into why I wanted to work in genetics at all. After reflecting on this for some time (and seeking some help from Career Services), I was able to recognize my interest in genetics was relatively superficial and lacked the genuine, deep interest that would be necessary to pursue a career in the subject. I am very grateful that this internship guided me to taking this journey, because otherwise it may have been many years before I realized my error in career choice. I have decided instead to pursue a career in psychology, most likely forensic psychology, where I can apply my knowledge and interest in the fields of psychology, law, and genetics to an extent that will be a much better match to my interests across all of these fields.