Reflection on Honors Senior Project: Expansion of the GVSU Anthropology Lab's Comparative Botanical Collection

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Key Terms

- **Paleoethnobotany**: A sub-field of archeology; the study of ancient plant remains, and of how the remains relate to prehistoric cultures.
- **Macroremain**: A piece of plant recovered from an archeological site that is large enough to be seen and identified with minimal microscopy, including charred wood and seeds.
- **Phytolith**: A type of microremain; a piece of plant that has been slowly replaced with silica from the surrounding dirt, so that a tiny and identifiable plant-like piece of glass results.
- **Flotation**: A method of extracting macro- and microremains from dirt during archeological excavations, wherein a screened dirt sample is put in to a vessel of water and agitated so that organic material floats to the top, and can be retrieved.

Reflection

The objectives of my senior project as iterated in my project proposal were to organize and expand the botanical comparative collection in the Anthropology Lab by identifying, processing, and adding new macroremains, including charred edible plant fragments; wood charcoal; and phytoliths. Working on expanding the GVSU Anthropology Lab's botanical collection as my Honors College Senior Project was an educational journey – a journey through the literature on paleoethnobotany and native uses of plants, through the lenses of a microscope, and through the Ravines. My project taught me how to identify plant macroremains, how to obtain and curate macroremains, and which native Michigan species are desirable for botanical comparative collections. I also developed a skill set that reflects my field of interest (paleoethnobotany), including plant remains identification, technical microscope skills, comparative collection management, and other pertinent skills.

The new botanical comparative collection turned out as well as expected, especially
because of a generous donation of specimens from Dr. Katie Parker, an associate of project adviser Dr. Janet Brashler. I chose to house the macroremains of 22 total species in a set of organizational plastic drawers similar to those housing the old collection. Figures 1 and 2 show the front of the collection, and a detail of the drawers. The top two rows house the seeds, the third row the tubers, and the 4th - 6th rows the wood samples. There is obviously room for future expansion, as many of the drawers are empty. The collection is accompanied by two documents, the Plant Collection Plan (an Excel spreadsheet) and a Bibliography detailing the literary sources referenced during the compilation of the Plan. Printed copies of these reside in the bottom drawer of the collection, and digital copies are saved in the Anthropology Lab.

I created documents to accompany the botanical collection because they give more meaning to the collection, and provide a starting point for any future modifications or expansions of the collection. Knell (1994, 19) states that “The UKIC [United Kingdom Institute of Conservation] guidance suggests 'a record of methods and materials used should be made. Such records should be kept as a permanent accessible archive.'” The attached Plant Collection Plan spreadsheet and Plant Collection Plan Bibliography detail the native plant species which are most often found in archaeological contexts, whether they were used for food, medicine, tools, or fuel, the ideal time of year to collect them, and what plant part should be collected. The list is extensive and detailed, and the associated Bibliography demonstrates that the resources used are relevant and valid. The Plant Collection Plan will hopefully guide future work on the comparative collection by providing information about what has been obtained, and which species have yet to be obtained. The Bibliography also offers suggested literature which has not yet been perused as a resource for modifications to the Plant Collection Plan.

As mentioned earlier, assistance in creating the Plant Collection Plan, Bibliography, and
the botanical collection itself was given by paleoethnobotanist Katie Parker. In her response to my thank-you e-mail, she said that she had been aided in the creation of her own collection by others. The experience of building the collection and receiving this help from an expert in the field I aspire to impressed upon me the phenomenon of academic reciprocity – a kind of cyclical reciprocity rather than linear reciprocity, where one helps others because one was given help. My advisers told me that it never hurts to ask people if they have plant samples that they would like to contribute, and now I wish that I had reached out for help more. It was certainly more time efficient for me to receive prepackaged and labeled macroremains that to go hiking in the Ravines, looking for the fruits of plants that never fruitied.

I did make a concerted effort to search for species that are highlighted as priorities on the Plant Collection Plan, by going to Aman Park and the Ravines. However, I was limited by the season and by the drought of this past summer: by the time that I had compiled the Plant Collection Plan, it was the fall season, which was good for collecting nuts, acorns and some seeds, but not good for collecting most species on the Plan. In addition, the drought that the entire country experienced this past summer meant that all non-irrigated plants and trees were suffering stressful conditions, and either did not flower and seed at all, or produced very small, stunted fruits. It was a frustrating season to be foraging for identifiable plants and fruits. I did gather some acorns in the Ravines, which I identified as *Quercus alba* (white oak) and *Quercus rubra* cf. *pagoda* (red oak; the 'cf.' is an abbreviation of the Latin *confer*, used in nomenclature to mean 'compare to this species'). I charred them on my gas-burning stove, because macroremains are commonly carbonized before being curated. When macroremains are found in an archaeological context, they are always charred because only carbonized organic materials survive natural decomposition processes; when plants are gathered by contemporary people for
botanical comparative collections, they are charred to resemble archaeological macroremains. Archaeologists study these collections in order to be able to identify macroremains found at excavations, and to have a reference to directly compare new finds to.

This part of my Senior Project is an accompaniment to my independently initiated Honors Research in Anthropology Project, which I began this semester. Some alterations have been made to the direction and time frame of my Honors Research in Anthropology due to unexpected complications. The original plan was that during this past fall semester, I would carry out flotation on soil samples collected at the Zemaitis archaeological site over a decade ago (excavated by Grand Valley), and then carry out the paleoethnobotanical analysis on the plant materials recovered by flotation. The final product was to be an original research paper reporting on my findings. However, upon locating the materials from the Zemaitis site in the Anthropology Department's storage space, we found that the paleoethnobotanical analysis had already been done. I spent time inspecting these identified macroremains under a microscope in order to improve my identification skills, and to familiarize myself with the methods that were used to store and label them. Since the already-processed soil samples would have been my source of phytoliths for the botanical comparative collection, there are no phytoliths in the collection.

After the revelation about the state of the Zemaitis macroremains, my adviser for this project, Janet Brashler, my adviser for the Honors Research in Anthropology, Elizabeth Arnold, and myself, had a meeting at which it was decided that I would participate in another professor's existent paleoethnobotany project this coming semester. Instead of looking at plant macroremains, I will be following a lab procedure detailed in a recent dissertation for recovering phytoliths from 8-10 pottery sherds. This is still within the realm of paleoethnobotany, and it will allow me gain experience with phytoliths in addition to macroremains. The expected final
product remains a research paper expounding my findings, which I will present at Student Scholar Day in the spring or at a conference. Since the Honors Research in Anthropology portion of my Senior Project will continue next semester, my final research paper is not included with the materials turned in to the Honors College.

Carrying out my Honors Senior Project was more challenging than I expected it to be. The drought and the season that I was collecting plants in made it difficult to obtain the volume of macroremains that I had hoped for. My associated Honors Research in Anthropology project had to be reformulated as a project on phytoliths because someone else had already analyzed the Zemaitis site materials, and it happened so long ago that no-one involved with my project knew about it. I no longer had a source of phytoliths, and was not able to present my as of now unwritten research paper at a public venue. It was difficult to stick to my proposed time line, since work and my other classes were challenging this semester. However, I gained many of the technical skills in macroremain identification, microscopy, and botanical collection curation that I originally intended to. I learned that it never hurts to ask professionals for help in academic endeavors, because they will probably be more than helpful. I also learned that it would not hurt to have a back-up plan for future research projects, and that I should absolutely inspect my intended study materials before pinning a project on the hope that they are in the expected condition. My Senior Project has not been a negative experience, but rather a valuable experience that taught me lessons about research that I would rather learn now than in graduate school. I look forward to seeing how Anthropology professors will use the comparative collection that I have put together, and to conducting exciting research on phytoliths this coming semester.
**Bibliography**


**Figures**

Figure 1. A photograph displaying the front of the botanical comparative collection created for the Honors Senior Project.

![Figure 1](image)

Figure 2. A photograph showing the labeled rows and drawers of the botanical comparative collection created for the senior project. Charred macroremain samples are identified by Latin binomial.

![Figure 2](image)