

# FURMAN ZOOLOGICAL COLLECTION OF MAMMALS

A PROJECT BY THOMAS E. NEWMAN III



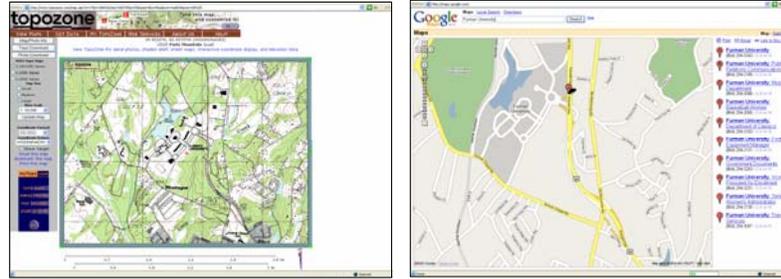
## ABSTRACT

The current Zoological Collection at Furman University consists of over 2000 different specimens from all parts of the globe. The collection is expected to increase threefold when Plyler Hall is renovated to become the largest and most important collection in South Carolina. The system used to document the collection consists of tags recorded in Excel files on the zoological lab room computer. Names of collector, species name, measurements, date collected, and crude location are given for each specimen in the collection. This project was created to update the documentation system and implement the information into a useful GIS format, locating specific GPS points to use with location and vegetation maps to determine areas and certain habitats where the animals are found. The ultimate goal of this project is to combine all of this information into a website format allowing researchers to use the Furman University Zoological collection information from any location.



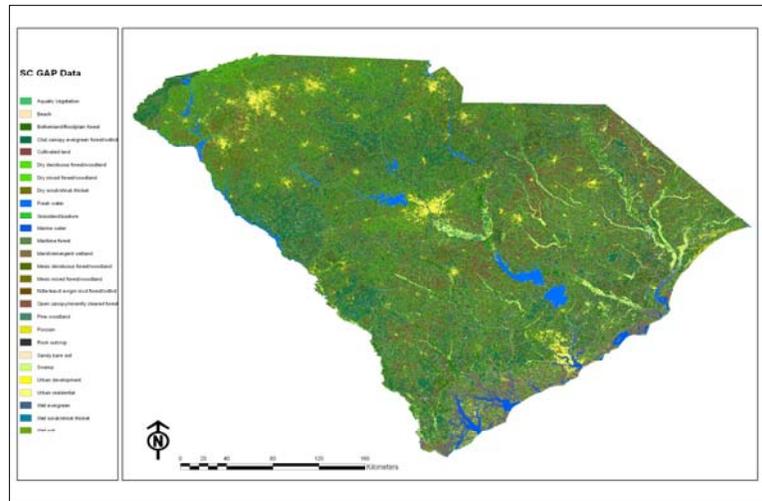
## INTRODUCTION

As of the current situation, the Furman University's Zoological Collection can only be viewed and used on campus. The collection is beneficial only for studies conducted by students, faculty, and visiting researchers. This creates a problem for traveling students and outside researchers who need to use information from the collection on field research trips, Study Abroad programs, and general research. Having the collection in a GIS database connected to the web would allow for open sharing of specimens collected and also for immediate access to search out areas where animals were collected, as well as being able to GPS coordinates into the GIS database, all while in the field. Open sharing of these resources will also benefit Furman University's relations with the biological community and allow the Biology Department to be up-to-date with other universities who already have this technology. With the combined resources of GIS and the internet this can be made possible.



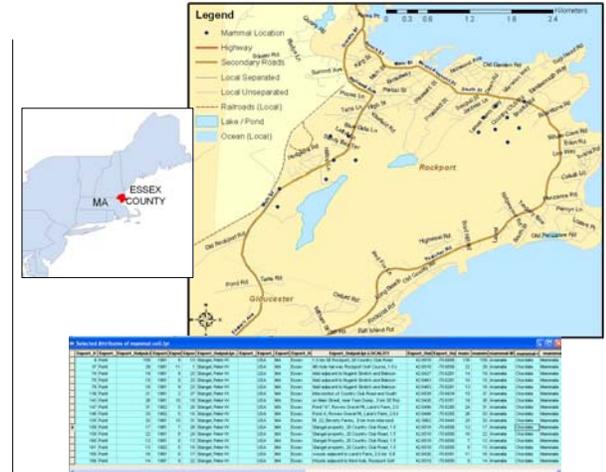
## METHODS

The first objective in my project of mapping the mammal portion of Furman University's Zoological Collection was to implement the current Excel data into a GIS format. I used two different websites, topozone.com and Maps.Google.com, to locate specific GPS points for each specimen in the collection from the general location information given. I then transferred the latitude/longitude coordinates of the collection sites into Excel and imported the file into GIS with several different layer coverings. The first layer I projected the lat/long coordinates onto was a digital road map of the United States with detail of most major atlas type landmarks. I also overlaid the United States with detailed county lines and then used a South Carolina GAP data map (see below) showing the vegetation layers in relation to locations where the majority of the specimens were collected from.



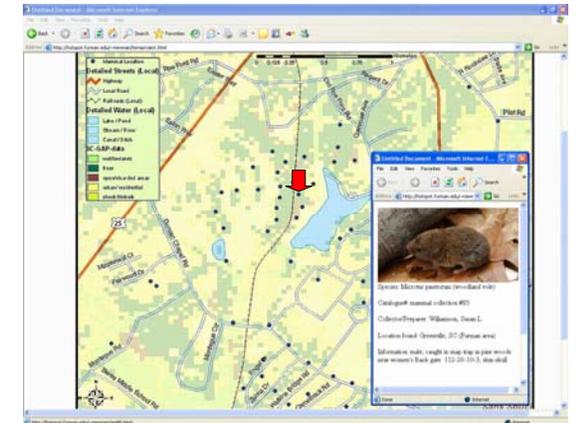
## APPLICATIONS

Combing GAP data with locations of Furman University's Zoological Collection using a GIS database gives researchers many advantages over just having the information in an Excel document. It allows the information to be given in a more logical format, allowing researchers to view and compare multiple specimens at once. The project also lets researchers view all collection sites of one certain species on the same screen and enables the researcher to determine what kind of environment the species prefers. The GIS format enables the researcher to search by collector, date found, county wide collection, and many other aspects. GIS also allows the program to be expanded by university students and faculty, if needed, on a daily basis. This technology will allow for future sharing of data with other schools creating a community wide database and increasing Furman University's outreach into the scientific community.



## FUTURE APPLICATIONS

The Biology Department's main goal is to be able to have this information available on the internet using Internet Map Server (IMS) technology. The technology is not currently available at Furman University, but is expected to be added in the near future. The project will also be continued by several other student during the summer, they will continue to locate and map the many other specimens in the Zoological Collection. Eventually this data will be available online much like the photograph below which I created on my class website <http://hotspot.furman.edu/~newman/termproject.html>. However, this is only a prototype, the web service will eventually allow the user to have access to the GIS tools enabling them to search for different attributes of specimens along with having zoom and layer choice options.



## ACKNOWLEDGEMENTS

Dr. Travis Perry, Assistant Biology Professor  
 Dr. Suresh Muthukrishnan, EES Assistant Professor  
 South Carolina Department of Natural Resources  
<http://water.dnr.state.sc.us/>  
 Animal Diversity Web <http://animaldiversity.ummz.umich.edu/site/index.html>