

Jamie M. Smith and Arthur E. Bogan, NCSM Research Lab 1671 Gold Star Drive, Raleigh, NC 27607

Abstract

The North Carolina State Museum of Natural Sciences (NCSM), a state agency, was commissioned in 1879 to "...illustrate the agricultural and other resources and the natural history of the State...". A pair of English immigrants, Herbert Brimley and Clement Brimley guided the institutions growth to be a blend of research, collections, education and conservation. It has grown into the largest museum of its kind in the Southeast. In 1998, a 20,296 square-foot Research Laboratory was constructed to house the Museum's fluid-preserved specimen collections. The Research and Collections Section of NCSM is functionally partitioned into eight units: Geology, Paleontology, Mollusks, Non-molluscan Invertebrates, Fish, Amphibians and Reptiles, Birds, and Mammals. In addition to properly maintaining the collections, research curators provide support to other departments within the state government. Such involvement includes interaction with the Department of Water Resources, Department of Transportation, Cultural Resources (our parent organization; assessment of faunal components in State Parks and other lands), and with the Wildlife Resources Commission (assessing the status of North Carolina's wildlife). Curatorial staff also provide training to biologists and wildlife enforcement officers from the NC Wildlife Resources Commission, the U. S. Fish and Wildlife Service, and to private consultants. Research staff are the Museum's source for accurate information with regard to exhibits, school programs, and public programs.

In the rapidly developing Southeast, it is important that such repositories be able to respond rapidly to the needs of resource managers and scientists that are engaged in decision making and long range conservation planning. To meet these needs, NCSM has engaged in an intensive effort to database its research collections by applying for grants and streamlining data entry by using tools such as OpenRefine.

Research and Collections

The 4 million specimens in the NCSM collections document much of the history of life and the changes it has had over time. The Research Laboratory contains office space for Museum curators and collections staff, as well as laboratories. The three collection ranges are environmentally controlled to ensure long-term preservation of the specimens. The ranges house fluid preserved specimens, as well as cleared-and-stained specimens, dry shells, skeletons, skins, taxidermy mounts, radulae mounts, symbiont mounts, stomach contents, photographic vouchers, and supporting documentation (field notes and correspondence). Genetic resource collections of amphibians and reptiles, fishes, and invertebrates are maintained in several -80°C ultra-cold freezers.



NCSM Main Museum. Ca.1894-1896.



NCSM Research Laboratory.



Part of the Athearn backlog, separate from main collection.



Alcohol backlog, organized by donor.



Two 12x20 sheds for backlog mollusks.

Current databased totals				
Families	Genera	Species	Types	Countries
281	1160	2258	92	120

Mollusk Collection

The NCSM Mollusk collection is worldwide in scope, with emphasis on the eastern United States. The collection contains over 2.3 million specimens (including backlog). These are comprised of the original core collection that was assimilated by staff at this institution since its founding, but primarily over the past four decades, plus a vast amount of donations stemming from regional orphaned collections. Our marine collections are primarily from the mid-Atlantic region and South Atlantic Bight areas, with concentration of collections in waters off the Carolinas.

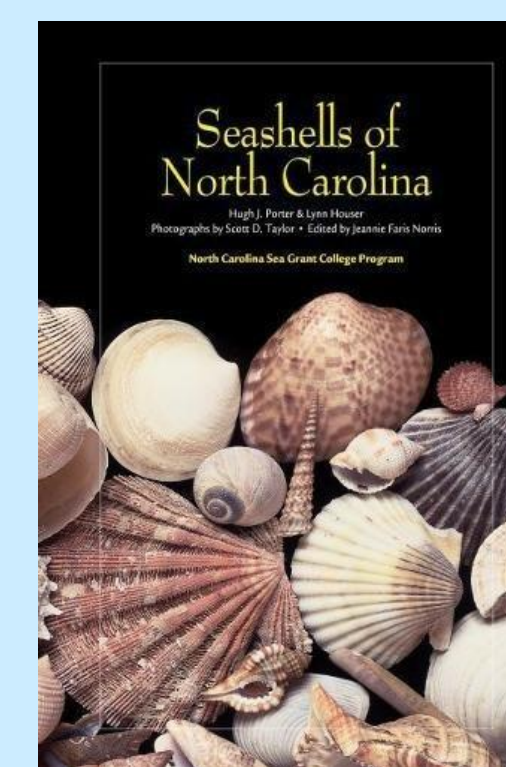
The core of the collections have been acquired from state agencies (e.g. Wildlife Resources Commission), the Institutes of Marine Sciences (Hugh Porter), Duke Marine Lab, Charleston Museum, New Mexico Museum of Natural History and Science, and a private collection from Herbert Athearn, which contains over 23,000 lots of freshwater mollusks. Our current collection spans approximately 2,843 square feet, with 150 cabinets for dry material.



Drawer of curated mussels.



H.D. Athearn Collection-the largest privately owned mollusk collection in North America.



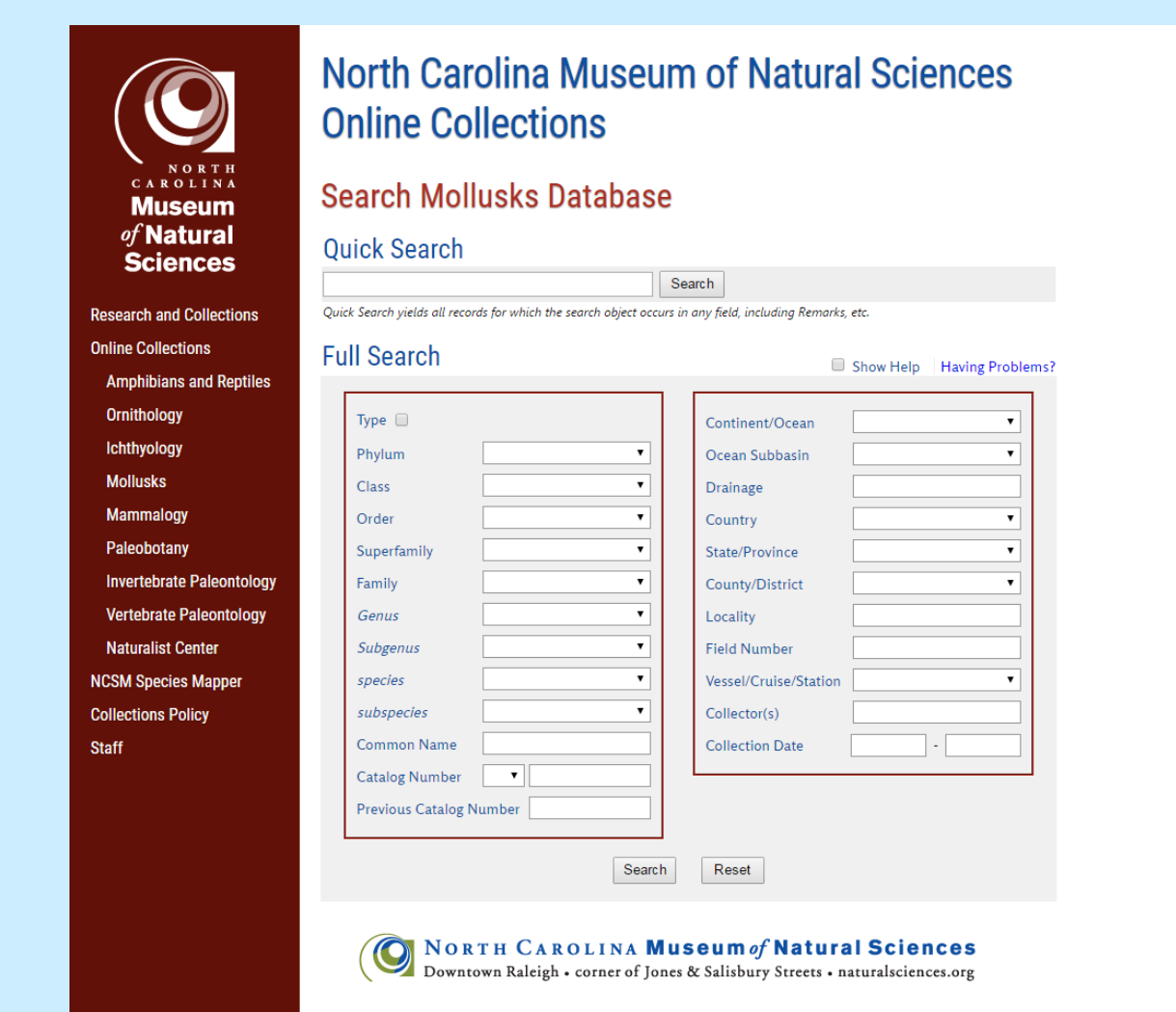
Digitizing

The Mollusk Unit's budget is limited in that it provides for curatorial supplies, a Curator, a Collection Manager, but not technical support. We depend on grants to supply us with the funds for technicians that help with data entry and curation. In the past we have received funds from NSF and SWG (State Wildlife Grant). We also depend on volunteers to help care for the collections. Numbers range dependent on space and the project. Currently, we have one volunteer and two technicians (are funded by grants).



Web Database

To facilitate data retrieval to support numerous time sensitive requests, a web portal was created. Below are multiple screen shots that display the array of searchable fields. Searches can be performed on a single field or on multiple fields with a combination of values. Data can be viewed in a general tabular format, a detailed view, or a map view.



Online searchable mollusk database including their mite symbionts.

NCMID	Phylum	Class	Order	Family	Genus	Species	Subspecies	Country	State	Second	Third	Other
8202	Mollusca	Bivalvia	Unionoida	Unionidae	Chicoutoupe	Leffroyi		United States	Alabama	Unionidae	Chicoutoupe	Mississippi Basin / Ohio R. / Tennessee R. / Ill. R.
8203	Mollusca	Bivalvia	Unionoida	Unionidae	Chicoutoupe	Leffroyi		United States	Alabama	Unionidae	Chicoutoupe	Mississippi Basin / Ohio R. / Tennessee R.
8204	Mollusca	Bivalvia	Unionoida	Unionidae	Chicoutoupe	Leffroyi		United States	Alabama	Unionidae	Chicoutoupe	Mobile Bay Basin / Tombigbee R. / Sipahoy R.
8205	Mollusca	Bivalvia	Unionoida	Unionidae	Chicoutoupe	Leffroyi		United States	Alabama	Unionidae	Chicoutoupe	Mobile Bay Basin / Tombigbee R. / Sipahoy R.

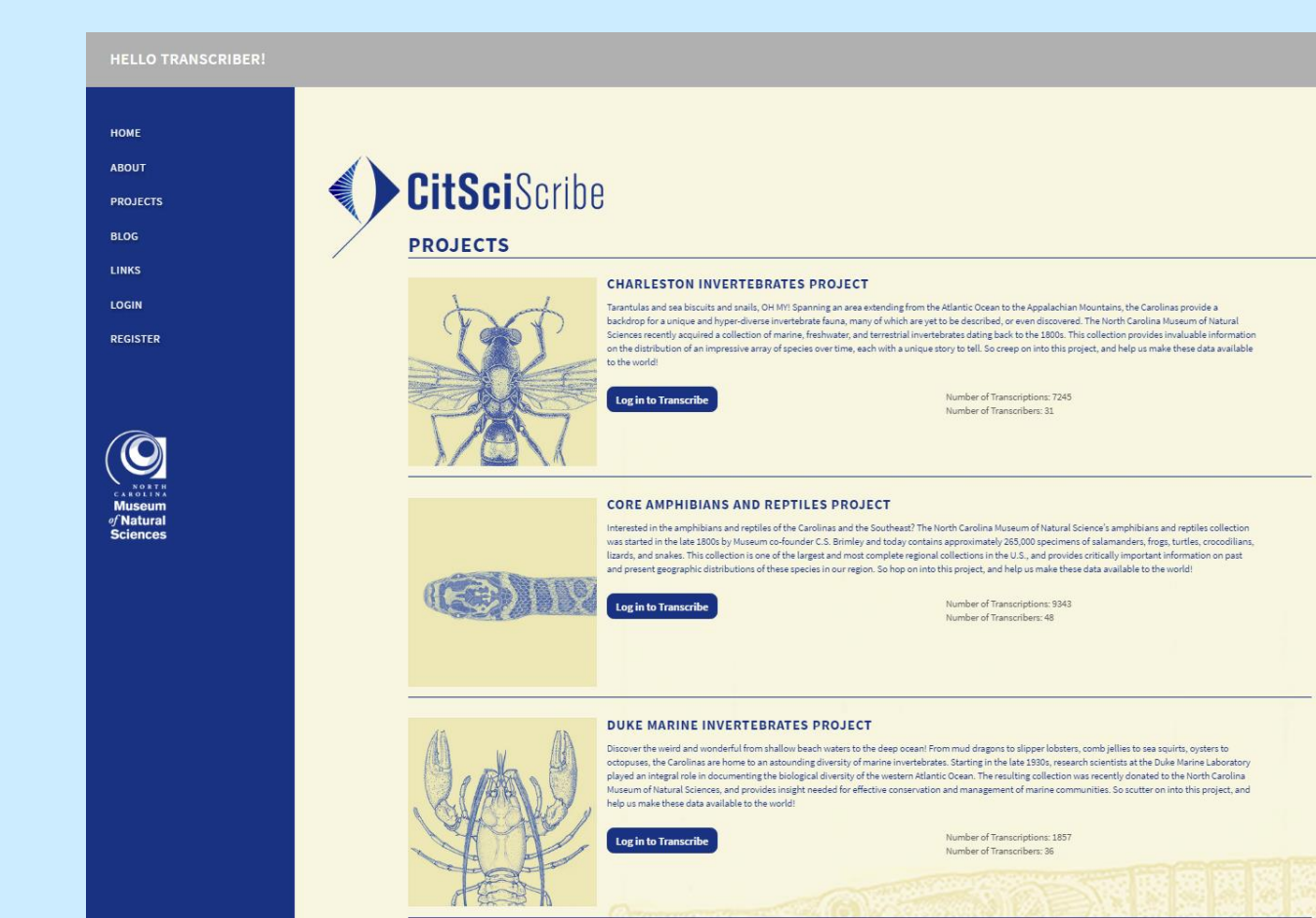
Tabular format of search results.

Current Projects and Future Goals

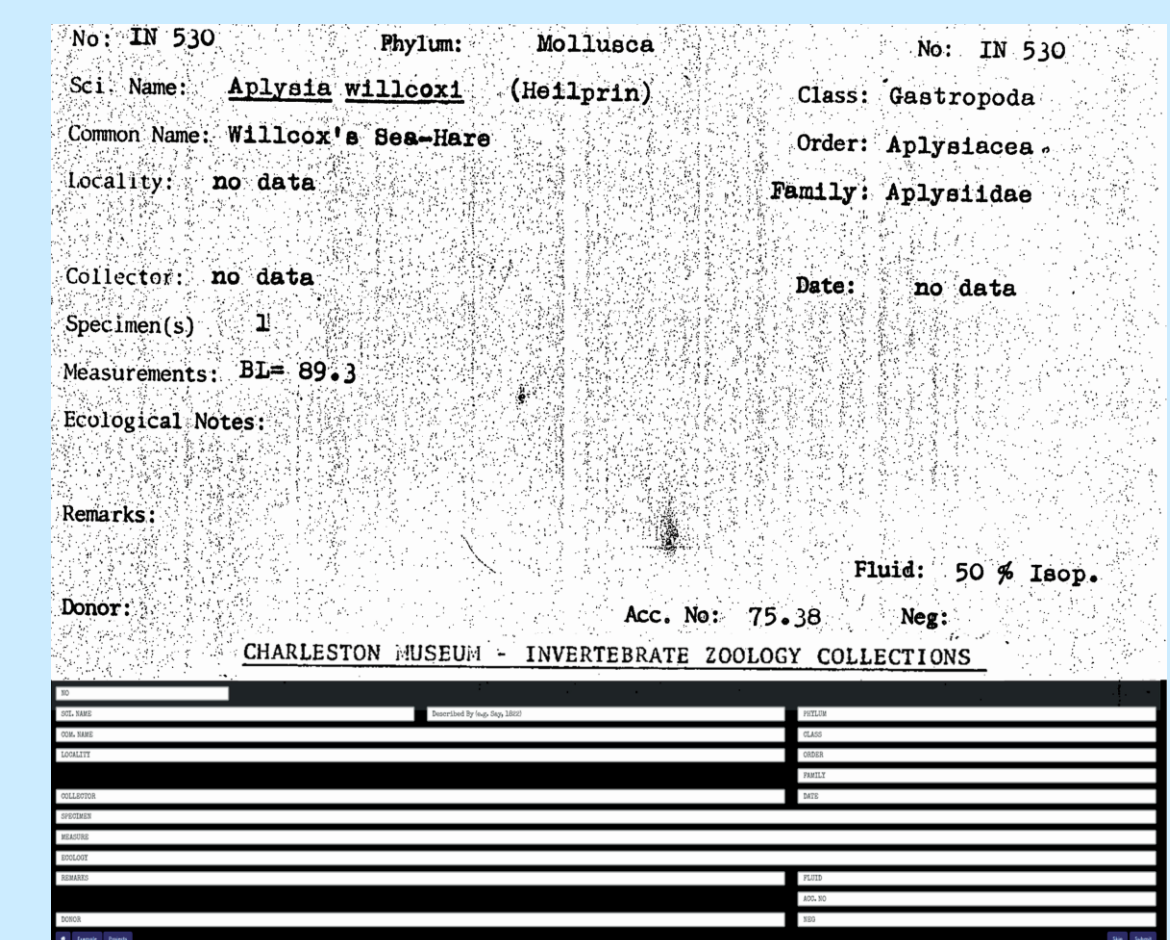
We currently have two grants. We recently were awarded grant money from the Arkansas State Game and Fish Commission for the curation and digitization of the freshwater bivalves of Arkansas. This one year grant provides us one full time technician. The U.S. Fish and Wildlife also commissioned us to database all petitioned and endangered freshwater mussels and snails.

We are also involved in a citizen science project called CitSciScribe where users (the public) transcribe primary source materials associated with recently acquired collections. This project engages the public and with their help, makes specimen data globally available. OpenRefine is then used to streamline data before being imported into our database.

Future goals include hiring support staff, purchasing metal cabinets to replace the wooden cabinets currently housing our dry collection, and photographing specimens for our website database. We also aspire to increase community involvement and awareness, while fostering an engaging approach, of the important role mollusks play.



CitSciScribe projects page where transcribers can log in and earn badges.



An example of a Charleston Museum specimen card that needs transcribing in the CitSciScribe project.