

An aerial photograph of a modern building with a large, metallic globe sculpture in the foreground. The globe is positioned on a circular base and is surrounded by a walkway. The building has a glass facade and a flat roof with a green space. The scene is captured at sunset, with the sun low on the horizon, casting a warm glow over the city buildings in the background. The sky is a mix of orange and yellow, and the sun is visible as a bright circle. The overall atmosphere is serene and modern.

ADVISORY COMMISSION REPORT

October 1, 2023

NORTH CAROLINA **Museum of Natural Sciences**

TO: Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources
FROM: Megg Rader, Chair, North Carolina Museum of Natural Sciences Advisory Commission
RE: North Carolina Museum of Natural Sciences Advisory Commission Report, FY 2023
DATE: October 1, 2023

On behalf of the North Carolina Museum of Natural Sciences Advisory Commission, I want to extend our thanks and gratitude to the North Carolina General Assembly for its generous support and advocacy of our state's internationally recognized science museum. North Carolinians can be certain of the daily, deep, and far-reaching impact of the Museum on STEM (science, technology, engineering, mathematics) education, nature-based learning, and scientific research and discovery. Thoughtful strategy, careful listening, innovation, and a commitment to collaboration, inclusion, and efficiency make this Museum not only a treasured resource throughout the state, but a sound investment worthy of current and enhanced support.

About the Museum

With a **mission to illuminate the natural world and inspire its conservation**, the North Carolina Museum of Natural Sciences is the largest institution of its kind in the State and the Southeast. The Museum's impact is felt in all 100 counties, and its research and collections extend our knowledge of the State's biodiversity and contribute to understanding issues of global concern.

The Museum location in downtown Raleigh includes the Nature Exploration Center and the Nature Research Center, filled with dioramas and exhibits, theaters, and interactive experiences that reflect North Carolina's diverse and beautiful natural habitats and inhabitants as well as opportunities to explore not just what we know about the world, but how we know it. The tools, techniques, and scientists that study the past, present, and future of our planet are in plain view, and discoveries made in real-time are observed every day. Branches in Whiteville and Greenville extend these experiences beyond Wake County. Prairie Ridge Ecostation in Raleigh and Contentnea Creek in Grifton provide outdoor learning experiences and programs. The Raleigh locations, including the Research Labs at Prairie Ridge, house over 4.5 million specimens ranging from geology to paleontology to birds and mammals.

Taken together, the Museum's activities and assets support **its vision of a knowledgeable and empowered society, making decisions informed by science**. Lifelong engagement with science is essential to ensuring North Carolina's prosperity and leadership in a globally competitive environment.

This letter highlights current and significant activities, initiatives, and programming that the NCMNS has engaged in over this past year.

Key Museum Accomplishments of FY 2023

- Significant progress was made on the **Dueling Dinosaurs** exhibit and lab construction, leading to a projected early 2024 opening
- **857,000 visitors** to Raleigh and regional museum locations, reflecting a continued upward trend
- **7,391 pre-K-12 students in 28 NC counties** served through outreach and virtual programming
- **443 educators from 55 NC counties** participated in museum-led teacher professional development
- Direct engagement in **98 of North Carolina's 100 counties**, including educational program delivery, biodiversity collections, and fieldwork
- **889 researcher days in the field** across 55 North Carolina counties
- **116 science students** (HS, college) and 85 interns, **including 4 HBCU interns**, worked in the Museum
- **\$4,848,903 revenue** contributed to the museum by Friends of the NC Museum of Natural Sciences to support mission-related activities
- **\$750,000 federal support** secured for the Mary Ann Brittain Education Center via the Appropriations Act of 2023 through the HUD Development Initiative's Community Project Funding
- Over **10,197,340 YouTube views, totaling 182,000 watch-time hours**, received by The Ant Lab channel run by Dr. Adrian Smith, director of the Evolutionary Biology and Behavior Research Lab
- **76 peer-reviewed and 30 popular science publications** (from local to international reach)



New Museum Director

Dr. Denise L. Young, who joined the Museum in June 2023, brings a North Carolina perspective to the director role. A Teaching Fellow who served as a classroom teacher with the Durham Public Schools, Dr. Young also led educational programming at Morehead Planetarium and Science Center for 14 years. Her commitment to science across the entire state is evidenced through her efforts as co-founder of the North Carolina Science Festival, an annual event that highlights the scientific, cultural, and economic importance of science to our state that has engaged over 3 million residents in the past 10 years. Until recently, Dr. Young was the director of Minnesota's state museum of natural history, where she opened a new museum facility and shattered attendance, membership, outreach, and fundraising records. Her commitment and enthusiasm for leading the NC Museum of Natural Sciences is palpable; we are in excellent hands.

Research and Collections

The Museum's dedicated and world-class scientists and researchers continue to make new discoveries.

- Dr. Bronwyn Williams, research curator of Non-Molluscan Invertebrates, co-authored a study that **named two new species of NC crayfish**, each found in streams draining off the Blue Ridge Mountains — and found nowhere else on the planet. Naming new species is the first step toward species conservation.



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- Dr. Lindsay Zanno, head of paleontology, introduced a **newly discovered plant-eating dinosaur that will provide insight into the history of our planet** when the fossil is studied in the context of environmental and biodiversity changes during the mid-Cretaceous, a period when Earth's warming climate gave rise to massive changes in dinosaur populations.
 - A rare **sharptail mola was added to the Museum's collections**. A massive 450-pound sunfish, the mola washed up on the North Carolina coast and was transported to the Museum for future study and display under the direction of Dr. Lily Hughes, curator of ichthyology.
 - The **Black-Chested Tyrant**, one of the most sought-after birds in the Amazonia by bird experts and biologists around the world, was discovered in Guyana for the very first time through joint surveys conducted by Dr. Brian O'Shea, the Museum's ornithology collections manager, his team, and members of the Guyana Marine Conservation Society.
 - An international team of scientists, including Dr. Roland Kays, co-director of the Museum's Biodiversity Lab, **published a study highlighting the impact of humans on the movement of wildlife**. Researchers used GPS tracking data for 2,300 individual animals around the world to compare their movements during the 2020 COVID lockdowns to their movements in the same period a year earlier.
 - Also using GPS tracking technology, Dr. Mike Cove, research curator of mammalogy, and collaborators **developed a groundbreaking way to track invasive species**. They observed the activity of small, collared mammals in the Crocodile National Wildlife Refuge. The Burmese pythons ate the mammals and their tracking devices, providing the location of the large invasive snakes.

Statewide Education and Outreach

- A new five-year, \$2.3 million award to the UNC Center for Public Engagement with Science will work in partnership with the Museum to **engage primarily Latino and Indigenous youth in the exploration of local climate issues and the development of youth-led resilience projects**.





- A \$165,000 project with the US Fish and Wildlife Service resulted in **13 teachers attending the first of several educator workshops where they will monitor and restore endangered and threatened species.** The first workshop involved the Neuse River waterdog, a species that is endemic to North Carolina and only found in the Neuse and Tar-Pamlico River basins.
- **The Whiteville branch of the Museum became the first site in the Department of Natural and Cultural Resources to have an approved Land Acknowledgement Statement.** The statement was created in consultation with the Waccamaw Siouan Tribe and the NC American Indian Heritage Commission.
- **The Greenville branch of the Museum broke ground on a new visitor center at Contentnea Creek.**
- Museum staff continues to administer the North Carolina Science Museums Grant Program, which in the past year **awarded \$2.4 million in state support and \$6.3 million in federal support to 55 museums that together serve all 100 counties.** As part of the administration process, museum staff have been conducting site visits and needs assessments as part of a plan to provide professional development to grantee museums, elevating these organizations' ability to serve their constituents, including K-12 students, teachers, and lifelong learners.

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- **Over 55 teachers in 32 NC counties have been trained to participate in Cretaceous Creatures, a new public science project** that engages middle school students in real scientific research by sifting through 67-million-year-old sediment from the Hell Creek Formation in Montana, the site where the Dueling Dinosaurs were found. To date, **nearly 5,000 students have participated in identifying microfossils of ancient animals** that lived alongside some of the world's most iconic dinosaurs.



Accessibility and Inclusion

Through community listening and feedback, the Museum's inclusion team advanced several initiatives to make the Museum a more welcoming space for all, signaling that science is for everyone. These initiatives include sensory-friendly events; Spanish language programming, tours, website pages, and advertising; ASL, sighted guides, and personal guides upon request; and creating a "quiet space" during the Museum's large events.

The Museum's Bright Future

As the Museum approaches its 150th anniversary in 2029, the Advisory Commission will be recommending additional State investment to ensure the Museum's ability to continue to serve North Carolina and North Carolinians at a high level. Near-term funding requests will include an expansion of the Museum's Research Laboratory facility off Blue Ridge Road, which is at capacity for both vital lab space and collections storage. Additionally, as the Museum facility on Bicentennial Plaza is approaching 25 years of age, new technology, refreshed exhibits, and upgraded infrastructure will be necessary to ensure the Museum can meet the needs of our rapidly changing society.

On behalf of the Advisory Commission, each of us looks forward to our continued work and support of the Museum under the leadership of Museum Director Dr. Denise Young, and to fulfilling our role as statewide ambassadors and advocates for this internationally recognized museum.

Respectfully submitted,

Megg Rader

Chair

NCMNS Advisory Commission