

2024 Climate Strategy Report

Department of Natural and Cultural Resources

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Introduction

About the Department of Natural and Cultural Resources

The North Carolina Department of Natural and Cultural Resources (DNCR) oversees the state's resources for the arts, history, libraries, and nature. We're home to the state's 27 historic sites, seven history museums, two art museums, two science museums, three aquariums and Jennette's Pier, 39 state parks and recreation areas, the N.C. Zoo, the N.C. Symphony, the State Library, the State Archives, the N.C. Arts Council, State Historic Preservation Office, Office of State Archaeology, the African American Heritage Commission, the American Indian Heritage Commission, and the Division of Land and Water Stewardship.

Our mission is to improve the quality of life in North Carolina by creating opportunities to experience excellence in the arts, history, libraries, and nature by stimulating learning, inspiring creativity, preserving the state's history, conserving the state's natural heritage, encouraging recreation and cultural heritage tourism, and promoting economic development.

DNCR's vision is to be the leader in using the state's natural and cultural resources to build the social, cultural, educational, and economic future of North Carolina. Every day, DNCR's sites, programs, and ideas strengthen education, improve public health, enhance quality of life, and support robust economic growth across North Carolina.

Department of Natural and Cultural Resources' Vulnerabilities to Climate Change

Impacts of a changing climate are evident across Department of Natural and Cultural Resources' many sites, from mountainous state parks to our aquariums along the coast. The vulnerabilities faced by each site are unique, both based on geographic region and the site's specific purpose, but one thing is clear: climate change impacts are universally felt across our state.

Climate change negatively impacts DNCR sites through increased staff time and funding needed for storm preparation, recovery, and repairs to property and buildings, review and revision of disaster plans, and making changes to protect assets from future damages. For example, Hurricanes Matthew, Florence, and Michael caused catastrophic damage to buildings, roads, equipment, trails, streams, and trees on DNCR properties. The growing frequency and intensity of wildfires is also an indication of climate change in our state. In addition, with a warmer climate, invasive species are moving into North Carolina, harming native plants and wildlife in state parks and natural areas.

Climate change also affects our visitors, the hundreds of communities we serve, and our cultural and archival resources. Hurricanes, heavy precipitation, heat waves, and other climatic impacts can decrease visitation (ex: site closures during storms and recovery periods, or due to more extreme temperature highs and lows) and require staff to change strategies on which natural areas our parks and conservation division prioritize for protection. Cultural and archival resources such as state and local historic sites,

museums, and archival collections are irreplaceable, making those located near the coast inherently sensitive to sea level rise and the increasing frequency and severity of heavy precipitation and flooding.

DNCR is active across all 100 counties in North Carolina, and resources are limited. The threats of climate change impacts and risks are growing, increasing pressures on the department's finances, staff capacities, and mission.

Department of Natural and Cultural Resources' Approach to Fulfilling the Strategies in the Climate Risk Assessment and Resilience Plan

DNCR considers how it manages specific assets under its stewardship, like public lands and facilities, state historic sites, and public records, accounting for the growing impacts of climate change. The department uses its educational and regulatory programs to encourage broader adoption of best practices for addressing climate change and implementing resilience strategies among its partners and the public. These programs range from inventories of natural and cultural resources, to administering grant funding to protect important resources, to educational programs aimed at specific constituents (local planners, public records administrators, etc.) and the public at large through activities at DNCR's facilities and sites.

DNCR is the lead agency for a \$421 million award from the Environmental Protection Agency's (EPA) Climate Pollution Reduction Grant (CPRG) Program, through the 2022 Inflation Reduction Grant. The funding from this grant award will support nature-based solutions, supporting reduction of carbon emissions across the four-state coalition. In subsequent Climate Strategy Reports, DNCR will report on progress for measures related to the Climate Risk Assessment and Resilience Plan.

Reducing Energy Use

The Department of Natural and Cultural Resources has made progress on Executive Order 80 requirements related to reducing energy use. Most notable, DNCR has fully integrated Capturis, an energy data gathering module and payment system, to help monitor energy usage and identify issues with any utilities. Capturis also recommends and identifies energy savings projects after a full year of data has been collected. DNCR has achieved a 38.2% reduction from baseline (total btu per square foot) during the 2022-2023 Fiscal Year (FY23/24 usage has not been calculated).

The Capital Projects Unit at DNCR has worked with an energy savings contractor to identify energy savings projects and will use the report to review and approve energy saving projects. DNCR also submits the annual energy usage reports to the NC Department of Environmental Quality and creates energy savings through repair and renovations ("R&R") projects.

Furthermore, the Capital Projects Unit and Sustainability Coordinator work together to identify areas for energy savings opportunities.

Addressing Environmental Injustices and Inequities

Deputy Secretary for Diversity, Equity, Accessibility, and Inclusion Tracey Burns is the environmental justice and equity lead for the Department of Natural and Cultural Resources. Deputy Secretary Burns and Tamara Holmes Brothers, Ph.D. serve as the agency points of contact for environmental justice efforts, informs development and implementation of the agency public participation plan described in Section 8 of Executive Order 246, and works with environmental justice and equity leads in other agencies to share and coordinate related activities, best practices, and relevant data.

Department of Natural and Cultural Resources (DNCR) has the following webpage on Diversity, Equity, Accessibility, and Inclusion: https://www.ncdcr.gov/about/diversity-equity-accessibility-and-inclusion. This webpage is part of the agency's larger website. The goal of this webpage is to identify, describe, and post agency decisions that significantly impact or may significantly impact underserved communities.

Our department is committed to zero tolerance for discrimination and harassment in all forms. We will not allow anyone to be treated as less than equal. We will foster safe environments to discuss the issues of racism and inequality in the workplace and in how we conduct our business with constituents. On this webpage, we will share the stories of Black, Indigenous, and People of Color in North Carolina through art, culture, history, and our natural resources. And we will continue to build a governance system through our boards, commissions and our employees that reflects the diversity of the people of our state to increase awareness among agency leadership and staff of the history and current impacts of environmental, economic, and racial injustice.

On a programmatic level, the Department is pursuing strategies to ensure that resources dedicated to the stewardship of the state's natural and cultural resources, as well as the use of those resources for recreational and educational purposes, are more inclusive and representative of the state's diverse population. In particular, the lack of access to outdoor recreation for many North Carolinians is an example of environmental injustice. We know that some areas in the state have plentiful outdoor recreational opportunities, while other areas, often underserved or minority communities, suffer from a lack of nearby parks, trails, or greenways. DNCR will be thoughtful as we go into underserved communities to ensure that we are doing our part to lead and support just and equitable outdoor recreational opportunities, projects, and initiatives.

To address the inequitable distribution of outdoor recreational opportunities, the department will create a map depicting the extent to which communities are being served by our state and local parks based on measures of proximity and accessibility and review the distribution of grant funds managed by our department (NC Parks and Recreation Trust Fund and NC Land and Water Fund) to ensure that these programs are equitably serving all North Carolinians. The department will also evaluate how it can best build local capacity for expanded recreational assets in communities of low wealth, including examining potential revisions to funding criteria and eligibility. In addition, a "visitors experience" initiative is underway to assess the ways in which history is presented at some of our state historic sites and state parks to update aging exhibits and create a more inclusive experience for visitors by telling a more complete story of North Carolina's past.

Public Participation Plan

DNCR manages, promotes, and enhances the things that people love in North Carolina – its diverse arts and culture, rich history, and spectacular natural areas. DNCR is committed to reflecting the rich diversity of people and voices within our state through public participation. The Department seeks to foster community engagement, meaningful dialogue, and efficient mechanisms to receive and incorporate public input. Our sites create a common ground—all are welcome.

DNCR is committed to providing a climate and culture that fosters, promotes, and encourages social interactions that support, appreciate, and celebrate our differences. By supporting diversity and inclusion, the department strives to enhance cross-cultural understanding, break down racial and gender-based stereotypes, and create a diverse and productive workforce. As an equal opportunity employer, we stay true to our mission by ensuring that our place can be anyone's place.

As the keepers of our state's history and culture, we first have a duty to look inward to determine how we can be a catalyst for change. We listen to the call for justice and respond by actively participating in the move towards positive change. We are committed to welcoming everyone to our museums, parks, and attractions, and making their visit comfortable and enjoyable.

The DNCR Diversity and Cultural Inclusion Committee exists to ensure that all elements of the department value and increase diversity and cultural inclusion. It accomplishes this by encouraging diversity of staff, boards, commissions, and friends groups; engaging with a wide array of diverse stakeholder groups and communities; developing, expanding, and promoting content, exhibits, and programs that reflect our state's diverse population; and looking across the department to identify areas where sound practices are already in place, as well as aspects that need improvement, to suggesting steps to address those issues.

A link to DNCR's Public Participation Plan can be found here: <u>https://www.dncr.nc.gov/about/public-participation-plan</u>.

1.0 Reduce greenhouse gas emissions

1.1. Reduce energy consumption per square foot in state-owned buildings by at least 40% from fiscal year 2002-2003 levels

1.1.1. Complete a Guaranteed Energy Savings Contract

Status: Underway Expected Completion Date: Spring 2026

DNCR began a Guaranteed Energy Savings Contract (GESC) for the evaluation, recommendation, and implementation of energy conservation measures, including the design and installation of equipment and the repair or replacement of existing equipment or meters.

The final Investment Grade Audit (IGA) Plan has been submitted and approved. The GESC was terminated and DNCR Capital Projects Unit is now transitioning from the GESC delivery method to a design-bid-build delivery method and will work with various Divisions to submit for Energy R&R Funds late this year.

1.1.2. Energy reduction at NC Museum of Natural Sciences

Status: Ongoing Expected Completion Date: Ongoing

Through the NC MNS Green Team and Facilities Management, the museum actively works yearly to continually reduce energy consumption. Activities include continually retrofitting light sensors to be motion activated, composting and vermicomposting waste, including restaurant locations using reusable or compostable plates, replacing all lights with LEDs, and installing water bottle refilling stations. These actions will continue, as well as implementing other energy efficient and reduction of resource use activities.

1.1.3. Reduce NC Zoo's 2020-2021 Energy Consumption

Status: Underway Expected Completion Date: June 2023

During FY 2002-2003, the Zoo had an energy consumption of 210,444 BTUs per square foot. According to the information on site for FY 2023-2024, that number has been reduced to 124,773 BTUs per square foot. This represents a reduction of 41% from FY 2002-2003 and a 25% reduction from FY 2020-2021.

1.1.4. Support Sustainable Energy Sources at the NC Zoo

Status: Ongoing Expected Completion Date: Ongoing

As one of the Randolph Electric Membership Cooperative's largest consumers, the North Carolina Zoo encourages additional purchases from carbon-neutral sources. Currently, 60% of all energy purchased from REMC is derived from carbon-neutral sources.

The North Carolina Zoo continues work with Randolph Electric Membership Cooperative on an educational display at the Solar Pointe picnic kiosks and "Power Kids" exhibit near the Prairie Habitat inside the Zoo. These educational displays highlight the sustainable energy use at the Zoo and encourage guests to increase their sustainable practices.

1.1.5. Use of Solar Energy at the NC Zoo

Status: Ongoing Expected Completion Date: Ongoing

The NC Zoo currently has 9,600 square feet of solar panels generating up to 104 kW/hr. The current installation is grid-connected, so the Zoo receives cost-saving credits from its electricity provider (Randolph Electric Membership Cooperative). REMC can accept additional energy generated on site, or this may be used in-house to reduce incoming energy demand.

1.1.6. Make Energy and Water Use Reductions at State Library

Status: Underway Expected Completion Date: December 2025

DNCR is working to replace fluorescent lights in the Government & Heritage Library stacks with motion-detection LED fixtures and add UV protection to all windows in the reading room. The department also recommended that all staff turn off computers in the evening to reduce energy use.

Design is underway with construction starting in early-2025 and will be completed late-2025. As we continue the renovations in the Archives & Library Building, we continue to replace old fluorescent lights fixtures with LED light fixtures. We are looking to add the change out of the fluorescent light fixtures in the East Mezzanine to LED to match the rest of the Mezzanine already switched to LEDs.

1.2. Support the use and expansion of energy efficient and clean energy resources

1.2.1.	VW Settlement Funding for DNCR EV Charging Stations
	Status: Underway Expected Completion Date: 2025
	Several DNCR sites have received funding through Phases 1 & 2 of the VW Settlement – Lever 2 Charge Program. The total funding from grant is \$239,365 plus DNCR matching of \$323,385 amount is distributed across the following sites:
	 NC Museum of Natural Sciences at Whiteville Prairie Ridge Ecostation (NC Museum of Natural Sciences) Umstead State Park – Crabtree entrance in Raleigh Umstead State Park – Reed Creek entrance in Cary Polk State Historic Site NC Transportation Museum Aquarium at Fort Fisher Aquarium at Pine Knoll Shores Jenette's Pier (2 EV Charging Stations)
	Currently, DNCR does not charge a fee for using charging stations at sites. This is to provide no-cost access to the charging stations at DNCR sites for all visitors.
	This project is under construction and expected to be completed in late-2024 or early-2025.
1.2.2.	Acquisition of EV charging stations at the NC Aquariums
	Status: Underway Expected Completion Date: 2028
	In 2022-2023 all three NC Aquariums added hybrid vehicles (Chevy Bolt) to their fleet. Construction is underway to install publicly accessible EV charging stations at three of

1.3. Increase the number of registered Zero Emission Vehicles to at least 1,250,000 by 2030 so that 50% of in-state sales of new vehicles are zeroemission by 2030

DNCR focuses on reducing greenhouse gas emissions with ZEVs and reports on them in Section 1.4 of this report.

the sites, with the hope of eventually installing stations at all four aquariums.

1.4. Prioritize Zero Emission Vehicles (ZEVs) in the purchase or lease of new vehicles and for agency business travel

1.4.1. Purchase and lease ZEVs throughout DNCR whenever feasible

Status: Ongoing Expected Completion Date: Ongoing

As described in DNCR's Strategic Plan Milestone 5.1.2, DNCR will lead by example to increase state employees' familiarity with Zero Emissions Vehicles (ZEV), prioritizing ZEVs and hybrids in the purchase or lease of new vehicles and shall use ZEVs for agency business travel when feasible.

For FYE2024, DNCR has leased 21 ZEV/Hybrid Vehicles from Motor Fleet Management, an increase of 8 since last year. This includes 7 Chevy Bolts (electric), 8 Toyota Camry Hybrids (2022 & 2023), 5 Toyota Sienna Hybrids FWD (2023), and 1 2022 Ford Escape SE Hybrid AWD.

1.4.2. ZEVs at the NC Zoo

Status: Ongoing Expected Completion Date: Ongoing

During FY 2019-20, the Zoo had four full electric vehicles. As of June 2024, the Zoo now has 61 fully electric vehicles, four gasoline/electric hybrids and two gasoline/propane hybrid vehicles. When looking at EVs only, 19% of the Zoo's vehicle fleet is now fully electric.

In August 2022, the North Carolina Zoo was awarded a VW-L2 transit vehicle grant. Administered by the Department of Environmental Quality, this grant will fund the purchase of two fully electric Thomas-Built 44 Passenger Jouley Busses, along with charging infrastructure, to replace two older diesel shuttle buses. The buses were completed in April of 2024, and delivered in May of this year. We are awaiting State Construction approval of plans to install the chargers for the buses in order to make them operational.

1.4.3. Purchase of EV & Hybrid Vehicle for NC Museum of Natural Sciences

Status: Complete Expected Completion Date: 2023

The NC MNS purchased two new vehicles working towards emission reduction of the fleet, including one EV Chevrolet Bolt and one Toyota Camry hybrid. Grant funding was utilized to purchase the EV, and a level 2 charger was installed in the NC MNS loading dock to support the vehicle. The museum hopes to provide faster charging support at this facility as well as at branch locations in the future.

1.5. Initiate other initiatives to decarbonize the transportation sector

1.5.1. NC Electric Membership Cooperative and NC Zoo

Status: Ongoing Expected Completion Date: Ongoing

In cooperation with the North Carolina Electric Membership Cooperatives, the Zoo is participating in a year-long pilot project to evaluate a Solectrac E25 full electric tractor. Across the state, roughly 50% of North Carolina's population is served by an Electric Membership Cooperative, and we anticipate the results of this project to provide evidence of the suitability of electric equipment in the agricultural field. By participating with NCEMC and their constituent agencies, the coops will be able to cite our study to encourage others to employ electric farm equipment, wherever suitable.

2.0. Increase statewide resilience to the impacts of climate change

2.1. Evaluate the impacts of climate change on the Department of Natural and Cultural Resources' programs and operations

2.1.1. Complete the NC Shorescape Archaeological Survey

Status: Underway Expected Completion Date: August 2024

In FY2023-2024, the Office of State Archaeology (OSA) will undertake a North Carolina Shorescape Survey to identify and document archeological resources within stateowned and managed lands in twelve coastal counties (Beaufort, Bertie, Brunswick, Carteret, Craven, Dare, Hyde, New Hanover, Onslow, Pamlico, Pender, and Tyrrell) that are most at risk of being damaged by storm events. The focus is on identifying and documenting terrestrial and underwater sites within 200 ft (60 meters) each side of the shoreline.

Survey projects are now underway. These surveys will allow OSA to determine the location and extent of shoreline archaeological resources, the conditions of these sites and their associated shorelines, the historical significance of these resources, and management strategies to preserve these shoreline archaeological resources. The project will also support the ongoing effort to digitize existing paper records.

2.1.2. Assess imperilment of plants and animal species

Status: Ongoing Expected Completion Date: Ongoing

The Natural Heritage Program completed range-wide status surveys of Carolina Hemlock and Mountain Purple Pitcher Plant and monitored populations of American Ginseng, assessing threats from all sources including climate change, habitat fragmentation, and invasive species.

In December 2024, the Natural Heritage Program will update the statewide lists of Rare Plant and Animal Species of North Carolina. These reports, which are updated every two years, provide a list of all the plant and animal species that are listed as Endangered, Threatened, or of Special Concern as well as all Significantly Rare species that are not formally protected but are imperiled enough to warrant tracking and monitoring to prevent extirpation. Habitat information and counties of occurrence are also included.

2.1.3. Inventory and monitor state nature preserves

Status: Ongoing Expected Completion Date: Ongoing

Field Biologists monitor rare species as they conduct biological inventories of lands under consideration for protection as state nature preserves. Special attention is paid to species and habitats that are most vulnerable to a changing climate and natural disasters such as hurricanes, floods, and landslides. During the field season of 2023, Natural Heritage Program staff worked closely with NC Department of Public Safety, NC Wildlife Resources Commission, and NC Plant Conservation Program to survey natural areas and propose new state nature preserves on state-owned land.

Last year, the Natural Heritage Program surveyed recently acquired lands at Boiling Spring Lakes Plant Conservation Preserve (Brunswick), Buckridge Coastal Reserve (Tyrrell), Chowan Swamp Game Land (Bertie), Lake Waccamaw State Park (Columbus), Redlair Plant Conservation Preserve (Gaston), as well as many additional sites.

During the upcoming year, the Natural Heritage Program plans to survey lands at Bakers Lake (Bladen), Brogden Bottomlands (Johnston), Grandfather Mountain State Park (Avery), Mayo River State Park (Rockingham), Shoebuckle State Forest (Stokes), Yadkin River Game Land (Davidson and Montgomery), and many other new and expanded state nature preserves.

2.2. Integrate climate change adaptation practices and resiliency planning into Department of Natural and Cultural Resources' policies and operations

2.2.1. DNCR Native Plants Policy

Status: Ongoing Expected Completion Date: Ongoing

To meet its mission of preserving the natural heritage of our state, the Department of Natural and Cultural Resources ("DNCR") enacts the Native Plants Policy regarding the use of native plants at all DNCR sites and all project sites funded by the Parks and Recreation Trust Fund (PARTF), unless otherwise excepted. This policy is reinforced by and supports the state-wide Native Plants Policy in NC Executive Order 305, signed in February 2024.

2.2.2. Complete resiliency projects for state-owned Historic Sites' properties

Status: Underway Expected Completion Date: May 2025

Several state-owned historic properties have received federal and/or state funding, including Emergency Supplemental Historic Preservation Fund (ESHPF) funding to address damage from Hurricanes Florence and Michael and provide greater resiliency for projects underway. The properties include:

- Galen Stone Hall at Charlotte Hawkins Brown State Historic Site. Design and construction of slate roof repair and building foundation drainage systems to prevent basement flooding that the building experienced during Hurricane Florence. Starting construction in September 2024 and expected completion in late-2025.
- Douglas Complex at Tryon Palace. Address damaged flooring and brick sheathing, mold eradication, and water runoff control. Started construction in May 2024 and expected completion in early-2025.
- Harper House at Bentonville Battlefield State Historic Site. Installation of a state funded emergency generator to maintain power to the HVAC system during severe wind-driven rainstorm events will avoid future problems like the week-long period post-Hurricane Florence where the building could not be adequately dried out and developed mold and plaster issues. Repair damaged siding and windows and repaint exterior in documented historic colors. Completed in August 2024.
- 2.3. Assist the communities served by Department of Natural and Cultural Resources to implement climate change adaptation practices and resiliency planning
 - 2.3.1. Fund land acquisition, restoration, flood risk resilience, innovative stormwater, and planning projects

Status: Ongoing Expected Completion Date: Ongoing

1. Alamance Battleground Reforestation Project Status: Underway and ongoing

Using a forestry management plan created by the NC Forest Service and advised by DNCR's Natural Heritage Program staff, the site is actively pursuing the removal of invasive species. A partnership with the Natural Heritage Program has resulted in a conservation plan being developed for the site, which is still pending. In 2024 approval was received to transplant ecologically appropriate trees across a one-acre test plot. These projects assist the site's environmental restoration/ reforestation project that seeks to restore portions of the 100-acre site to its 1771 appearance.

2. Historic Bath Shoreline Protection

Status: Underway

A bulkhead located along Bonner Point and Bath Creek protects the 1,180 feet of stateowned shoreline from erosion. The replacement of the 1980s seawall has been planned and is currently in the bidding process.

3. Bentonville Battlefield Land Acquisition

Status: Ongoing

Three tracts of battlefield property are currently in process of acquisition through the American Battlefield Trust. Once acquired, these tracts will be turned over to the state for management. They include:

- Morris Tract 34 acres, preservation underway and should be completed by the end of 2024 or early 2025.
- Langston Tract 89 acres, preservation underway and should be completed by the end of 2024 or early 2025.
- Halliwell Tract 70 acres, preservation underway and should be completed by the end of 2024 or early 2025.

4. Bentonville Open Space Institute Forest Management Report and Action Plan Status: Completed

The historic site completed a two-tiered land management plan in December 2023 to include immediate steps (habitat conversion and land management), and future steps (eventual conversion of farmland to forestland) to address habitat resilience, carbon mitigation, flood mitigation, and prevention of severe forest fires. This plan was specific to the site, covering 1,960 acres in rural Johnston County and Wayne County. Funding was received from the Open Space Institute to complete this report. One recommendation from the plan included conducting proscribed burns. Two controlled burns were completed in the spring of 2024 covering an area of 24 acres. The burns were conducted in areas predominantly populated with loblolly pines with low level, heavy vegetative and brushy growth. The burns cleared the majority of ground cover and new native growth plant species are slowly returning the area.

5. Bentonville NPS Cultural Landscape Report Status: Not Started

Bentonville Battlefield State Historic Site received funding from the National Park Service to complete a Cultural Landscape Report, covering 2,200 acres owned by the state. The CLR will guide restorative work on key portions of the site and include recommendations on:

 Removing and replacing 40-year-old loblolly pine plantations with native and historically accurate ecological habitats, including longleaf pine woodland and a Pocosin swamp aka naturally occurring freshwater evergreen shrub bogs. Native species will be favored for these activities.

- Determining feasibility of thinning existing forest to more appropriate period appearance exposing more original earthworks.
- Exploring strategies to transition any leased farmland identified as a longleaf pine forest during the battle back to forestland. The goal is to restore historic agricultural fields with forest.
- Collecting information for the original battlefield to update the three-decade old battlefield protection plan to incorporate the 2,200 acres owned by the state. Once available information is gathered and analyzed, optional treatments will be considered, especially restoration, and recommendations will be drafted to achieve the goals of the selected treatment.

6. Brunswick Town/Fort Anderson Shoreline Preservation

Status: Underway and ongoing

Wave attenuators have been installed on the banks of the Cape Fear River to protect sensitive, in situ Colonial-era archaeological resources and Civil War earthworks from wave action and hurricane storm surge. Completed phases are being monitored for outcomes under contract with the University of North Carolina at Wilmington. Results to date for prior phases are meeting or exceeding expectations with shoreline stabilization and regeneration as well as native flora and fauna returning. An additional \$2.5 million is being awarded through Congressionally approved Community Project grants, administered by NOAA. This grant funding will begin approximately February 2025 and install another ~1,000 linear feet of shoreline by January 2027. Environmental monitoring will be included.

Funding just received for an additional phase of 500+ feet of shoreline protection. The design-bid-build delivery method will start late this year.

7. Alamance Battleground Land Acquisition

Status: Underway

The division received funding from the Land and Water Trust to purchase from the Conservation Fund 2.35 acres of property near the site to mitigate further housing development and protect battlefield land.

In 2023, DNCR purchased from the Conservation Fund 2.9 acres adjacent to the battlefield to mitigate further housing development and to protect battlefield land.

8. Fort Dobbs Land Acquisition

Status: Underway and completed

With funding made possible by the State Legislature, in 2023 the Friends of Fort Dobbs acquired the Wilson tract of 6 acres of forested property contiguous with the historic site. This property will remain forested and a buffer to encroaching housing.

Fort Dobbs has the Nantz tract underway in 2023-2024. The request to the North Carolina Land and Water Fund was for 5.2 acres. If successfully acquired, this tract would be returned to a natural "piedmont prairie" state, allowing for native plants and animals to thrive and reducing the amount of acreage currently being mown by the owner.

2.3.2. Fund Land Acquisition, Restoration, Flood Risk Resilience, Innovative Stormwater, and Planning Projects

Status: Ongoing Expected Completion Date: Ongoing

The NC Land and Water Fund (NCLWF) improves water quality, sustains ecological diversity, and protects historic sites and military installations by funding projects to acquire lands, restore the habitat for fish, wildlife, and other species, and enhance the filtering of stormwater runoff to reduce pollutants from entering water supplies. Since the 2023 awards were made, contracts totaling \$14,000,000 have been executed and 17 flood risk reduction projects are underway. Design, permitting, and initial construction efforts totaling over \$1,000,000 have been completed to date. Also, work by NCLWF staff began on efforts to secure supplemental funding for flood risk reduction projects bring the likely total number of projects to 18 and the total amount of funding provided to almost \$21,000,000. This work is designed to increase community's resilience to flooding while also protecting and enhancing natural resources.

2.3.3. Offer a Hurricane Florence and Michael constituent subgrant program for historic preservation recovery

Status: Underway Expected Completion Date: December 2026

NC State Historic Preservation Office (HPO) received \$17 million in federal grant funding to provide recovery assistance to historic resources damaged by Hurricanes Florence and/or Michael that are listed in or eligible for listing in the National Register of Historic Places.

The award allowed the HPO to make available up to \$9.25 million in grants for historic resources located in the 61 eligible counties in North Carolina designated by FEMA for disaster assistance.

The HPO submitted 22 constituent subgrant proposals to the National Park Service for funding approval totaling \$9.25 million in cumulative assistance. Two projects were unable to finalize grant agreements, and the funds will be reallocated to other approved projects. These projects include 3 planning projects, and 17 brick and mortar projects, and were approved by NPS in 2021. Subgrant work is currently underway with individual recipients through FY2026, following an extension for COVID delays.

2.3.4. Complete historic resilience planning project for local governments and statewide constituents

Status: Underway Expected Completion Date: December 2024

In collaboration with the NC Impact Initiative at the UNC School of Government and NC State University, the State Historic Preservation Office is working to better link local disaster planning to historic resource resiliency planning and to create and provide training for state agency personnel, local governments, and non-profit historic sites in best practices for disaster preparedness and response. Project management and advisory group facilitation occurred between December 2021 and February 2024, and design standards were completed in 2023. Additionally, project partners completed a resilience scorecard to integrate hazard mitigation and historic resource resiliency planning. Disaster preparedness training began in November 2023 and will continue through November 2024. Online training modules will be completed and posted in 2024.

2.3.5. Provide trainings on identification and protection of essential public records

Status: Ongoing

Expected Completion Date: Ongoing

The Division of Archives and Records offered training on the identification and protection of essential public records to records custodians. In the past year, we offered this training virtually twice and had a total of 244 attendees. We plan to offer this training again in the upcoming year and to begin to specialize this training for certain records custodian positions.

2.3.6. Cultural Resources Emergency Support Team (CREST) Consultation

Status: Ongoing

Expected Completion Date: Ongoing

DNCR staff have worked on multiple fronts to address storm recovery and climate resilience in two historically marginalized communities with frequent flooding. CREST maintains an active team with regular training. DNCR deploys that team to help institutions statewide recover collections from all types of disasters. The 2023 annual summit took place on August 28, 2023, and involved classroom training on how to respond to an emergency event and how to salvage leather and textile-based objects. The 2024 annual summit will take place on August 26, 2024, and include a session with FEMA officials on Interagency Recovery Coordination and specific regional updates. CREST is prepared to continue to respond to requests for help with both in-person and remote technical assistance.

2.4. Help complete initiatives in the Natural and Working Lands Action Plan and Executive Order 305, An Order to Protect and Restore North Carolina's Critical Natural and Working Lands

2.4.1. Climate Pollution Reduction Implementation Grant

Status: Underway Expected Completion Date: 2029

In July 2024, NC DNCR was awarded \$421 million as the lead applicant and administrator. With this funding, over 200,000 acres of coastal habitats, forests, and farmland will be preserved, enhanced, or restored across North Carolina, South Carolina, Virginia, and Maryland.

2.4.2. Organize and host stakeholder and steering committee meetings for Natural and Working Lands Action Plan updates

Status: Ongoing Expected Completion Date: Ongoing

DNCR Staff held three Quarterly Steering Committee Meetings for the NWL Action Plan to coordinate activities within and outside of State Government. Staff also attended a US Climate Alliance Learning Lab in Washington DC, aimed at helping participating states improve effectiveness of NWL actions led and coordinated the update of the Natural and Working Lands Action Plan, which will be due in October 2024 and every 3 years after that.

2.4.3. Conserve natural lands with special focus on wetlands

Status: Ongoing Expected Completion Date: Ongoing

The Natural Heritage Program has worked with land conservation agencies to establish Dedicated Nature Preserves and Registered Heritage Area agreements under the Nature Preserves Act. Total acreage added to state nature preserves are shown below. Almost all the new acreage includes a significant proportion of forested wetlands and floodplains.

The North Carolina Land and Water Fund completed 57 land conservation projects, investing nearly \$33 million in the permanent protection of 14,228 acres between July 1, 2023 and June 30, 2024. That includes state agency ownership of 5,844 acres for the NC Wildlife Resources Commission, 2,311 acres for the NC Division of Parks and Recreation, 173 acres for the NC Forest Service, 139 acres for the NC Zoo, and 62 acres for the NC Plant Conservation Program.

County	Dedicated Nature Preserve	New Acres
Brunswick,	NC Wildlife Resources Commission Columbus County Game	1,942
Columbus	Land	
Carteret	NC Department of Adult Correction Newport River Wetlands	69
Franklin	NC Department of Adult Correction Crooked Creek	15
Granville	NC Department of Adult Correction Falls Lake Diabase Slopes	75
Halifax	NC Wildlife Resources Commission Brinkleyville Game Land	1,294
New Hanover	Masonboro Island Component of the North Carolina National	424
	Estuarine Research Reserve	
Northampton	NC Department of Adult Correction Odom Floodplain and Bluffs	121
Wake	NC Department of Adult Correction Walnut Creek Wetlands	55
Total		3,995
County	Registered Heritage Area	
Bertie	Tall Glass of Water Park	31
Burke	Western Piedmont CommunityCollege Rare Plant Site	25
Total		56

2.4.4. Develop methodology to update wetland mapping to estimate acres of wetlands that lost protection in 2023

Status: Underway Expected Completion Date: September 2024

NC Natural Heritage Program staff participated in the DEQ-led committee that focused on developing a methodology to update wetland mapping and estimate acres of wetlands that lost protection in 2023. The methodology for updating wetland mapping includes acquiring the best wetland mapping available in different parts of the state, combining the regional maps into a single basemap, then applying methods to improve the accuracy of the mapping. In the coastal region subject to Coastal Area Management Act, the wetland mapping done by Division of Coastal Management (DCM) is the best available. Farther inland, National Wetlands Inventory is the only comprehensive data available, but it is less accurate and less current than DCM maps. National Wetlands Inventory data are proposed to be updated, using land cover to detect and remove mapped wetlands that have been converted to incompatible cover. Methods for determining wetlands that have lost protection in 2023 include several approaches for determining connection to surface waters – based on wetland types that tend to be connected or not connected, based on hydrogeomorphic classification of wetland types, and based on proximity to mapped streams classified by streamflow duration. Application of this approach will require additional funding, which is outlined in the DEQ report.

This methodology is comprehensive across the landscape and applies equally to wetlands in proximity to all populations. Once completed, the resulting data will offer the possibility of analysis for environmental justice inequities in the impact of the loss of wetlands protections.

2.4.5. Identify acreage of conserved and restored land in each National Land Cover Database Category as of 2020

Status: Underway Expected Completion Date: October 2024

The Natural Heritage Program has gathered maps and statistics on land conservation as of July 2020 and is currently analyzing the maps to determine the acreage in each National Land Cover Database Category. This analysis is expected to be completed before October 2024 as mandated in Governor Cooper's Executive Order 305. This will provide a baseline for measuring progress toward the goal of conserving 1 million new acres by 2040.

2.4.6. Publish Ecosystem Vulnerability Analysis, utilizing NHP data

Status: Underway Expected Completion Date: February 2026

In June 2024, Natural Heritage Program began updating the comprehensive review of projected impacts of climate change on North Carolina's ecosystems, natural communities, rare species, and nature preserves, using information published in the North Carolina Climate Report (2020) and the natural heritage inventory database. Field biologists will meet monthly to review projected impacts on each ecosystem throughout the 2 year project period. Draft assessments will be completed for approximately half of the ecosystems by the end of FY24-25, and made available for peer review and comment.

2.4.7. Identify boundaries of pocosins, Carolina Bays, coastal wetlands, mountain bogs, and sea march corridors

Status: Underway Expected Completion Date: December 2024

NC Natural Heritage Program staff participated in the DEQ-led committee that focused on mapping pocosins, Carolina Bays, coastal wetlands, mountain bogs, and sea marsh corridors. Efforts for identifying pocosins, Carolina bays, and sea marsh corridors are beginning by identifying existing data sources that might be used. Several potential data sources exist. Other individuals or groups outside of the state government have worked on mapping these resources, but the suitability of their methods and applicability to a statewide dataset need to be evaluated. Some may be suitable as is or with refinement based on the Committee's criteria. Coastal wetlands will be readily identifiable based on the wetland mapping being developed for task 2.4.4. Identification of the much rarer mountain bogs had already been accomplished by previous and ongoing conservation work by NC Wildlife Resources Commission, US Fish and Wildlife Service, NC Natural Heritage Program, and other agencies and nongovernmental organizations. Because mountain bogs contain heavily exploited (poached) species, fragile hydrology, species vulnerable to easily transmitted pathogens and often occur on private land, there is a need to protect the privacy of the locations. The group is investigating how to fulfill the requirements of EO 305 while protecting the resources.

This task will map all of these special wetlands in the state. The comprehensive picture of their distribution will allow the consideration of equity in any conservation or restoration actions that are implemented.

2.4.8. Pursue funding for acquisition and restoration of pocosins and wetlands

Status: Underway Expected Completion Date: June 2025

The Natural Heritage Program and DEQ's Albemarle-Pamlico National Estuarine Partnership (APNEP) are in the beginning stages of collaborating on a contract to inventory and map the peatlands and pocosins within the Albemarle-Pamlico region of northeastern North Carolina. This effort will provide ground-truthed maps and descriptive information on the composition, condition, and natural community classification of peatland ecosystems, as well as conservation and restoration recommendations. This information will be made available to partners working to restore and conserve peatlands in the region. The project will complement other efforts that use existing map layers to predict the location and extent of peatlands using satellite imagery, soils, hydrology, ditches, and land ownership information. Combining the models and maps, plus real-world biological surveys will make it possible for conservation planners to target the most important remaining peatlands for the most beneficial conservation and restoration of these important and unique ecosystems.

2.4.9. Update Conservation Planning Tool

Status: Underway Expected Completion Date: June 2025

The Natural Heritage Program is in the process of incorporating ecological and social benefits along with climate impact considerations into the North Carolina Conservation Planning Tool. Staff data managers are exploring the spatial data available for climate resilience, carbon sequestration potential, ecosystem services, impact on marginalized and underserved populations, risk of conversion, proximity to other conserved lands, and pollinator habitat. Governor Cooper's Executive Order 305 encouraged cabinet agencies to consider prioritizing land acquisition intended to be held in permanent conservation using the updated statewide North Carolina Conservation Planning Tool. Other state agencies are also encouraged to consider utilizing the updated tool for land acquisition prioritization.

2.4.10. Recommend national natural landmarks to National Park Service, prioritizing natural heritage and threatened wetlands

Status: Underway Expected Completion Date: June 2025

Natural Heritage Program staff reviewed statewide biodiversity inventory data and records of priority natural areas to gather a list of potential sites to consider for nomination as national natural landmarks. The preliminary information has been shared with Secretary Wilson for consideration. After further review, the Natural Heritage Program will compile more complete information about selected sites for formal nomination.

2.4.11. Wildlife Monitoring NCMNS

Status: Ongoing Expected Completion Date: Ongoing

NC Museum of Natural Sciences is using camera traps to monitor wildlife populations across the State, in collaboration with many partners. This includes working forests, solar facilities, and other landscapes.

2.4.12. Conserve and restore wetlands and floodplains

Status: Ongoing Expected Completion Date: Ongoing

The properties identified below and acquired by the Division of Historic Sites included wetlands.

With funding made possible by the State Legislature, in 2023 the Friends of Fort Dobbs acquired the Wilson tract of 6 acres of forested property contiguous with the historic site.

At Bentonville Battlefield, there are two tracts in the process of acquisition by the American Battlefield Trust that include wetlands. The Morris Tract of 34 acres is primarily agricultural land but it includes a four-acre wooded wetland comprised of loblolly pines, tulip poplar, and differing varieties of oak trees. The Langston Tract of 89 acres includes approximately 40 acres of forest. The tract's south-eastern border is wetlands, containing roughly 25 of the 40 wooded acres.

2.4.13. NC Land and Water Fund (NCLWF) Restoration Program

Status: Ongoing Expected Completion Date: Ongoing

The NCLWF Restoration Program and partners completed 33 projects during fiscal year 2023-24. Results included over 13 miles of streams and shorelines restored. This work included the permanent protection of approximately 150 acres of forested floodplains. 15 acres of wetland were also restored and protected. Further, water quality planning reports were developed to guide future restoration and the protection of forested riparian areas in eleven North Carolina watersheds.

2.4.14. NC Zoo Land Acquisition

Status: Underway Expected Completion Date: 2026

In December of 2023, and following three years of cooperative efforts, the Zoo added 139 acres of formerly private, wooded property to the Ridges Mountain Nature Preserve. This area includes 20-40 foot tall Monadnocks and a cooperative agreement between the State and the Carolina Climber's Coalition to provide rock climbing access. During July of 2024, we began working with the Piedmont Land Conservancy to pursue funding for an additional 340 acres to add to this preserve. The parcel was once part of Camp Woodfield, BSA but was sold to private interests by the Old North State Council of the Scouts in 2022. Following successful acquisition of this property, plans include adding 3-5 miles of trails to the Ridges Mountain Nature Preserve.

2.5. Initiate other projects aimed at increasing statewide resilience to the impacts of climate change

2.5.1. NC Zoo Lake Reese Shoreline Acquisition

Status: Proposed Expected Completion Date: Ongoing

Planned acquisition of 340 acres to the Ridges Mountain Nature Preserve, managed by the Zoo, includes significant shoreline on Lake Reese. Lake Reese is the primary source of drinking water for the City of Asheboro, and is an impounded section of the Uwharrie River in the Yadkin/Pee Dee river basin. By maintaining this property in its wooded state, the Zoo will help maintain part of the riparian buffer for this watershed, minimizing silt deposits to both the lake and river, and will reduce the potential for non-point source pollution to the watershed versus having this property developed into residential space.

3.0. Address the public health impacts of climate change

3.1. Increase understanding and awareness of the health impacts of climate change

3.1.1. PATH – Parks and Trails for Health

Status: Ongoing Expected Completion Date: Ongoing

The Zoo continues to encourage active participation in outdoor recreation, both within the zoo itself and upon the 10 miles of built trails found on our outlying properties. Employment of three AmeriCorps Members allow additional guided hikes for youth and adults. Construction of three additional miles of trail on the Ward Preserve will begin in late October of 2024. These trails provide opportunities at the Ward preserve for exploration of the plant communities, animal communities and help the Zoo protect water quality in the headwaters of Bachelor Creek, a tributary of the Deep River/Cape Fear River Basin.

3.2. Advance health equity

Please see other sections for DNCR reporting.

3.3. Initiate other projects aimed at addressing the public health impacts of climate change

3.3.1. Public Health Measures at NC Zoo

Status: Ongoing Expected Completion Date: Ongoing

With climate change and increased daily temperatures, Zoo guests are increasingly likely to experience heat and respiratory issues while visiting the park. Rather than allowing this change to discourage individuals from participating in outdoor activities, the Zoo initiated several measures recently. As of July 2024, there are 4 water bottle refill stations located around the park, for no cost access to drinking water. SSA, our foodservice contractor allows guests to have their water containers refilled at all food venues at no charge. During the summer months, water stations are set up with iced water and shade for guests to the Zoo. Our ranger staff have retrofitted one of our Electric Golf Carts as a COOL Cart, equipped with water, electrolyte replenishment and cooling towels. Staffed by our rangers who have been trained to recognize heat emergencies, this provides an additional resource for visiting zoo guests.

4.0. Invest in historically underserved communities

4.1. Increase affordability for low- and moderate-income households

4.1.1. Science Access Membership NCMNS

Status: Launched April 2024 Expected Completion Date: Ongoing

The NC Museum of Natural Sciences is in the process of launching our 'Science Access Membership'-- a reduced-price Family-level membership for families who participate in government assistance programs such as SNAP, WIC, and Social Security Disability Benefits. A pilot program of the Access level started in April 2024, and it has continued to grow to over 40 Members total. The goal of the program is to increase the awareness, accessibility, and general interest in coming to the Museum, especially for people who live in nearby communities but rarely visit.

4.1.2. Access through Grants

Status: Ongoing Expected Completion Date: Ongoing

- Title one students received 15 full scholarships to NCMNS paleo summer camp with funding from the David B. Jones Foundation.
- Head of Citizen Science Chris Goforth with the help of a grant from the Burroughs Welcome Fund expanded STEM learning to young people around the state, and in particular youth in high poverty areas. Through this grant, young people were taught to be citizen scientists; they learn STEM science skills (analyzing, measuring with instrumentation, data collection and analysis) then receive \$250 worth of scientific supplies to develop their own science experiment addressing an issue of interest to them.

4.1.3. NC Zoo Inclusion Programs

Status: Underway Expected Completion Date: Ongoing

The Zoo initiated an EBT discount program which allows families and individuals receiving Government assistance to enter the park for a discounted price of \$5.00 (adults and children). During FY 23-24, 60,705 individuals were able to take advantage of this program. Actual cash value to the underserved population is \$303,525.

4.2. Create jobs and economic growth

4.2.1. Host NC Zoo AmeriCorps Positions

Status: Ongoing Expected Completion Date: Ongoing

The Zoo is now host to three AmeriCorps Members. These individuals have been instrumental in providing programs and assistance to underserved populations and have been able to expand our citizen science program emphasis to include hikes and paddling outings, along with climate-change focused programs for under-served communities. We are entering our fourth year as an AmeriCorps Host Site.

4.3. Alert residents and businesses, particularly those in underserved communities, of state and federal grant opportunities

4.3.1. Support National Park Service Historic Preservation Fund grant applications

Status: Ongoing Expected Completion Date: Ongoing

In FY 2024, staff assisted a nonprofit constituent in applying for grant funding from the federal History of Equal Rights grant program to supplement a \$748,000 grant awarded for the Hurricanes Florence and Michael Constituent Subgrant Program.

Additionally, the HPO's federal Certified Local Government grant program funded an update to design standards for the local preservation commission in Beaufort to incorporate resilience measures into its oversight for alterations to local historic properties under its oversight and is encouraging other communities to seek similar funding.

4.4. Initiate other projects aimed at investing in underserved communities

4.4.1. Conduct a NC coastal cemetery archaeological survey

Status: Underway Expected Completion Date: August 2024

This study conducted by the Office of State Archaeology will identify, document, and assess the condition of historical cemeteries on state lands in nine coastal NC counties (Beaufort, Brunswick, Carteret, Dare, Hyde, New Hanover, Onslow, Pamlico, and Pender). In addition to treefall and wind-borne debris damage, fragile and environmentally sensitive historic cemeteries and their features are under threat from erosion, subsidence, flooding, and storm surge. Particular attention will be directed toward recording those cemeteries traditionally associated with enslaved and African American communities, which are underrepresented in state records.

4.4.2. NC Zoo HBCU Internship Program

Status: Ongoing Expected Completion Date: Ongoing

The Zoo participates in the State HBCU internship program. Through the program we have been able to provide work experience and STEM training for participants. The Zoo has also expanded our seasonal zookeeper work force in order to offer more entry-level positions in this highly competitive field. DNCR minimum wage requirements mean that these seasonal positions are competitively paid. We are in the early stages of developing a larger, comprehensive internship program that will provide training opportunities across the Zoo.

Additional Information

Climate Education Programming at the NC Museum of Natural Sciences Department of Natural and Cultural Resources

Status: Ongoing Expected Completion Date: Ongoing

The North Carolina Museum of Natural Sciences integrates climate education into public events (e.g., BugFest, Science Cafes, etc.) and recycling in public and staff-only areas utilizing graphics provided by DNCR.

NC Museum of Natural Sciences Lunchtime Discovery Series

Status: Ongoing Expected Completion Date: Ongoing

In partnership with NC Department of Environmental Quality's Office of Environmental Education and Public Affairs, the North Carolina Museum of Natural Sciences hosts the weekly Lunchtime Discovery Series Webinar that includes presentations and public question and answer sessions on current science, conservation, environmental justice, and climate change topics. All sessions are hosted on the NC Museum of Natural Sciences' YouTube channel.

Add an Environmental Education Center at Prairie Ridge

Status: Underway Expected Completion Date: 2025

The Museum of Natural Sciences is working on a new environmental education center at the Prairie Ridge facility in Wake County. The Center will aim to engage and educate visitors on environmental science and integrate the environmental science curriculum with the Museum's other exhibits and overarching mission. Fund raising was completed in 2024 with plans to break ground on construction in 2025.