



2022 Climate Strategy Report

Department of Natural and Cultural Resources

October 15, 2022

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Introduction

About Department of Natural and Cultural Resources

The N.C. 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 places, 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

The Department of Natural and Cultural Resources has many state parks, historic sites, archives, history museums, and other sites, and the harmful effects of climate change are evident throughout these locations.

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 damages 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. Most recently, the wildfires that harmed Pilot Mountain State Park in November 2021 burned 1,050 acres. 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 (e.g., 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 divisions 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, 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 many facilities. Two such examples are new climate change education signs at 80 DNCR sites and the expansion of a citizen science project using Chronolog photographic technology to collect data and document ecosystem change, spearheaded by NC State Parks in partnership with NC State University.

Another approach to fulfilling the strategies in the Climate Risk Assessment and Resilience Plan is the creation and fulfillment of a sustainability coordinator position. This position is new to the department and was created to support the development and implementation of actions, policies, and program decisions to ensure DNCR is a leader among state agencies in addressing environmental sustainability. Emma Hughes was named as DNCR's first Sustainability Coordinator in September 2022.

Reducing Energy Use

The Department of Natural and Cultural Resources has made substantial progress on the Executive Order 80 requirements related to reducing energy use. The next step is to create and fill a fulltime energy manager position. DNCR has worked internally and with the Department of Environmental Quality to create a position for an energy manager at DNCR. One of the roles of an energy manager would be to collect and monitor utility data. Currently, a project manager in the Capital Projects Unit at DNCR collects annual usage data and submits it to the Department of Environmental Quality. This project manager works parttime in the utility manager position and has accomplished the following:

- Initiated the use of Capturis, an energy data gathering module and payment system, to help DNCR monitor energy usage and identify issues with any utilities. Capturis will also recommend and identify energy savings projects once it becomes fully implemented.
- Retained the services of an energy savings contractor to identify energy savings projects. The contractor was paid as part of the Guaranteed Energy Savings Program administered by the Department of Environmental Quality's Utility Savings Initiative. DNCR expects to receive the Investment Grade Audit report before the end of 2022. DNCR will use the report to review and approve energy saving projects.

- Submitted the annual energy usage reports to the Department of Environmental Quality by the required deadline.
- Helped to create energy savings through repair and renovation (“R&R”) projects.

The Department of Natural and Cultural Resources would be able to manage more energy savings projects with a dedicated energy manager position.

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 serves as the agency point person 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.

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.

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

<p>1.1.1 Incorporate Best Practices for State Government Building Energy Efficiency to Reduce Energy Consumption (DNCR Strategic Plan Objective 5.1)</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>To achieve this Strategic Plan Objective, DNCR is improving energy use tracking to reduce energy consumption through a partnership with Capturis. Through this partnership, Capital Projects is integrating energy efficiency measures and reducing energy consumption through facility construction and upgrades. Currently, employees at all State Historic Sites monitor utility bills to help reduce energy costs by tracking monthly usage of water, electricity and, when applicable, propane and natural gas. Each site submits utility reports are submitted to the Capital Projects Unit.</p> <p>DNCR plans to have Capturis up and running within the next 12 months to better track the department’s energy usage.</p>	
<p>1.1.2 Make Seasonal Energy Efficiency Ratio Improvements at Battleship NC</p>	<p>Complete</p>
<p>Complete</p> <p>DNCR completed a transition to the highest Seasonal Energy Efficiency Ratio rated HVAC system and to the most efficient LED lights the department could afford. All HVAC systems have been replaced and upgraded. The department replaced 80% of ship lighting with LEDs.</p>	
<p>1.1.3 Make Energy and Water Use Reductions at State Library</p>	<p>Underway</p>
<p>Expected Completion Date: Spring 2025</p> <p>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.</p> <p>In the next 12 months, DNCR will select a designer for this work. The department intends for the designer to start and complete their work within the same timeline.</p>	
<p>1.1.4 Complete Energy and Water Use Reductions at NC Aquariums</p>	<p>Underway</p>
<p>Expected Completion Date: Unknown</p> <p>DNCR’s FY2020-2021 goal was to reduce energy consumption by 3% and reduce water use by 2%. Jennette’s Pier installed energy efficient hand dryers, performed an EO80 energy efficiency</p>	

audit, and replaced metal halide entrance sign light fixtures with solar rechargeable LED fixtures.

In the next 12 months, Jennette’s Pier will save energy through repairing solar panel installations and improving the energy efficiency of a life support system. The department also plans to replace thirty CFL light fixtures with LED fixtures.

1.1.5 Complete Energy Reductions at State Historic Sites	Ongoing
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Expected Completion Date: N/A

DNCR is making many energy reducing improvements at State Historic Sites. The department is installing geothermal HVAC systems and energy efficient heat pumps when applicable during major renovations. The department is also using programmable thermostats to reduce energy usage when the buildings are unoccupied. DNCR staff are encouraging individual sites to adjust thermostat controls to cooler heating season temperatures and warmer cooling season temperatures where such changes will not affect artifact preservation. Furthermore, State Historic Sites and support facilities are in the process of changing existing outdated lighting to energy efficient LED lighting. Hot water heaters are being replaced with tankless, on demand hot water systems to also reduce energy consumption.

1.1.6 Complete a Guaranteed Energy Savings Contract	Underway
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Expected Completion Date: Spring 2026

DNCR recently began a guaranteed energy savings contract 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 contract states that all payments, except obligations on termination of the contract before its expiration, are to be made over time; energy savings are guaranteed to exceed costs. The contract is in place at multiple facilities across the department.

We expect to have a draft Investment Grade Audit (IGA) Plan submitted in the coming months and a Final IGA Plan submitted early next year. Once a Final IGA Plan is approved by the department, we will start the process to secure a loan for the approved energy saving projects working with the Office of State Budget and Management, the Department of Treasury, and State Construction Office.

1.1.7 Install a NC Zoo-built Heat Exchanger	Ongoing
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Expected Completion Date: N/A

DNCR is pilot testing the use of a NC Zoo-built heat exchanger to provide supplemental heat for one of its greenhouses. Heat generated by composting organic material will be captured and circulated into the greenhouse. If this test is effective, DNCR will expand it to the NC Zoo’s other greenhouses to reduce propane consumption.

1.1.8 Reduce NC Zoo’s 2020-2021 Energy Consumption	Underway
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Expected Completion Date: June 2023

<p>The NC Zoo's 2020-2021 energy consumption for heating and cooling of state-owned buildings is 149,332 BTUs per square foot, a 30% reduction from 2002-2003 levels. Of the buildings on the Zoo campus, 13 have obsolete or inefficiently functioning HVAC compressors that require high CFC coolant. These HVAC compressors have all been placed on the schedule for repair and renovation expenditures and are planned for replacement. New equipment will have greater capacity, higher efficiency and will not require coolant that is no longer manufactured.</p>	
<p>1.1.9 Complete Energy Performance Contract at the NC Zoo</p>	<p>Underway</p>
<p>Expected Completion Date: Unknown</p> <p>The NC Zoo is working with Siemens (the contract holder for the Guaranteed Energy Saving contract; see 1.1.6) to identify potential energy saving projects. DNCR has spent more than 30 days on-site looking for inefficiencies in 1) Building Envelope inefficiencies (this also includes repair and isolation of water leaks), 2) HVAC inefficiencies, 3) Lighting inefficiencies, and 4) Opportunities for additional green energy generation. Siemens is expected to share its proposal with DNCR officials and the Zoo's Senior Staff during September of 2022. This contract is expected to decrease energy and utility consumption per square foot by at least 5% beyond initiation year consumption figures across the entire Zoo.</p>	

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

<p>1.2.1 Use Solar Energy at the NC Zoo</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>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.</p>	
<p>1.2.2 Support Sustainable Energy Sources at the NC Zoo</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>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.</p>	

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 zero-emission by 2030

This section is not applicable.

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

1.4.1 Increase state employees' familiarity with ZEVs (Strategic Plan Milestone 5.1.2)	Ongoing
<p>Expected Completion Date: N/A</p> <p>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.</p> <p>The Division of Archives and Records leased a hybrid vehicle for the new Records Analyst position for the eastern region.</p>	
1.4.2 Partner with Motor Fleet to Purchase ZEVs and Hybrids	Ongoing
<p>Expected Completion Date: N/A</p> <p>DNCR is working with Motor Fleet to plan ZEV and hybrid replacements whenever possible.</p>	
1.4.3 Adopt an EV Purchasing Policy for the NC Zoo	Complete
<p>The Zoo has drafted a policy to prioritize electric vehicles, plug-in hybrids and other low emission vehicles when making purchasing decisions. The policy asks supervisors requesting new vehicles to consider use and where EVs may accomplish the need. EVS will be given priority over petroleum-fueled vehicles.</p>	
1.4.4 Purchase Electric Buses for the NC Zoo	Underway
<p>Expected Completion Date: Unknown</p> <p>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. These will be used as parking lot shuttles in areas with high vehicle emissions to help reduce atmospheric carbon.</p>	
1.4.5 Purchase ZEVs for the NC Zoo	Underway
<p>Expected Completion Date: December 2022</p> <p>The Zoo has ordered 20 fully electric vehicles to considerably expand its existing electric fleet. These vehicles are all small utility vehicles and golf carts that will in some cases replace full-sized gas-powered vehicles. These vehicles are on order and anticipated to be in service within the next three months.</p>	

<p>1.4.6 Purchase Electric Vehicles for the NC Zoo and NC State Parks & Recreation</p>	<p>Complete</p>
<p>DNCR acquired two Chevy Bolts, full electric vehicles, through the NC Department of Administration's Motor Fleet Division. DNCR uses these vehicles for daily patrols by Park Rangers and for off-park programming by the Zoo's Conservation, Education and Science section. During 2021, two Nissan Leaf EVs were added to the Zoo fleet, both used for daily, 24-hour ranger patrols.</p>	
<p>1.4.7 Purchase Electric-Assist Tricycles for the NC Zoo</p>	<p>Complete</p>
<p>The Conservation Education and Science section purchased two electric-assist tricycles. These vehicles are smaller than golf carts and are capable for use inside the park. In addition to their service moving educators around inside the facility, we hope to be able to demonstrate how lithium-powered electric vehicles may be employed to fulfill any number of service roles inside the Zoo.</p>	
<p>1.4.8 Install ZEV Charging Stations at State Parks and the Zoo</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>DNCR installed electric vehicle charging stations, including two ports each, at State Parks, including Crowders Mountain, Lake James, Lake Norman, Raven Rock, and Pilot Mountain State Parks.</p> <p>The Zoo installed four ZEV charging stations (eight ports total) in 2018. During 2021, the Zoo was awarded a VW-L2 grant administered by the North Carolina Department of Environmental Quality that allowed installation of three additional charging stations (six ports) for a total of 14 ports at the facility.</p> <p>DNCR is currently installing new EV charging units at Eno River State Park, Jockeys Ridge State Park, Lake James State Park, and Mount Mitchell State Park. There are plans for additional EV chargers at two to three more parks in 2023.</p>	
<p>1.4.9 Update the Craft Services Fleet with More Efficient Vehicles</p>	<p>Complete</p>
<p>Completion Date: September 2018</p> <p>State Historic Sites Craft Services Division has replaced the majority of the large non-fuel-efficient vehicles with new fuel-efficient vans for travel throughout the State to perform facility maintenance and repairs.</p>	

1.5 Initiate other projects aimed at reducing statewide greenhouse emissions

1.5.1 Run a DNCR Telework Program	Ongoing
<p>Expected Completion Date: N/A</p> <p>Beginning in fiscal year 2022-2023, DNCR implemented a department-wide telework program after successfully completing a pilot telework program that ended June 30, 2022. The telework program provides workplace flexibilities, promotes efficient operations, and reduces greenhouse gas emissions by reducing weekly commute times for participating staff.</p> <p>In keeping with the state telework policy, DNCR will continue its telework program in divisions where it meets business needs and for positions where job functions may be suitable for telework.</p>	

2.0. Increase statewide resilience to the impacts of climate change

2.1 Evaluate the impacts of climate change on cabinet agencies' programs and operations

2.1.1 DNCR Strategic Plan, Milestone 5.2.2	Underway
<p>Expected Completion Date: June 2023</p> <p>Floodplain and wetland acquisition and restoration</p>	
2.1.2 DNCR Strategic Plan, Milestone 5.2.9 & 5.2.10	Underway
<p>Expected Completion Date: June 2023</p> <p>Conduct environmental reviews and provide assistance to constituents for disaster recovery, response, and mitigation for future events.</p> <p>During the next twelve months, DNCR will continue to provide support for planning and resiliency initiatives underway, and initiate planning, resiliency, and construction repair projects for historic resources. This work will take place under the Emergency Supplemental Historic Preservation (ESHPP) Disaster Assistance grant projects for Hurricane Florence and Michael recovery.</p> <p>Additionally, the Environmental Review branch of the State Historic Preservation Office continues to work expeditiously to review all disaster-related and resiliency-oriented projects within a 30-day turnaround schedule. Finally, five members of the State Historic Preservation Office staff have completed or will complete Floodplain Management training sponsored by the NC Department of Public Safety by the end of calendar year 2022.</p>	
2.1.3 DNCR Strategic Plan, Milestone 5.2.11	Underway
<p>Expected Completion Date: June 2023</p> <p>NC Museum of Art: Complete bridge, culvert, path repairs and replacement and stream restoration</p>	
2.1.4 DNCR Strategic Plan, Milestone 5.2.12	Underway
<p>Expected Completion Date: June 2023</p> <p>Evaluate off site storage solutions for collections at risk from the triple threats of flooding, heavy precipitation, and sea level rise climate risks across the department.</p>	
2.1.5 DNCR Strategic Plan, Milestone 5.2.14	Underway
<p>Expected Completion Date: June 2023</p>	

<p>Consider climate-related hazards when developing master plans for natural areas, parks, and nature preserves. Over the next 12 months, DPR will begin to develop a protocol for resiliency and climate related mitigation methods to implement into both the General Management Plan development and future Master Plans.</p>	
<p>2.1.6 Assess Imperilment of Plants and Animal Species</p>	<p>Underway</p>
<p>Expected Completion Date: December 2022</p> <p>The Natural Heritage Program is working to 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.</p> <p>The Natural Heritage Program is currently coordinating with the NC Wildlife Resources Commission and NC Plant Conservation Program to add state Threatened, Endangered, and Special Concern plant species to the State Wildlife Action Plan Species of Greatest Conservation Need. The proposal has been submitted to the US Fish and Wildlife Service and a decision is expected before the end of 2022.</p> <p>In late 2021, the Natural Heritage Program launched range-wide status surveys of Carolina Hemlock and Mountain Purple Pitcher Plant, assessing threats from all sources including climate change, habitat fragmentation, and invasive species.</p>	
<p>2.1.7 Inventory and Monitor State Nature Preserves</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>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 2022, Natural Heritage Program staff worked closely with NC Department of Public Safety to survey natural areas at prisons and propose new state nature preserves on state-owned land.</p> <p>During the upcoming year, the Natural Heritage Program plans to survey lands along the Waccamaw River (Columbus County), Pond Mountain (Ashe County), and Chowan River (Bertie County), as well as many additional sites.</p>	
<p>2.1.8 Participate in the Recovery Support Functions of the State Disaster Recovery Task Force</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>NC Natural Heritage Program and NC Land and Water Fund staff participate in the Environmental Recovery Support Function of the State Disaster Recovery Task Force, as does the State Historic Preservation Office in the Cultural Resources Recovery Support Function, contributing map data and recommendations for the upcoming Disaster Recovery Framework update.</p>	

The State Historic Preservation Office will participate in all update work as invited by the Emergency Management divisions of the North Carolina Department of Public Safety.	
2.1.9 Participate in the US Army Corps of Engineers (USACE) South Atlantic Coastal Study At-Risk Cultural Resources Analysis	Underway
<p>Expected Completion Date: Unknown</p> <p>For this project, the Office of State Archaeology and NC State Historic Preservation Office are consulting with USACE to identify cultural resources (historic and archaeological sites, historic districts, and other historic resources) vulnerable to coastal storm damage and sea level rise. This analysis is part of a multi-state effort throughout the southeastern United States and Caribbean. GIS and archaeological and architectural survey data along with staff expertise are all proving crucial to informing this effort. Many of the places identified are federal and state historic assets open to the public.</p> <p>Both the North Carolina Office of State Archaeology as well as North Carolina State Historic Preservation Office will continue to work with the USACE as the progress proceeds per USACE timelines.</p>	
2.1.10 Complete the NC Shorescape Archaeological Survey	Planned
<p>Expected Completion Date: Unknown</p> <p>In FY2022-2023, the Office of State Archaeology (OSA) will undertake a North Carolina Shorescape Survey to identify and document archeological resources associated with coastal communities that are most at risk of being damaged by storm events. The focus is on identifying and documenting sites within 200 ft (60 meters) of the shoreline.</p> <p>The focus is on identifying and documenting sites within 200 ft (60 meters) of the shoreline, including into the submerged lands. Survey projects will go out for proposal and fieldwork will be completed over the next twelve months. 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.</p>	
2.1.11 Monitor Wildlife and Plants for Climate Change Impacts	Ongoing
<p>Expected Completion Date: N/A</p> <p>DNCR is identifying potential impacts of climate change on plants and animals in North Carolina. Over time, scientists will be able to correlate data with changes in weather patterns and sea levels. DNCR is monitoring the following species and animal groups: Sand tiger sharks, Sea turtles (all species), Crystal skipper butterfly, Gopher frogs – two populations at Pine Knoll Shores, Least tern colony at Pine Knoll Shores, Stranded marine mammals (all species) along the northern NC coastline, and Lionfish on offshore shipwrecks.</p>	

2.1.12 Conduct Teddy Roosevelt Natural Area Biodiversity Surveys	Complete
<p>NC Aquariums conducted two biodiversity surveys in the Teddy Roosevelt Natural Area, adjacent to the Pine Knoll Shores Aquarium, 40 years apart. This long-term monitoring data could be tied to climate change.</p>	

2.2 Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations

2.2.1 Hire a Sustainability Coordinator in DNCR	Complete
<p>Completion Date: September 2022</p> <p>DNCR developed a new sustainability coordinator position and hired the successful candidate in September 2022.</p> <p>This position supports the development and implementation of actions, policy, and program decisions to ensure DNCR is a leader among state agencies in addressing environmental sustainability, including but not limited to: assistance to divisions in the development of resilience and adaptation strategies for the effects of a changing climate; the creation of departmental strategies, goals, and benchmarks for mitigating carbon emissions in response to objectives and priorities set by the Governor and Secretary; and the development and implementation of educational materials and programs that capitalize on the potential of DNCR's public-facing sites and programs to raise awareness among North Carolinians about environmental sustainability and science.</p>	
2.2.2 Help Libraries Contribute to Community Disaster Preparedness	Planned
<p>Expected Completion Date: December 2023</p> <p>For this project, the State Library will collaborate with the NC Public Library Directors Association to recognize and support the role that libraries play in disaster preparedness and recovery efforts more formally. Planning will begin the Winter/Spring of 2022-23 by forming a committee and creating an action plan for 2023. The project team will assess the types of support the State Library can offer libraries for this role.</p>	
2.2.3 Manage State Parks with Prescribed Fire as Method to Increase Ecosystem Resilience	Ongoing
<p>Expected Completion Date: N/A</p> <p>DNCR runs an active prescribed fire program to maintain natural communities in an ecologically healthy condition. A healthy habitat is one better suited to adapting to whatever climatic condition it faces. State Parks has performed 70 separate prescribed fires on 15 of its properties in the past year totaling 5,708 acres.</p> <p>The Divisions of Parks and Recreation and Land and Water Stewardship are jointly working with NC Forest Service to share information about nature preserves with sensitive natural</p>	

areas that should be given special consideration during fire suppression and management activities.

The Prescribed Fire Branch of the Natural Resources Program aims to consistently conduct 50 to 70 prescribed fires on a yearly basis statewide. This is accomplished through internal efforts and the collaborations established with assisting partners. The recent historic accomplishments of between 6,000 and 7,000 acres is profound within the agency yet continues to fall short of the need of 15,000 to 20,000 acres annually.

The NC General Assembly has provided funding to DNCR through the FY 2022- FY 2023 budget for two regional “Burn Bosses” to coordinate prescribed fires throughout the state park system. Funds have also been provided for firefighting equipment and personal protective equipment. Staffing expansions aim to increase the recent successes, though none of this is accomplished without partner assistance due to the complex nature of an ever-increasing wildland urban interface (WUI) in North Carolina.

2.2.4 Manage Land Restoration	Ongoing
<p>Expected Completion Date: N/A</p> <p>The Division of Parks and Recreation (DPR) is actively restoring lands and waters that have been damaged from past land activities. Actions on lands include conversion of pine plantations and abandoned agricultural fields to a more natural condition. Streams and wetlands are being restored by re-creating natural channels and removing artificial structures such as dams and culverts.</p> <p>Examples of DPR’s restoration work include:</p> <ol style="list-style-type: none">1. Phase 2 of the pine plantation conversion at the Deep River-Justice restoration project area continues with the treatment of invasive species, the reintroduction of prescribed fire, and the enhancement and monitoring of groundcover species appropriate to the site.2. Dam removal at the Deep River Justice tract is scheduled to begin by the end of 2022.3. Invasive species treatments continue at the Lake James State Park 126 restoration area, a prior eastern white pine plantation. A successful prescribed fire in Spring 2022 was conducted jointly between DPR, NCFS, USFS, and TNC staff members. This fire has facilitated the augmentation planting of shortleaf pine, Table Mountain pine, pitch pine, and additional fire appropriate white and red oak species.4. DPR Natural Resources and Operation staffs are working collaboratively with Coastal Federation on the shoreline resiliency projects at Carolina Beach State Park, Hammocks Beach State Park, Theodore Roosevelt State Natural Area, Fort Macon State Park, and Jockey’s Ridge State Park.5. The pine plantation conversion project at Carvers Creek State Park will begin in FY23 (Phase 1).6. Phase 3 prescribed fires and monitoring are planned for the Goose Creek restoration area in FY23. Groundcover and longleaf pine reintroductions, as well as initial prescribed fires have been completed to date.7. DPR continues to work with the Eno River Hydrilla Task Force to control this aquatic invasive species within the upper Neuse River basin. New, though patchy, populations of hydrilla were detected by DPR staff in August 2023.	

<p>8. Groundcover augmentation, mid-story control work, and prescribed fires are scheduled for FY23 at Weymouth Woods State Natural Area at the Boyd Tract, home to the oldest known longleaf pine in the US. This is to correct historic negative impacts.</p> <p>9. Natural Resource staff are collaborating with UNCW on a dendrochronological study at Weymouth Woods State Natural Area, Carvers Creek State Park, and Cliffs of the Neuse State Park to provide historical fire regime insight and inform future decisions.</p> <p>10. Natural Resources staff are collaborating with the Southern Appalachian Spruce Restoration Initiative and the NC Natural Heritage Program to augment red spruce and Fraser fir populations on Mount Mitchell and Grandfather Mountain State Parks, which have been historically impacted by past land-use, wildfires, invasive species, and now changing climatic conditions that effect the microhabitats and associated species. In collaboration with the Bog Learning Network, Natural Resource Program staff are continuing shrub control and invasive species management work at Pineola, Sugar Mountain, and Beech Creek bogs to protect several federal & state significant species.</p>	
2.2.5 Update the Statewide Historic Preservation Plan	Underway
<p>Expected Completion Date: Spring 2024</p> <p>Preliminary planning for the 2023 10-year update cycle of the state will be initiated in FY2022-2023. The update will include specific measures to be taken toward strengthening disaster mitigation and resiliency for historic resources throughout the state.</p> <p>The Deputy State Historic Preservation Officer and Local Government Coordinator of the State Historic Preservation Office will liaison with the State, Tribal, Local, Plans and Grants Division of the National Park Service to launch preliminary planning and establish a timeline and outline necessary tasks for the next update of the state historic preservation plan by the end of FY 2022-2023.</p>	
2.2.6 DNCR Strategic Plan, Milestone 5.2.6	Planned
<p>Expected Completion Date: June 2023</p> <p>Develop on-demand training for public records custodians, cultural heritage practitioners, and the public around disaster preparedness and recovery for public records and documentary heritage of the state.</p>	
2.2.7 Complete Resiliency Projects for State-Owned Historic Sites' Properties	Underway
<p>Expected Completion Date: August 2024</p> <p>Several state-owned historic properties have received federal and/or state funding, including Emergency Supplemental Historic Preservation Fund funding to address damage from Hurricanes Florence and Michael and provide greater resiliency for projects underway. The properties include:</p> <ol style="list-style-type: none"> 1. Galen Stone Hall at Charlotte Hawkins Brown State Historic Site. Design and construction of slate roof repair and building and foundation drainage systems to prevent basement flooding that the building experienced during Hurricane Florence. 	

<ol style="list-style-type: none"> 2. Douglas Complex at Tryon Palace. Address damaged flooring and brick sheathing, mold eradication, and water runoff control. 3. 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. 	
2.2.8 Complete the Brunswick Town/Fort Anderson (BFTA) Wave Attenuator Project	Underway
<p>Expected Completion Date: December 2023</p> <p>DNCR is installing wave attenuators in the Cape Fear River to protect more of the sensitive, in situ Colonial-era archaeological resources and Civil War earthworks present along the shoreline from wave action and hurricane storm surge.</p> <p>A new phase will be under construction in FY 2022-2023, funded with Emergency Supplemental Historic Preservation Fund federal historic preservation fund hurricane grant monies.</p>	
2.2.9 DNCR Strategic Plan, Milestone 5.2.7	Ongoing
<p>Expected Completion Date: N/A</p> <p>Protect historic structures and artifacts – Environmental and historic compliance processes for the federally-funded ESHPF Disaster Assistance Grant program have been completed.</p> <p>During the next 12 months DNCR will continue planning and resiliency initiatives already underway, and initiate planning, resiliency, and construction repair projects for both state-owned and constituent historic resources. This milestone improves climate change preparedness for DNCR sites.</p>	
2.2.10 DNCR Strategic Plan, Milestone 5.2.8	Underway
<p>Expected Completion Date: June 2023</p> <p>Complete the relocation of Underwater Archaeology artifacts</p> <p>This relocation project is proceeding well with multiple tubs/boxes delivered and ones ready for delivery to the Office of State Archaeology Research Center in Raleigh and to the North Carolina Transportation Museum; additional work is anticipated to be completed this fiscal year. This relocation will protect and reduce the vulnerability of the Underwater Archaeology artifacts from impacts and future risks associated with climate change.</p>	
2.2.11 DNCR Strategic Plan, Milestone 5.2.13	Underway
<p>Expected Completion Date: June 2023</p>	

Introduce and promote land management practices to restore long-term resilience and mitigate climate change, such as prescribed fire, hydrologic restoration, reforestation, and natural riparian vegetation.

2.3 Assist the communities served by each cabinet agency to implement climate change adaptation practices and resiliency planning

<p>2.3.1 Provide Grant Writing Support to Communities and Organizations</p>	<p>Underway</p>
<p>Expected Completion Date: June 2026</p> <p>DNCR provides technical assistance to local governments applying for Parks and Recreation Trust Fund (PARTF) grants through a contract with Recreation Resources Service (RRS) at NC State University.</p> <p>The Contract with RRS was amended and executed through June 30, 2026. Field administration and management for the following Department of Parks and Recreation (DPR) grants were modified to include Land and Water Conservation Fund, PARTF, Accessibility for Parks Grant Program and other related grant implemented through legislation. Three new consultant positions were added along with a dedicated position for community outreach and enhancement to increase positive impacts on communities with a focus on health, wellness, equity, and conservation. DPR also supports RRS with State Park office locations outside the main office located in Raleigh to provide timely field administration and outreach.</p>	
<p>2.3.2 Offer Constituent Consultations and Training Videos</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>The Restoration Branch of the State Historic Preservation Office provides technical advice for restorations, rehabilitations, and building maintenance to owners of historic buildings at no cost or obligation. Similarly, Cultural Resources Emergency Support Team (CREST) provides technical advice for special collections and artifact recovery.</p> <p>Additionally, the Emergency Supplemental Historic Preservation Fund (ESHPPF) grant for Hurricanes Florence and Michael recovery is funding a statewide resiliency project focused on historic preservation in collaboration with the NC Impact project at the University of North Carolina School of Government and NC State University, which will provide a variety of training opportunities statewide.</p>	
<p>2.3.3 Offer a Hurricanes Florence and Michael Constituent Subgrant Program for Historic Preservation Recovery</p>	<p>Underway</p>
<p>Expected Completion Date: August 2024</p> <p>North Carolina 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.</p>	

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. These projects include three planning projects, and nineteen brick and mortar projects, and were approved by NPS in 2021. Subgrant work is currently underway with individual recipients from FY2021 through FY2024.

2.3.4 Complete Historic Resilience Planning Project for Local Governments and Statewide Constituents	Underway
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Expected Completion Date: August 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 is occurring between December 2021 and September 2024, and design standards are under development between December 2021 and July 2023. Additionally, between December 2021 and mid-2022, project partners created a resilience scorecard to integrate hazard mitigation and historic resource resiliency planning. The group has plans to offer training on the subject between mid-2022 and 2023. Disaster preparedness training is scheduled to take place between July 2022 and August 2024.

In one example, project partners worked with the town of Princeville. They consulted with town leaders to preserve buildings and artifacts associated with the historic Princeville School and the Matthewson House. Although, after careful consideration, the c.1870 Matthewson House was demolished in 2020, the State Historic Preservation Office and Office of Administrative Hearings staff continue to consult with town leaders to plan storage for the salvaged architectural elements and to assist with plans for a future Princeville Museum.

In another example, project partners worked with the community of Pembroke. Consultations led to recommendations for federal resiliency funding to address structural needs at The Indian Education Program Museum in the historic Pembroke High School, and a federally funded historic preservation project, currently underway, for this historic building. In addition, Cultural Resources Emergency Support Team directed federal funds earmarked for Hurricane Florence recovery to upgrade storage supplies for the museum’s cultural heritage collection.

2.3.5 Cultural Resources Emergency Support Team (CREST) – Post-storm Constituent Consultations	Ongoing
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Expected Completion Date: N/A

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. In 2022, the annual summit on August 29th involved 20 experienced team members and eight new recruits in a mock flood for hands-on recovery

<p>practice with a variety of materials found in archives and museum collections. CREST is prepared to continue to respond to requests for help with both in-person and remote technical assistance.</p>	
<p>2.3.6 CREST Assists Town of Canton after Tropical Storm Fred</p>	<p>Complete</p>
<p>Complete</p> <p>Tropical Storm Fred flooded the town of Canton on August 18, 2021. Floodwaters filled the basement level of the town-operated museum. Its director requested CREST assistance and team members provided consultation, onsite assessment, and artifact relocation assistance in late August and September.</p> <p>CREST consultations continued through July 2022 with the facilitation of a disaster recovery grant through the NC Museums Council and NC Preservation Consortium.</p>	
<p>2.3.7 Hire a Records Analyst Position</p>	<p>Underway</p>
<p>Expected Completion Date: October 2022</p> <p>The Division of State Archives is adding a records analyst based in the eastern portion of the state to focus on supporting counties and municipalities that have faced recent flooding during severe weather events was funded in the 2021-2022 budget. DNCR has written the position description and started planning for the position, which will be based in New Bern and will be primarily responsible for local government records consultations, training on essential records protection, and the coordination of back-up imaging of archival records. DNCR sent a hiring packet HR and hopes it will be approved for someone to start in October.</p>	
<p>2.3.8 Host the Future of Conservation Forum</p>	<p>Completed</p>
<p>Completion Date: September 2022</p> <p>The Natural Heritage Program (NHP), along with The Nature Conservancy and NC Botanical Garden, hosted a conference entitled The Future of Conservation: Biodiversity, Resilience, and Environmental Justice. 150 participants in the 3-day conference learned from scientists and state conservation leaders (including NHP and DPR staff) about climate change, impacts on North Carolina ecosystems, and what the conservation community can do to increase resilience and benefit biodiversity while improving equity and inclusion.</p> <p>The in-person conversation and networking sparked many opportunities for developing new project ideas and collaboration efforts.</p>	
<p>2.3.9 Provide Trainings on Identification and Protection of Essential Public Records</p>	<p>Completed</p>
<p>Completion Date: September 2022</p> <p>The Division of Archives and Records offered training on the identification and protection of essential public records to records custodians.</p>	

<p>2.3.10 Fund Land Acquisition, Restoration, Flood Risk Resilience, Innovative Stormwater, and Planning Projects</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>The North Carolina Land and Water Fund 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. In September 2022, the Land and Water Fund granted a total of \$70,373,404 to state agencies, local governments, and land conservation organizations for a variety of outstanding projects. In addition to the stated mission of the Fund, the funded projects will also sustain or improve resilience and provide additional benefits of sequestering and storing carbon, thus helping to offset total statewide greenhouse gas emissions.</p> <p>During the upcoming year, the Land and Water Fund will implement the new Flood Risk Resilience program, granting \$15 million to projects that protect and restore floodplains and wetlands for the purpose of storing water, reducing flooding, improving water quality, providing wildlife and aquatic habitat, and providing recreational opportunities. The primary purpose of the program is to reduce flood risks through the design, implementation, and preservation of nature-based infrastructure. Additional consideration will be given to projects that also deliver other ecosystem services or public benefits, demonstrate readiness to begin implementation, and benefit economically distressed communities.</p>	

3.0. Address the public health impacts of climate change

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

This section is not applicable.

3.2 Advance health equity

3.2.1 Provide grant opportunities for libraries in support of health access and telehealth efforts	Ongoing
<p>Expected Completion Date: N/A</p> <p>To date, the State Library has awarded two grants to libraries (Haywood County and Duplin County) for wired booths with sound proofing which may be used for telehealth appointments in addition to virtual meeting or interviews.</p> <p>The State Library will promote health access and telehealth support within libraries as possible uses for federal grants available from the State Library to libraries across the state. Monitor recipients of grant awards for these purposes to determine community impact.</p>	

4.0. Invest in historically underserved communities

4.1 Increase affordability for low- and moderate-income households

This section is not applicable.

4.2 Create jobs and economic growth

<p>4.2.1 Run the Hurricanes Florence and Michael Constituent Subgrant Program for Historic Preservation Recovery</p>	<p>Underway</p>
<p>Expected Completion Date: August 2024</p> <p>Grant agreements have been executed for underserved community historic resource repair construction projects (African American, Lumbee, Women’s Equal Rights) in Beaufort, Bladen, Durham, Johnston, Moore, Pender, and Robeson counties. Projects for repairs of Galen Stone Hall at Charlotte Hawkins Brown Memorial and St. Joseph’s Church (Douglas) Complex at Tryon Palace will preserve important State-owned African American resources. Construction will get underway during FY 2022-23.</p>	
<p>4.2.2 Host NC Zoo AmeriCorps Positions</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>DNCR created two AmeriCorps positions focused on improving representativeness and meeting the needs of under-resourced communities. The goal is to provide more effective environmental education for these communities while also better meeting their needs. The second year of this program began in August 2022.</p> <p>In the next 12 months, DNCR will add a third AmeriCorps position to contribute to this effort.</p>	

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

<p>4.3.1 Support National Park Service Historic Preservation Fund Grant Applications</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>In FY 2021-22, staff assisted constituents in applying for federal History of Equal Rights grant to supplement a \$520,000 grant awarded through the Hurricanes Florence and Michael Constituent Subgrant Program, subsequently awarded (\$500,000).</p> <p>In FY 2022-23, staff assisted another constituent in applying for \$585,000 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.</p>	

4.4 Initiate other projects aimed at investing in underserved communities

<p>4.4.1 Coordinate public lands and open space investment in underserved communities</p>	<p>Planned</p>
<p>Expected Completion Date: Unknown</p> <p>The Division of Parks and Recreation plans to work with the Department of Environmental Quality and the Andrea Harris Social, Economic, Environmental, and Health Equity Task Force to incorporate park and trail investment in underserved communities into the State’s environmental justice network.</p> <p>Governor Roy Cooper reestablished the Andrea Harris Equity Task Force through an Executive Order to continue the work that the group has done to address social, economic, and health disparities in underserved and underrepresented communities. The initial taskforce was established in June of 2020. The department will evaluate the role it could play in the continued efforts of the taskforce.</p>	
<p>4.4.2 Conduct a NC Coastal Cemetery Archaeological Survey</p>	<p>Underway</p>
<p>Expected Completion Date: August 2024</p> <p>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 African American communities, which are underrepresented in state records.</p>	
<p>4.4.3 Host an Emergency Preparedness and Collections Management Webinar</p>	<p>Complete</p>
<p>Completion Date: April 2022</p> <p>The N.C. African American Heritage Commission and Cultural Resources Emergency Support Team (CREST) teamed up to present a webinar, “Emergency Preparedness and Collections Management.” The session provided basic guidelines and sample forms for small organizations. The training is available via YouTube at the following link: https://youtu.be/P6HtLoiqVeA.</p>	
<p>4.4.4 Assess Environmental Equity of State Nature Preserves</p>	<p>Complete</p>
<p>Completion Date: April 2022</p> <p>The Natural Heritage Program worked with ecosystem services analysts at the Duke University’s Nicholas Institute to identify areas of North Carolina that have a high percentage of vulnerable populations (based on the CDC’s Social Vulnerability Index) and low access to nature preserves. The analysis also identified local natural heritage areas where investment in</p>	

land conservation would improve the resilience of our state’s natural heritage and benefit vulnerable populations.

The Natural Heritage Program has applied for a federal America the Beautiful Grant to support field biologists and outreach staff who can engage with local stakeholders in the areas identified to help improve natural heritage inventory information and help identify opportunities to facilitate conservation efforts that would improve access to nature preserves in areas with high percentages of vulnerable populations. Grant awards will be announced in November 2022.

Additional Information

Outreach, Sustainability, and Climate Change Education

Launch the NC Science Trail	Underway
<p>Expected Completion Date: Spring 2023</p> <p>DNCR Secretary D. Reid Wilson has provided start-up funding for the NC Science Trail, and InSituExplorers (a non-profit organization focused on environmental education) is now taking the lead on behalf of all the partners to develop a new website and other promotional materials, with a target for launching the trail to the public next spring.</p> <p>The NC Science Network, which includes environmental education centers and science museums around the state, including the NC Museum of Natural Sciences, are supporting the project. In addition to the Museum of Natural Sciences, the NC Zoo and the NC Aquariums have all been involved in the planning process to date. NC State Parks is planning on joining this effort as well.</p>	
Install Citizen Science Chronolog Signage	Underway
<p>Expected Completion Date: December 2022</p> <p>DNCR State Parks has collaborated with NC State University researchers to implement a citizen science project aimed at providing interpretive signs that discuss how ecosystem changes may be linked to climate change. Twelve signs have been installed at several state parks recreation areas, and state aquariums, all located in the coastal region of the state. Sites include Fort Fisher State Recreation Area, Carolina Beach State Park, Fort Macon State Park, Pettigrew State Park, Jockey’s Ridge State Park, Hammocks Beach State Park, Goose Creek State Park, and NC Aquarium at Pine Knoll Shores. The data from this citizen science project can be found here: https://www.chronolog.io/project/NCR.</p>	

<p>In the next 12 months, supplemental educational materials for the signs will be provided to site staff and visitors. Additionally, curriculums and decisions regarding how to best utilize the data collected through this citizen science project will be determined.</p>	
<p>Install Climate Change Education Signs</p>	<p>Underway</p>
<p>Expected Completion Date: December 2022</p> <p>DNCR is working with a vendor to create 80 climate change education signs that provide a brief general overview of climate science, how climate change is impacting North Carolina, and how visitors can become “Climate Champions.” There will be a supplemental website associated with these signs that provide a more in-depth explanation of climate change and additional resources.</p> <p>Signs are currently in the design phase. Within the next few months, the design will be shared with the vendor and fabricated. Once received by DNCR, signs will be installed at DNCR sites.</p>	
<p>NC Zoo Environmental Stewardship</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>Environmental Steward/EMS Certification – a continued DEQ “Environmental Steward,” and maintenance of ISO 14001 Environmental Management System certification.</p>	
<p>Use the Investigation Station at Rocky Coast Exhibit to Educate on Climate Change</p>	<p>Complete</p>
<p>Complete</p> <p>NC Zoo has reworked its “Investigation Station” at the Rocky Coast exhibit to focus more on climate change using explanatory metaphors and community level solutions.</p>	
<p>Run NC Aquarium Public Programs Focused on Climate Change</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>DNCR launched programs on several topics related to climate change (e.g., ocean acidification, temperature change and reptile impacts, wind and solar energy, geothermal program, climate clues and renewable energy challenge) and its impacts on ecosystems and ocean life. Staff are receiving training through the National Network for Ocean and Climate Change Interpretation to cover this topic more effectively. DNCR staff have already incorporated conservation messaging in signage including specific actions people can take to reduce their use of fossil fuels and plastics.</p>	
<p>Offer NCMA Arts and Science Minicourses</p>	<p>Ongoing</p>
<p>Expected Completion Date: N/A</p> <p>The North Carolina Museum of Art created Arts and Science professional development minicourses for teachers including emphasis on how the design of the Museum’s Art Park is geared toward sustainability.</p>	

Offer Climate Education Programming at the NC Museum of Natural Sciences	Ongoing
<p>Expected Completion Date: N/A</p> <p>The North Carolina Museum of Natural Sciences integrated climate education into public events (e.g., BugFest, Science Cafes, etc.) and recycling in public and staff-only areas utilizing graphics provided by DNCR.</p>	
NC Museum of Natural Sciences Conservation Corner	Ongoing
<p>Expected Completion Date: N/A</p> <p>The North Carolina Museum of Natural Sciences increased conservation communication to Museum members by incorporating a new “Conservation Corner” section into membership e-newsletters.</p>	
Run the NC Museum of Natural Sciences Teen Science Ambassadors Program	Complete
<p>Complete</p> <p>The North Carolina Museum of Natural Sciences managed an external program, Teen Science Ambassadors, to increase science literacy among middle school and high school students.</p>	
Install NC Museum of Natural Sciences Compost and Recycling Signage	Complete
<p>Complete</p> <p>The North Carolina Museum of Natural Sciences improved signage to increase composting and recycling in public and staff-only areas utilizing graphics provided by DNCR.</p>	
Host Sustainability Lunches at the NC Museum of Natural Sciences	Ongoing
<p>Expected Completion Date: N/A</p> <p>The North Carolina Museum of Natural Sciences launched a series of Sustainability Lunches in the Triangle region modeled after the successful Charlotte area Sustainability Lunch Bunches. These quarterly programs attract corporate, NGO, and government organizations.</p>	
Host the Love Nature: The Biophilia Podcast	Ongoing
<p>Expected Completion Date: N/A</p> <p>The North Carolina Museum of Natural Sciences launched Love Nature: The Biophilia Podcast, hosted by Dr. Eric Dorfman (NC Museum of Natural Sciences Director and CEO) and Dr. Dan Dombrowski (NC Museum of Natural Sciences Chief Veterinarian) to “understand and navigate a changing world, and to allow us to live better, and more responsibly, on the planet.”</p>	

Host an NC Museum of Natural Sciences Lunchtime Discovery Series	Ongoing
<p>Expected Completion Date: N/A</p> <p>The North Carolina Museum of Natural Sciences hosts a Lunchtime Discovery Series Webinar with a presentation and public question and answer session. One podcast, for example, was entitled, <i>The Other Side of Environmental Injustice: Parks and Greenspace Inequity in Marginalized Communities</i>. All sessions are hosted on the NC Museum of Natural Sciences' YouTube channel.</p>	
Add an Environmental Education Center at Prairie Ridge	Underway
<p>Expected Completion Date: Unknown</p> <p>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.</p>	
Release "A State of Change" with PBS-NC	Complete
<p>Completion Date: April 2022</p> <p>DNCR collaborated with PBS-NC in the sponsoring "A State of Change," an eight-episode series on climate change in NC, which was aired on TV and the internet in 2021 and 2022. This PBS-NC special, funded in part by NC DNCR, talked about the impacts of climate change on North Carolina and the role of land conservation in helping our state's landscape retain its natural resiliency. DNCR staff and partners were featured and interviewed.</p> <p>Each State of Change story is listed below:</p> <p><u>FULL EPISODES (Available via PBS app or the SciNC website)</u></p> <p>Beach Nourishment (Episode 404) – released 10/28/21</p> <p>Saltmarsh Sparrow (Episode 405) - released 11/4/21</p> <p>Living Shorelines (Episode 406) - released 11/11/21</p> <p>Princeville (Episode 407) - released 11/18/21</p> <p>State of Change (1 hour special) – released 4/20/2022</p> <p><u>INDIVIDUAL STORIES (Available via YouTube, Facebook, PBS app, SciNC website)</u></p> <p>Beach Nourishment - released 11/23/21</p> <p>Saltmarsh Sparrow - released 11/9/21</p> <p>Living Shorelines - released 12/7/21</p> <p>Princeville - released 12/21/21</p> <p>Islands in the Sky – released 4/30/2022</p>	