



Regular Meeting of the Natural Heritage Advisory Committee

November 7, 2024 Agenda

Remote participation: Contact natural.heritage@dncr.nc.gov for Teams meeting link.

In-person meeting location: 4th floor conference room at 121 West Jones Street, Raleigh, NC 27603

Documents to be discussed during the meeting will be accessible online at:

<https://www.ncnhp.org/events>

NHAC Members: Jeff Marcus (chair), Alan Weakley, Lee Leidy, Sue Cameron, Jocelyn Wilson, Jay Leutze, Kim Brown, Brian Byfield, Kevin Melvin.

NHP Staff: Misty Franklin, Scott Pohlman, Katherine Culatta (recording minutes), Michael Schafale, Laurie Hamon.

DNCR Staff: Deputy Secretary Jeff Michael, Division of Land and Water Stewardship Director Will Summer, General Counsel Zoe Hansen Burnet.

10:00 AM Call to Order and Reading of Ethics Reminder – Jeff Marcus, Chair

In accordance with the State Government Ethics Act, it is the duty of every Natural Heritage Advisory Committee member to avoid both conflicts of interest and appearances of conflict. Does any Natural Heritage Advisory Committee member have any known conflict of interest or appearance of conflict with respect to any matters coming before the Natural Heritage Advisory Committee today? If so, please identify the conflict or appearance of conflict and refrain from any undue participation in the particular matter involved.

Land Acknowledgement – Jeff Marcus, Chair

As we gather to discuss wise stewardship of critically important properties in NC, we gratefully acknowledge the Native American peoples who were the original stewards of these lands. We pay our respect to those past, present, and emerging people who have been custodians of these lands and waters.

Welcome, Introductions, and Logistics: NHAC, DNCR, NHP

- Welcome and Logistics (Misty Franklin)

- DNCR Updates - Legislative and NCLWF updates (Deputy Secretary Jeff Michael and/or Division Director Will Summer)
- NHP updates (Misty) - Special projects, ongoing priorities
 - Rules Review and Readoption schedule and process

01 Review Agenda for Additions and Deletions - All

02 Review Previous Meeting Minutes - All

Dedicated Nature Preserve Overview (Scott)

New Dedications and amendments to add property:

03 The Nature Conservancy Black River Preserve

04 Foothills Conservancy Pinnacle Mountains Carmon-Messick

05 NC Wildlife Resources Commission Sandhills Game Land

New Registries

06 Rutherfordton Mountain View Rare Plant Site

07 White Pines (Camp)

Other Topics

Set Meeting Dates and Locations for 2025:

Two meetings remote (Teams): February and August

Two meetings in-person: 1) May 12-14 Trinity Center, Salter Path, and
2) November TBD Raleigh

Adjourn



Minutes from the August 7, 2024 Meeting of the Natural Heritage Advisory Committee

In-person meeting location: Nature Research Center, 121 West Jones Street, Raleigh, NC

Documents discussed during the meeting were accessible online at:

<https://www.ncnhp.org/events>

NHAC Members:

Online: Jeff Marcus (chair), Lee Leidy, Sue Cameron, Jocelyn Wilson, Jay Leutze, Kim Brown, Alan Weakley

Absent: Brian Byfield, Kevin Melvin

NHP Staff:

In-person: Misty Buchanan, Scott Pohlman, Michael Schafale, Katherine Culatta

Online: Lauren Schlosser

DNCR Staff:

In-person: Division of Land and Water Stewardship Director Will Summer

Online: General Counsel Zoe Hanson-Burnett, Stewardship Program Manager Justin Mercer, Executive Assistant Terri Murray

1:00 PM Call to Order and Reading of Ethics Reminder – Jeff Marcus, Chair

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Welcome, Introductions, and Logistics: NHAC, DNCR, NHP

- New NHP staff include Field Biologist Katherine Culatta and Lauren Schlosser

DNCR Updates – Division of Land and Water Stewardship Director Will Summer:

- The EPA and Governor Cooper announced a \$421 million Climate Pollution Reduction Grant (CPRG) implementation award for Natural and Working Lands projects across NC, SC, VA, and MD. NCDNCR is the lead applicant for these funds, which will be realized in shovel-ready projects that prioritize carbon reduction, climate resiliency, and nature-based solutions. This grant funding will specifically support Governor Cooper’s Executive Order 305.

In North Carolina, over five years this funding will:

- Restore over 30,000 acres of peatland and pocosins on public and private land
 - Reforest 49,000 acres through a high-carbon forestry cost-share program
 - Fund climate smart forestry management and conservation easements for Black and low-income forest landowners in Eastern NC
 - Develop a program to fund the planting of 1,200 urban trees in small municipalities that lack capacity to do so themselves
 - Acquire 3,300 acres of high-carbon and high conversion risk coastal plain and wetlands to add to the State Park System
- The Conservation Tax Credit was partially reinstated this legislative session. It is good to see this important conservation tool returning, but it is significantly different from the previous iteration. Partners are working to make technical corrections, and perhaps future updates can restore additional functionality.
- NHP updates Misty Buchanan:
 - Excited about CPRG and conservation tax credit
 - Two new staff (filled two biologist positions created in the 2023-24 state budget)
 - Field Biologist Katherine Culatta joined NHP from Plant Conservation Program.
 - Focus area will be northeast Piedmont and Coastal Plain.
 - Dedication and Registry work will bring her to NHAC on occasion.

- Laurie Hamon will join NHP in September as new Pollinator Biologist.
 - Also, former intern Kat Johnson will return as temporary employee under a contract funded by NC Wildlife Resources Commission to the help data team.
- Ecosystem Vulnerability Assessment
 - NHP staff will be evaluating projected impacts of climate change to ecosystems - including rare species - across the state
 - Mandated by EO 305
 - Peatlands and Pocosins inventory - one-year project funded by APNEP. If you know of peatland in the Coastal Plain that needs survey, please send information to NHP.
 - We will update the rare plant and animal lists, to be released in December 2024; contact Andy Walker and Judy Ratcliffe to suggest updates.

01 Review Agenda for Additions and Deletions - All. No additions or deletions

02 Review Previous Meeting Minutes - All. No corrections or objections registered. Kim moved to approve; Lee seconded. No discussion. Approved unanimously via roll call vote.

Dedicated Nature Preserve Overview (Mike) - Review of dedicated nature preserve program, authorized by the State Nature Preserves Act, zones of dedicated areas (primary, restoration, special management, buffer). Noted distinctions between state dedications and non-state (i.e. local government and private) dedications. Mecklenburg County has been a great partner -- the majority of dedication agreements with local governments are with Mecklenburg County. TNC may be the only partner with more non-state dedications covering a greater area than Mecklenburg County. Since both dedications on the agenda were with the same party, the Committee decided to vote on them as one item.

New Dedications and amendments to add property:

03 Mecklenburg County Rural Hill Preserve (Mike) - New voluntary dedication of 354 acres

Part of a complex of Mecklenburg County nature preserves, with the surrounding preserves already dedicated. This dedication had complications that took more time to work through, including historic resources on-site, and active use. Several high-quality communities associated with gabbro geology.

Part of Mount Olive Church Basic Forest natural area, which extends onto adjacent preserves.

04 Mecklenburg County Ferrelltown Preserve (Mike)- new voluntary dedication of 77 acres

Mike noted that a portion of this project was originally known by NHP as Trails End Post Oak Upland natural area, and initially understood as roadside site with Schweinitz's sunflower and Georgia aster. However, the county acquired additional land that has good-quality natural communities. A transmission line right-of-way is included as special management area. Primary Area zones on the slopes, with uplands that are successional forests and dedicated as Buffer. Excluded areas include homesite and fields where the County is considering active recreation. The natural area is now identified as Ferrelltown Nature Preserve and Vicinity. Natural Heritage Advisory Committee expressed appreciation for the effort to inventory both areas for dedication, and for staff to work through complications with historic elements, and complicated land uses that meant some areas would need to be excluded. Mike credited Mecklenburg County with keeping the faith over a lengthy period, as well as taking necessary action to move these forward, such as getting legal descriptions to exclude areas.

Jocelyn moved to accept both dedications as proposed, Sue seconded. No discussion. Approved unanimously via roll call vote.

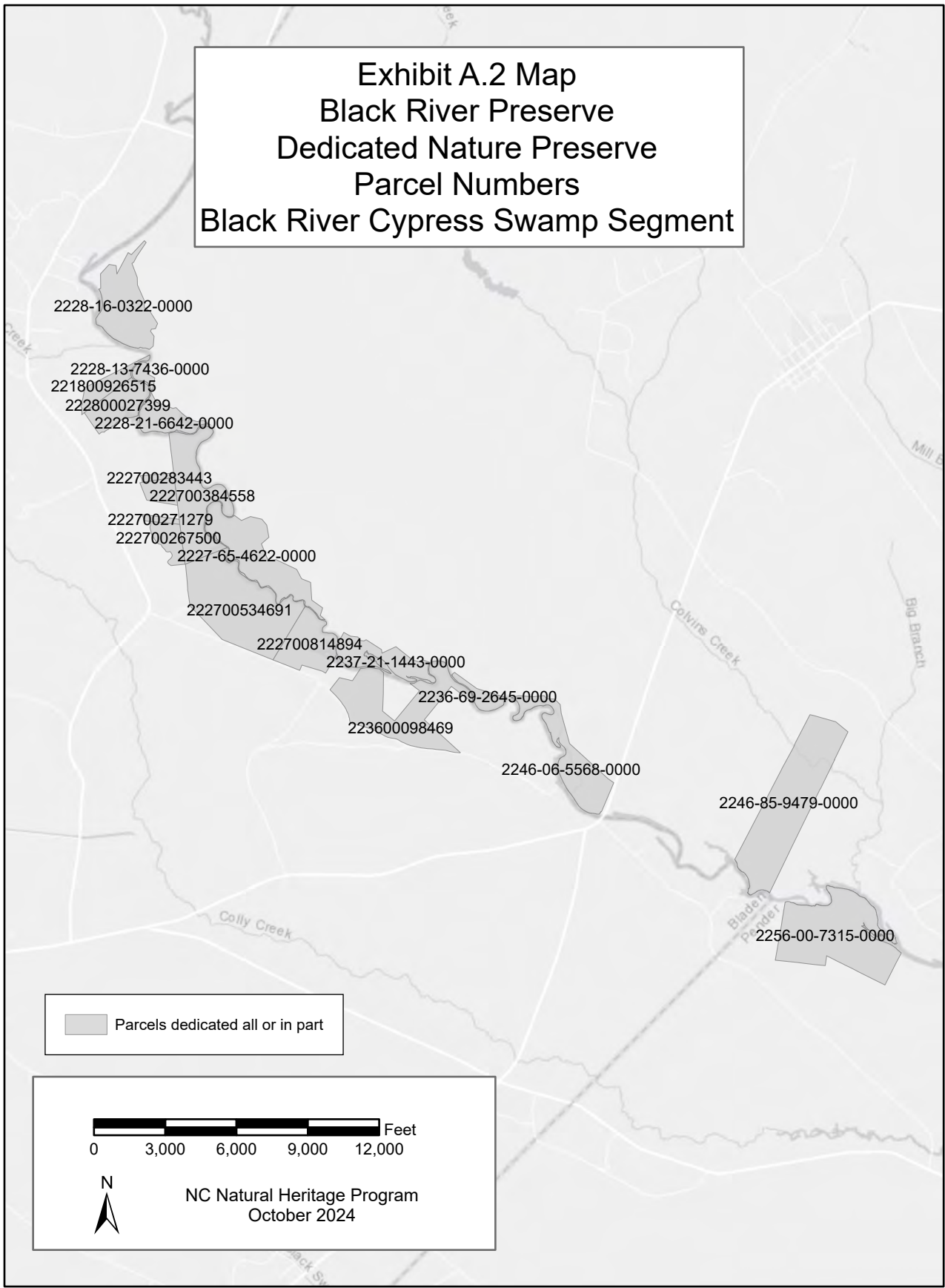
05 Reminder of next meeting date: November 7, 10:00 AM, in Raleigh

- Some discussion about where the Committee would prefer to meet. Tentatively in Nature Research Center, and DLWS/NHP staff can help arrange parking passes and overnight accommodations for Committee members as necessary.

Lee moved to adjourn; Kim seconded. Passed unanimously.

1:33 pm: Meeting Adjourned.

Exhibit A.2 Map
Black River Preserve
Dedicated Nature Preserve
Parcel Numbers
Black River Cypress Swamp Segment



Parcels dedicated all or in part

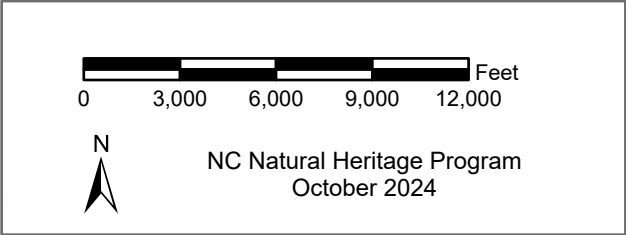



Exhibit A.3 Map
Black River Preserve
Dedicated Nature Preserve
Parcel Numbers
Lower Black River Swamp Segment


2254-89-5833-0000

2254-89-5833-0000

2264-77-2806-0000

2264-94-7026-0000

 Parcels dedicated all or in part

 Feet
0 1,000 2,000 3,000 4,000



NC Natural Heritage Program
October 2024

Exhibit A.1 Map Black River Preserve
Dedicated Nature Preserve
Upper Black River Bottomlands Segment
Parcel Numbers

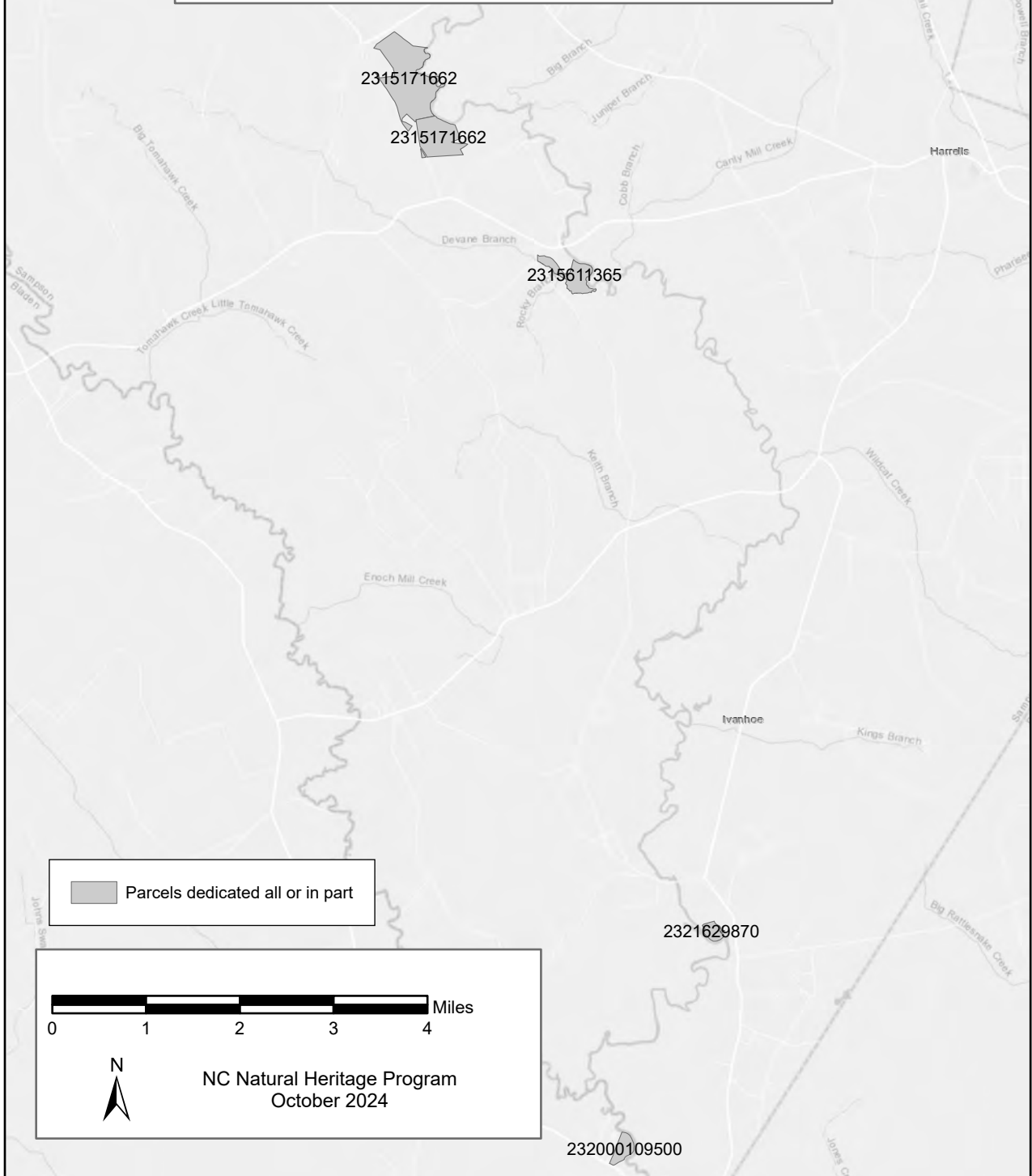


Exhibit B Map Overview Black River Preserve Dedicated Nature Preserve

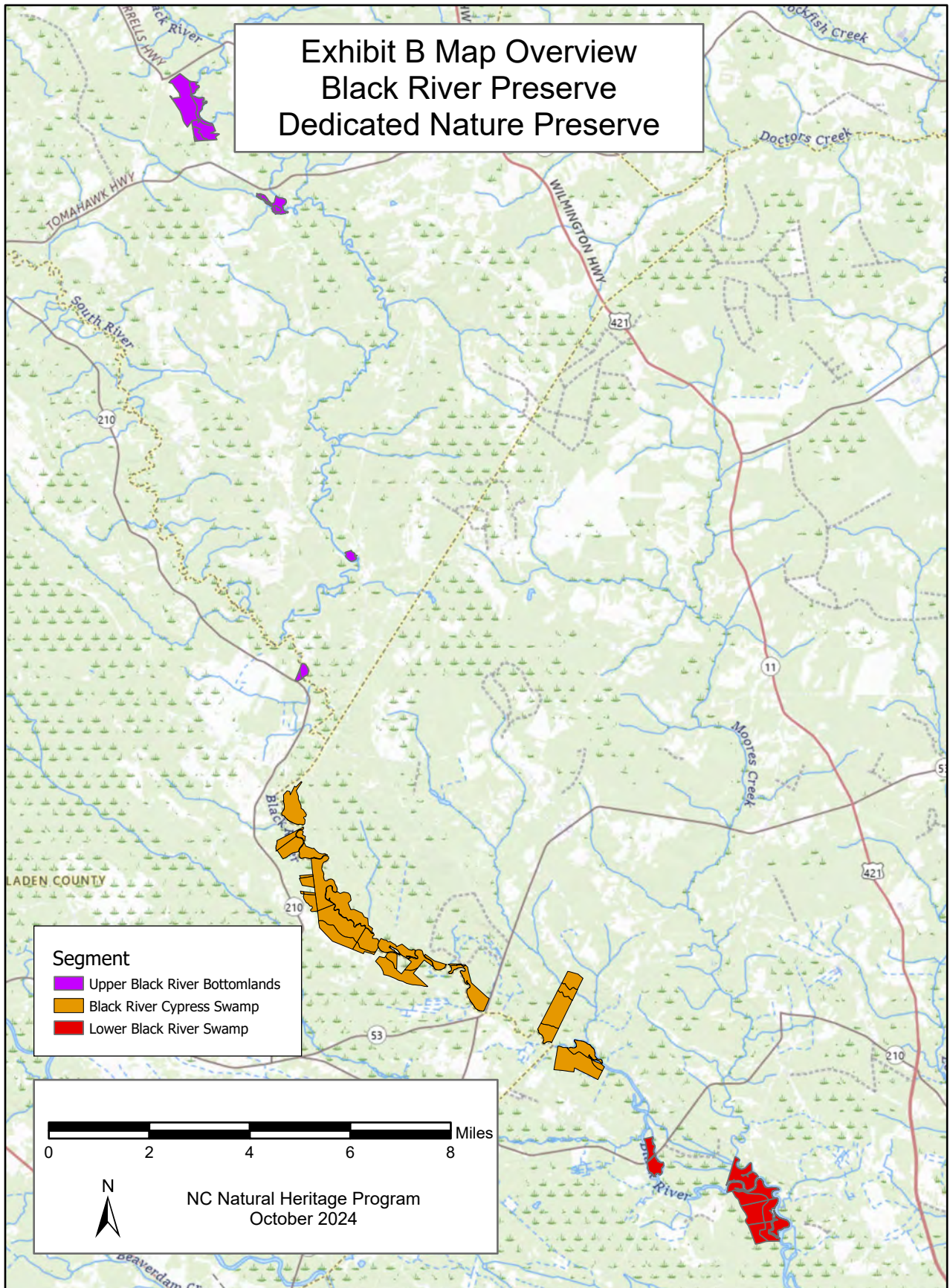
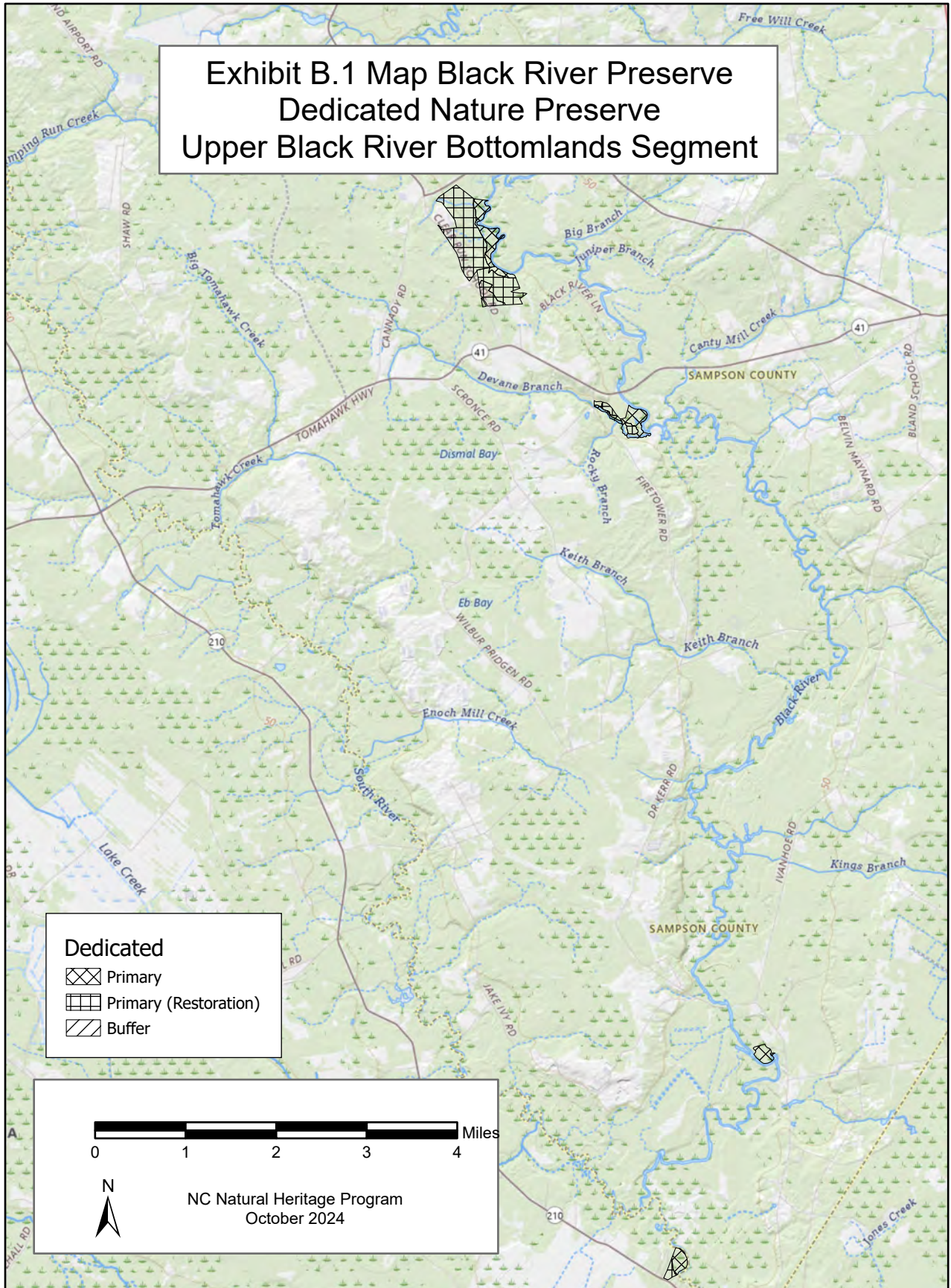





Exhibit B.1 Map Black River Preserve Dedicated Nature Preserve Upper Black River Bottomlands Segment



Dedicated

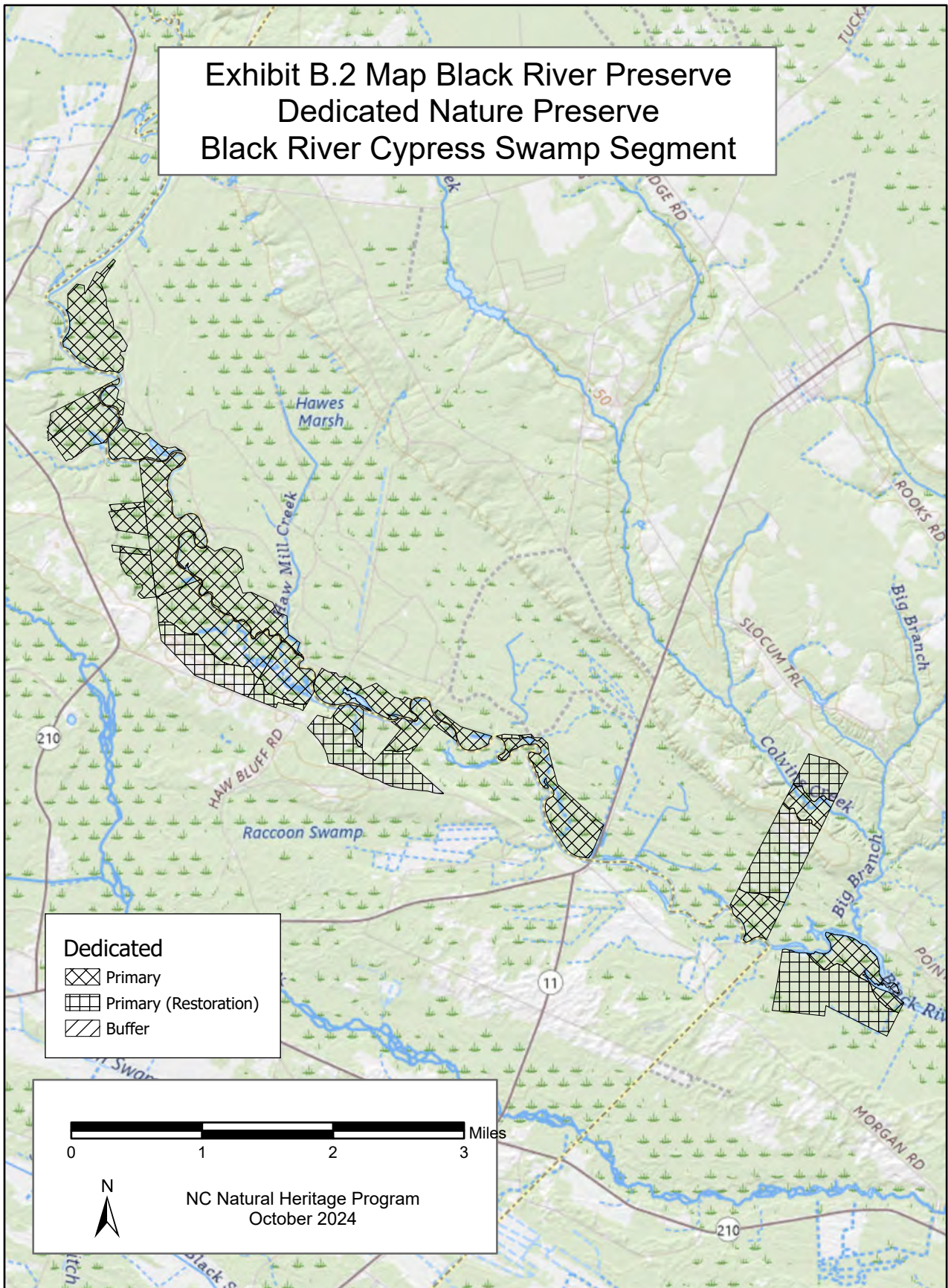
-  Primary
-  Primary (Restoration)
-  Buffer

0 1 2 3 4 Miles

N

NC Natural Heritage Program
October 2024

Exhibit B.2 Map Black River Preserve
Dedicated Nature Preserve
Black River Cypress Swamp Segment



Dedicated

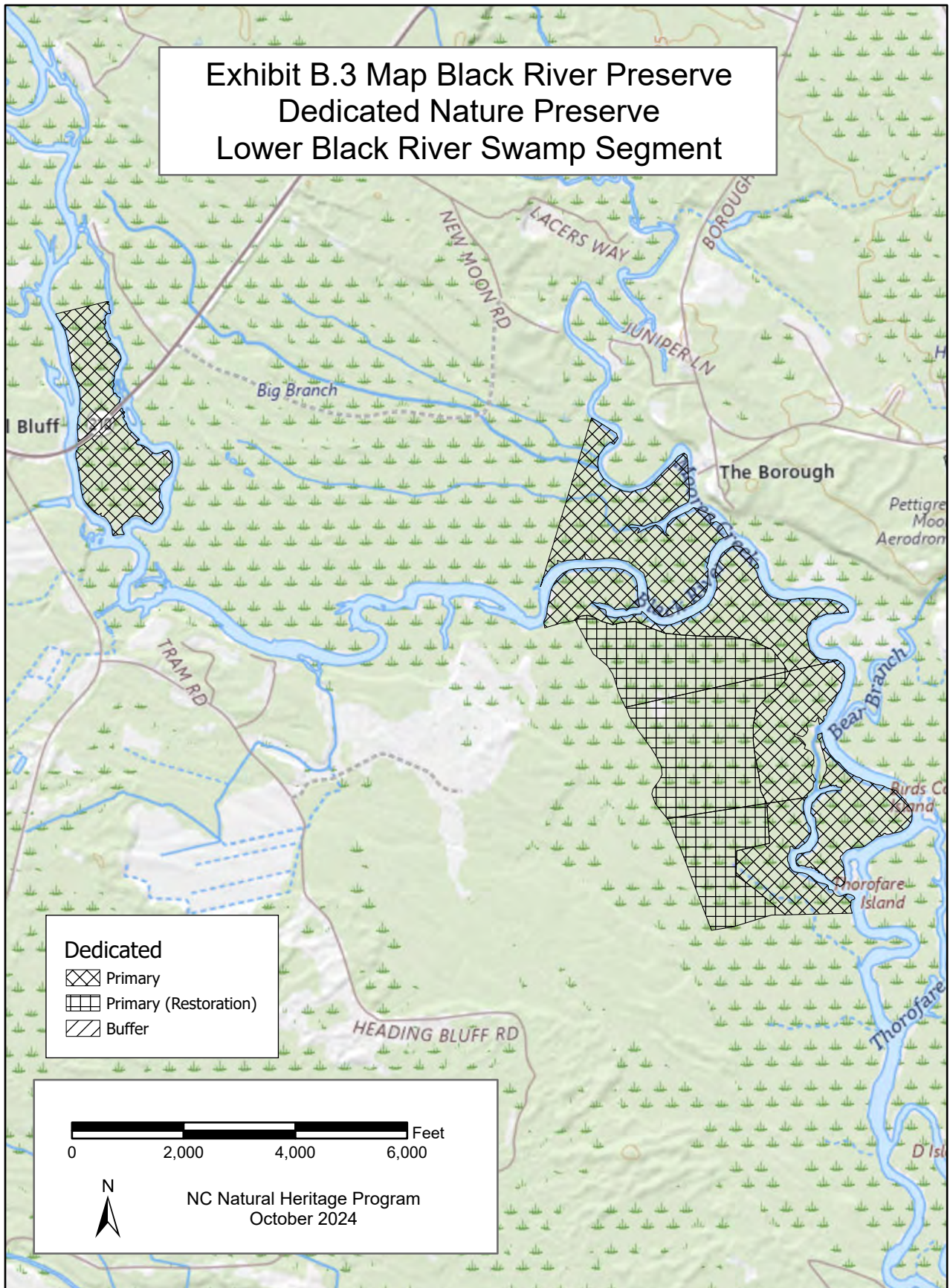
- Primary
- Primary (Restoration)
- Buffer

0 1 2 3 Miles

N

NC Natural Heritage Program
October 2024

Exhibit B.3 Map Black River Preserve Dedicated Nature Preserve Lower Black River Swamp Segment



Dedicated

- Primary
- Primary (Restoration)
- Buffer

0 2,000 4,000 6,000 Feet

N

NC Natural Heritage Program
October 2024

ARTICLES OF DEDICATION OF A
PORTION OF BLACK RIVER PRESERVE

THESE ARTICLES OF DEDICATION (hereinafter sometimes referred to as “**Dedication**”) is made, entered into and effective as of the _____ day of _____, 202_, by and between the THE NATURE CONSERVANCY, a nonprofit corporation organized and existing under the laws of the District of Columbia with an address of 320 Blackwell St #200, Durham, NC 27701 (hereinafter “the **Grantor**”) and the STATE OF NORTH CAROLINA (hereinafter “the **State**”) whose address is State Property Office, 116 W. Jones Street, Raleigh, North Carolina 27603.

WITNESSETH:

Preamble

WHEREAS, the State is authorized by G.S. 143B-135.250 *et seq.* of the North Carolina General Statutes (hereinafter “**the Nature Preserves Act**”) to establish a system of nature preserves in the State of North Carolina in a variety of ways, including acquisition by purchase or gift of interests in land by accepting Articles of Dedication from owners of natural areas; and

WHEREAS, the Grantor owns, as of the date set forth above, real property consisting of 3.393 acres, more or less, in Sampson, Bladen, and Pender Counties, North Carolina, as described in **Exhibit A** and warrants that the same is without mortgage, lien, or other encumbrance except easement and restrictions of record, including a conservation easement held by The Nature Conservancy, recorded at Deed Book Vol 1196, Page 277-287, Sampson County Registry of Deeds, December 15, 1994 (hereinafter the “**TNC Easement**”), and Notices of Grants received from the US Fish and Wildlife Service North American Wetlands Conservation Act (NAWCA) and recorded in Pender County Registry of Deeds March 23, 2020, Deed Book 4707, Page 850-852; and

WHEREAS, the terms of the TNC Easement and NAWCA Notice of Grants are compatible with the purposes of dedication under the Nature Preserves Act; and

WHEREAS, the Grantor desires to convey to the State a conservation easement in and to Black River Preserve, said portion containing approximately 3,393 acres with the physical features described on **Exhibit B** attached hereto (hereinafter the “**Preserve**”), for dedication in perpetuity as a nature preserve pursuant to the Nature Preserves Act, and the State recognizes that the Black River Preserve constitutes a qualified natural area and desires to accept the dedication of the Black River Preserve as a nature preserve pursuant to the Nature Preserve Act and in accordance with these Articles, and hold the same in trust for the public as a nature preserve; and

WHEREAS, the Preserve is deemed by the Secretary of the N.C. Department of Natural and Cultural Resources to qualify as an outstanding natural area under the statutory criteria for nature preserve dedication in G.S. 143B-135.250 *et seq.* and further serves the public purposes for a dedicated preserve as stated in G.S. 143B-135.252; and

WHEREAS, at a meeting held in the city of _____, North Carolina, on the ___ day of _____, 20___, the Governor and Council of State approved the acceptance of this dedication and conveyance of this conservation easement in trust for the uses and purposes expressed in the Nature Preserves Act.

NOW, THEREFORE, the Grantor hereby gives, grants, and conveys in perpetuity, and the State accepts, a conservation easement in, on, over, under, through, across, and to the lands composing the Black River Preserve hereafter described in **Exhibit A**. The dedication and the conservation easement herein conveyed has and imposes on the Preserve in perpetuity the following terms, conditions, and restrictions, as agreed to by the Grantor and the State.

THIS DEDICATION AND CONSERVATION EASEMENT PROVIDES AND IMPOSES THE FOLLOWING TERMS, CONDITIONS, AND RESTRICTIONS ON THE PRESERVE IN PERPETUITY:

1. **Definitions:** As used in these Articles, including the foregoing Preamble, the terms “Articles of Dedication,” “natural area,” and “nature preserve” shall have the same meaning as contained in N.C. General Statute 143B-135.250.
2. **Dedication:** The Black River Preserve as described in **Exhibits A and B** hereof is hereby dedicated as a nature preserve for the purposes provided in the Nature Preserves Act, as it now exists, or as it may hereafter be amended, and it shall be held, maintained, and used therefore.
3. **Primary Custodian:** The primary Custodian of the Black River Preserve shall be the Grantor, which shall be responsible for managing the Preserve in accordance with North Carolina Administrative Code 07 NCAC 13H.0300 and under periodic review from the State’s representative.
4. **Primary Classification:** The primary classification and purposes of the Preserve shall be for natural area conservation, watershed protection, scientific research, nature education, and low-impact recreation uses compatible with the purposes of the Preserve.
5. **Management Areas:** For the purposes of management, the Preserve shall be considered to consist of a Primary Area (approximately 3,393 acres, including restoration area of 1,233 acres) and a Buffer Area (approximately 0.3 acre), as more particularly described in Exhibit B, attached hereto and by this reference made a part hereof. The Primary Area – composed of the natural area described above -- is deemed by the Secretary of the North Carolina Department of Natural and Cultural Resources to qualify as an outstanding natural area under statutory criteria for nature preserve dedication (G.S. 143B-135.260) and further serves one or more of the public purposes for a dedicated preserve as stated in G.S. 143B-135.252. The Buffer Area, which contributes to the management and protection of the Primary Area, consists of less mature, lower quality natural communities which connect and adjoin the Primary Area.

6. Rules for Management of the Primary Area:

- a. **Character of Activities:** The principal activities in the Preserve shall be nature observation, teaching, walking, research, boating, indigenous people's cultural practices, hunting, and fishing. These activities shall be regulated by the Grantor to protect and preserve the natural values of the Preserve. Activities and uses which are unrelated to the activities listed above are prohibited except as provided for herein or unless necessary to carry out the purposes of the Preserve. Prohibited activities include, but are not limited to, construction of buildings, picnic shelters/picnic decks, camping sites, and parking lots, development of active recreation amenities (i.e. ballfields, playfields, playgrounds, tennis courts, basketball courts, volleyball courts, Off-road Vehicle (ORV) trails, equestrian trails, etc.), dumping, changes in topography, commercial silviculture, agriculture and grazing, gathering of plants or plant products, the removal, disturbance, molestation, or defacement of minerals, archaeological and natural resources except for educational, research, indigenous people's cultural sustainability, or ecological restoration purposes, and those activities specifically restricted in these Articles. No littering shall be permitted. There shall be no open fires, except as necessary for research or ecological management of the Preserve or in conjunction with supervised educational activities of the Grantor or indigenous people's cultural practices, or further excepted as herein provided or otherwise expressly permitted by the State or its designated representative.
- b. **Consumptive Wildlife Uses:** Hunting, fishing, and trapping may be permitted on the Preserve subject to the regulations of and management by the North Carolina Wildlife Resources Commission.
- c. **Consumptive Plant Uses:** Collection of plant parts may be permitted in the preserve for restoration purposes by the Grantor and by indigenous peoples for cultural practices at sustainable subsistence levels for traditional, ceremonial and noncommercial use, in a manner that is compatible with preserve management and restoration goals, that promotes the preserves' ecosystem health and is subject to regulations of and management by the North Carolina Department of Agriculture Plant Conservation Program.
- d. **Orientation and Guidance of Visitors:** The Grantor reserves the right to orient and guide visitors for educational programs, for scientific research, for hunting and fishing uses, and for preserve management. Exhibits, programs, and printed materials may be provided by the Grantor in service areas. Grantor may install signs to mark trails, to provide information related to trails, and for interpretive purposes. The Grantor shall restrict access to visitors in those instances or in such areas that restrictions are determined necessary to safeguard sensitive environmental resources in the Preserve. The Grantor may create and maintain kiosks, overlooks, fences, barriers, pedestrian bridges, boat docking platforms, culverts, guardrails, overlooks, steps, and boardwalks, and other facilities incidental to and for the

convenience of trail users including benches, picnic tables, and waste baskets (hereinafter referred to as “Trail Accessories”) associated with trails to be constructed within the preserve. The location of any Trail Accessories shall be decided in consultation with the North Carolina Natural Heritage Program and shall be for the purpose of ensuring the safe, permitted use of the preserve while protecting the preserve from unwanted or excessive visitor traffic.

- e. Visitor Protection: Signs, fences, steps, guardrails, and bridges may be provided when essential to the safety of reasonably alert and cautious visitors. The Grantor reserves the right to erect such structures as may be necessary to protect the Preserve from unwanted or excessive visitor traffic.
- f. Other Structures and Improvements: Structures or facilities shall not be erected within the Preserve, except as may be consistent with the purposes of the Preserve as stated in these Articles. Site selection shall be consistent with these Articles.
- g. Roads and Trails: New roads shall not be constructed in the Primary Area. When necessary, the Grantor may construct and maintain access limited to staff for management purposes, such as service paths (single lane vegetated paths) for patrol, fire control, right-of-way maintenance, and other management activities, within the Primary Area. The Grantor may maintain roads presently existing within the Preserve. The Grantor may locate, build and maintain trails within the boundary of the preserve in a manner consistent with the conservation values of this dedication and in consultation with the North Carolina Natural Heritage Program. The North Carolina Natural Heritage Program may require that the Grantor reroute, restrict or limit access to specific areas of the preserve if it is determined by the North Carolina Natural Heritage Program that such reroute, restriction or limitation is necessary to safeguard sensitive environmental resources in the preserve. Number and width of new paths and trails will be minimized, and sensitive areas avoided when possible. When constructing new natural surface trails within the nature preserve for the purpose of hiking and non-motorized bicycling, all new trail construction and realignment requiring soil disturbance must follow best practices for sustainable trail design and construction. The Grantor may construct and maintain bridges or other stream crossings up to ten (10) feet wide across streams in the nature preserve, provided such crossings are connected to trails permitted herein, constructed in a way as to maximize water quality protection, and permitted by all applicable regulatory authorities. The number of stream crossings must be minimized.

Existing roads that occur within or form a boundary of the Primary Area may be maintained by grading of the roadbed, replacing culverts, or adding stone as needed in order to maintain the integrity of the road for vehicular use. Daylighting of roads within the Primary Area should be minimized, but may be used if necessary to maintain the condition of the road. Access management and construction will be part of the overall management planning process and will include consultation with the North Carolina Natural Heritage Program.

If an existing North Carolina Department of Transportation (“NCDOT”) road runs within or along a boundary of the Primary Area and NCDOT demonstrates a compelling need to do so, then subject to the written approval of both the Grantor and the Natural Heritage Program, NCDOT may within the Primary Area use a strip of land up to fifty feet (50’) wide outside and adjacent to the road’s existing NCDOT right-of-way for the purpose of improving the NCDOT road. A strip of land approved under this provision shall not be longer than 1,000 feet long. The Grantor and the Natural Heritage Program shall concur only if the proposed improvements and the associated activities will not cause significant impacts to rare species, small-patch natural communities, adjacent streams, or other Natural Heritage resource values. The existing NCDOT roads that run within or along a boundary of the Primary Area at the time of the issuance of this letter of allocation are as follows: S.R. 1125, S.R. 1119, NC Hwy 210, S.R. 1564, and NC Hwy 11.

- h. Research and Collecting Permits: Any person wishing to engage in scientific research or indigenous cultural practices requiring collecting or otherwise affecting anything within the Preserve shall first secure written permission from the Grantor.
- i. Pollution and Dumping: There will be no storage or dumping of ashes, trash, garbage, hazardous substances, toxic waste, other unsightly or offensive material, or fill material, including dredge materials in, on, or under the Preserve. No underground storage tanks may be placed within the Preserve. Pollutants may not be added to surface or ground waters within the Preserve.
- j. Excavation: There will be no mining, drilling, removal of topsoil, sand, gravel, rock, minerals, or other material, nor any change in topography or surface hydrology of the Preserve. Exceptions may be made for permitted archeological research or for ecological restoration to more natural conditions, consistent with the Management Plan, may be made in consultation with the North Carolina Natural Heritage Program.
- k. Fences: Fences and barriers may be installed as necessary to maintain and protect natural features, control access, deter trespass, and to further the purposes of the Preserve.
- l. Water Level Control: The purpose of any water level control shall be to maintain the Preserve’s natural water regime. Water levels which previously have been altered may be maintained or may be changed if necessary to restore the Preserve to its natural condition, and structures to accomplish this goal may be constructed. Water levels may change naturally because of sea level rise or beaver activities, and these changes generally should be allowed. In a preserve with altered hydrology, water levels may be managed to perpetuate the ecosystems that have evolved around the hydrology. Millponds are an example of situations in which water levels have been historically managed.

- m. Bringing in Flora and Fauna: No exotic flora and no animals except leashed dogs and cats, horses on trails designated for horseback riding, or animals being reintroduced shall be brought into the Preserve. Any reintroduction will be of species native to the natural community and shall be done according to an approved resource management plan.
- n. Wildfire Control/Prescribed Burning: Use of prescribed burning is permitted as necessary for the biological management of the Preserve. Any prescribed burning must be done according to a prescribed fire plan approved by the County Fire Marshall or County Forest Ranger. Wildfires may mimic natural processes historically occurring in an ecosystem on a landscape level. When the extent of a wildfire does not threaten human life or structures, it may be allowed to burn with minimal control. If firebreaks need to be established for prescribed burning or wildfire control, where possible, existing roads and firebreaks will be utilized. When new firebreaks need to be established or wildfire suppressed, environmentally sensitive areas will be avoided when possible. Old firebreaks which affect the natural hydrology of wetlands will be filled and allowed to revegetate. Planning of firebreak restoration should occur in consultation with the North Carolina Natural Heritage Program.
- o. Disturbance of Natural Features: The cutting or removal of trees, dead or alive, or the disturbance of other natural resources is prohibited except for removal of hazards to visitors, control of disease that would damage or reduce the significance of the Preserve, reduction of fire fuel load after severe storm damage, trail clearance or maintenance, or for purposes of maintenance or restoration of natural communities or rare species populations as stipulated in the preserve management plan and that which is consistent with the purposes of this Dedication. Salvage timber cuts which may be necessary due to natural catastrophe will be allowed, but in a manner that will contribute to the recovery of the prevailing natural conditions of the forest and in consultation with the North Carolina Natural Heritage Program.

Most of the Restoration Area(s) as defined in Exhibit B will be managed to restore the longleaf pine natural communities, including removal of off-site canopy species, thinning of native trees to a desired structure for restoration of longleaf pine forest natural communities, restoration of native herbaceous vegetation where necessary, and prescribed burning. A few portions have other restoration targets. Planning for restoration targets and methodology will be done in consultation with NHP.

- p. Control of Populations (natural and exotic): Any control of animal or plant populations on the Preserve shall be for the purpose of correcting situations where those populations are significantly affecting natural conditions on the Preserve, and in accordance with the established N.C. Wildlife Resources Commission regulations for hunting, trapping, or fishing of designated game animals. The

Grantor may, in consultation with the North Carolina Natural Heritage Program, apply biological controls, herbicides and pesticides, and other means deemed necessary or appropriate to control or eradicate exotic or native species of plant or animal that are degrading the natural character of the Preserve.

- q. Control of Vegetational Succession: Control of vegetational succession may be undertaken if necessary to maintain or restore a particular natural ecosystem type or to preserve endangered, threatened, rare, or other unusual species. Controls will be done in the manner that best imitates the natural forces believed responsible for maintaining the natural ecosystem type, or that minimizes unnatural effects on non-target portions of the ecosystem. Prescribed burning is particularly essential to ecosystems where natural wildfire historically suppressed woody vegetation and promoted herbaceous diversity.
- r. Designation of Representatives: In cases in which these Articles permit action to be taken by a designated representative of the State, the designation of the representative shall be made in writing by the Secretary of the Department of Natural and Cultural Resources, and copies of the designation shall be mailed to the Grantor and shall be maintained in the official files of the Department of Natural and Cultural Resources or the appropriate agency of the State. The Grantor Representative shall be:

Executive Director
The Nature Conservancy
334 Blackwell St #300
Durham, NC 27701

- s. Custodian and Management Responsibility: The Grantor shall retain custody and possession of the Preserve upon the execution of these Articles, and the Grantor shall enforce the rules for management in conformity with the purposes of the Preserve.
 - t. Management Plan: The Grantor shall be required to prepare and submit for approval to the Secretary of the Department of Natural and Cultural Resources a management plan for the Preserve. This plan shall be subject to all the provisions of this Dedication and shall additionally be consistent with the management principles set forth in the North Carolina Administrative Code 07 NCAC 13H.0300 and .0400. The dedicated nature Preserve will continue to be subject to other applicable regulations within NCAC Title 7, Chapter 13. The management principles stated in 07 NCAC 13H.0402 shall apply to the Preserve unless exceptions are expressly provided in these Articles.
7. **Rules for Management of the Buffer Area(s)**: Primary Area rules also apply except that additional forestry and wildlife management activities may be planned and carried out as needed. Construction and maintenance of roads, trails, and other access structures within

Buffer Area(s) of the preserve will be limited to the level necessary to appropriately manage the preserve. These activities will be conducted in accordance with policy of the Grantor, in addition to providing for the buffer functions in relation to the Primary Area. Buffer functions within the dedicated area may include protecting the Primary Area(s) from indirect detrimental ecological effects, providing additional area for species and ecological processes that require larger areas, and providing important successional stages and disturbance regimes and other habitat diversity for wildlife. Based on these general objectives, the following buffer functions will be addressed in the management plan.

- a. Managing landscape level function of community type and structure. (Buffer Area management may involve timber harvest and other forms of stand manipulation but will not involve forest canopy type conversion over more than limited areas, other than to restore stands to types suited for the site. Introduction of exotic species known to be invasive in natural communities will be avoided.)
 - b. Maintaining habitat connectivity and continuity among Primary Areas.
 - c. Providing for habitat diversity.
 - d. Managing the needs of rare animal and plant species populations occurring within the Buffer Area.
 - e. Protecting soil and hydrologic resources and processes within the Primary Area and extending into the Buffer. (Naturally vegetated riparian zones will be retained along streams, and watersheds of Primary Areas will be protected from hydrologic alteration.)
8. **Amendment and Modification:** The terms and conditions of this Dedication may be amended or modified upon agreement of the Grantor and the Secretary of the Department of Natural and Cultural Resources, and approved by the Council of State.
9. **Termination:** A portion of the tract dedicated pursuant to this instrument may be removed from dedication in accordance with the provisions of North Carolina General Statutes 143B-135.250, the Nature Preserves Act, as it now exists or as it may hereafter be amended. These Articles may be terminated upon agreement of both parties as set forth in the Nature Preserves Act.
10. **Liability:** To the extent and in the manner allowed under law, the Grantor agrees to indemnify, defend, and hold harmless the State against any claims, damages, obligations, or suits arising out of or connected with the use of the Preserve, caused by acts of negligence by Grantor, its assigns, or invitees, servants, employees, or agents, or any of them, except for any claims, damages, obligations, or suits arising out of acts by the State, or its assigns, invitees, servants, employees, or agents, or any of them. In the event any such claim is made or lawsuit initiated, the State shall promptly notify Grantor in writing and the State shall cooperate fully in the defense of such lawsuit and permit the Grantor or its insurance carrier to participate in the defense of such claim or lawsuit. It is further agreed

that the right to settle or offer the settlement of any such claim or lawsuit shall reside with the Grantor, subject to the State's approval of any final settlement, which approval shall not be unreasonably withheld.

Use of any portion of the Preserve by members of the general public is at their own risk. Notwithstanding any provision herein to the contrary, neither Grantor nor the State by entering into this Agreement intend to assume any duty to or for the benefit of the general public for defects in the location, design, installation, maintenance or repair of the Trail Facilities; for any unsafe conditions within the Preserve; or for the failure to inspect for or warn against possibly unsafe conditions; or to close the Trail Facilities to public access when unsafe conditions may be present. Grantor will endeavor to repair damaged Trail Facilities but has no duty to the general public or to any other person to do so. Nothing in this Agreement limits the ability of the State or Grantor to avail themselves of the protections offered by any applicable law affording immunity to the State or Grantor, including, to the extent applicable, the North Carolina recreational use statutes, codified in N.C.G.S. Section 38A-1 et. seq., or the North Carolina Trails System Act, codified in N.C.G.S. Section 113A-83 et. seq., as they may be amended from time to time.

11. Transfer of the Preserve: Any time the Preserve, or any interest therein, is transferred by the Grantor to any third party, the Grantor shall notify the State in writing within thirty (30) days prior to the transfer of the Property, and the document of conveyance shall expressly refer to these Articles. The failure of Grantor to perform any act required by this Paragraph shall not impair the validity of these Articles or of the transfer or limit their enforceability in any way.

12. Parties: Every provision of these Articles that applies to the Grantor shall also apply to Grantor's successors in title as their interest may appear.

TO HAVE AND TO HOLD the conservation easement herein described and conveyed to the State of North Carolina in trust for benefit of the public in accordance with the provisions of 143B-135.250 of the North Carolina General Statute.

These Articles of Dedication shall run with the land and burden the Preserve in perpetuity unless terminated as provided herein or extinguished in accordance with the provision of the Nature Preserves Act.

The Governor and Council of State have approved the dedication of the lands hereinabove described as the Black River Preserve, by acceptance of the conservation easement, to be held in trust by the Grantor and the State for the uses and purposes expressed in the Nature Preserves Act at a meeting held in the City of _____, North Carolina, on the ___ day of _____, 20__.

[SIGNATURES AND NOTARIZATION APPEAR ON THE NEXT PAGE]

IN WITNESS WHEREOF, Grantor, by authority duly given, has hereunto caused these presents to be executed under seal in such form as to be binding, the day and year first above written, and the State accepts these Articles of Dedication and conservation easement by the recording hereof in the public records.

GRANTOR:

**THE NATURE CONSERVANCY,
A DISTRICT OF COLUMBIA NONPROFIT CORPORATION**

By: _____ **(SEAL)**

Executive Director, North Carolina Chapter

Corporate Seal

[Affix County Seal]

**STATE OF NORTH CAROLINA
COUNTY OF DURHAM**

I, the undersigned Notary Public of the aforesaid county, North Carolina, do hereby certify that _____ personally appeared before me this day and acknowledged that he/she is the Executive Director of The Nature Conservancy, a North Carolina nonprofit corporation, and that by authority duly given and acknowledge the due execution of the foregoing instrument on behalf of the company.

Witness my hand and notarial seal this the _____ day of _____, 20__.

Notary Public: _____

Printed Name: _____

My commission expires: _____

STAMP/SEAL

EXHIBIT A
LEGAL DESCRIPTION
of the Black River Preserve

All or portions of twenty-seven (27) certain tracts or parcels of land situated in Franklin Township, Sampson County; Lake Creek and Frenches Creek Townships, Bladen County; and, Caswell, Grady, and Canetuck Townships, Pender County, North Carolina and being more particularly described as follows:

- Parcel 2315171662 (Dubose): BEING all of that certain tract or parcel of land containing approximately 244.17 acres as shown on that map entitled "Map of Survey for The Nature Conservancy" certified on May 15, 2021, with field work dated August 15, 2020, prepared by F.W. Jones Surveying Company, and recorded in Plat Book 107, Page 94, Sampson County Registry, which plat is incorporated into this description by reference thereto and to which plat reference is made for a metes and bounds description of said land.
- Parcel 2315171662 (Johnson): Being that parcel containing 106.57 acres in Franklin Township, Sampson County as shown on a plat of survey entitled "Survey for The Nature Conservancy North Carolina Chapter" drawn by William G Moore, Professional Land Surveyor, and recorded in Sampson County Map Book 73, Page 52.
- Parcel 2315611365 (K&W Real Estate): Lying and being in Franklin Township, Sampson County, North Carolina and being more particularly described as follows: BEING ALL of Tract #4, containing Area Total=61.70 acres+ - , as shown on a plat of survey entitled "TITLE PENDERGRASS LANDS PG. 1 OF 3 FRANKLIN TOWNSHIP, SAMPSON COUNTY, NC OWNERS MICHAEL LEIGH WESSELL AND WIFE, KIMBERLY LADD WESSELL, JOSETEE FUTCH WESSELL HUSBAND, EDWARD O. WESSELL, ANN LEWIS FOX AND HUSBAND LEON MARSHALL FOX, JR., JOY LEWIS COSTA HUSBAND, ROY COPELAND" dated 9/15/10, prepared by J.F. Johnson Surveying, and recorded in Map Book 74, at Pages 49, 49A and 49B, Sampson County Registry, reference to said map is hereby made for greater certainty of description.
- Parcel 2321629870 (Hines): Located in Franklin Township, Sampson County, North Carolina adjacent to and Northeast of Black Rt Yer and being more fully described as follows, to wit:

BEGINNING at an iron pipe that marks the Southwestern corner of Lot No. 13 or Harrison Park Division. said iron pipe being located at a point that is the following courses and distances from an old spike located in the intersection of the centerline of Secondary Road No. 1102 with the centerline of Secondary Road No. 1100: North 00 Degrees 57 Minutes 35 Seconds East 300.44 feet. North 00 Degrees 37 Minutes 28 Seconds West 1276.26 feet, North 62 Degrees 37 Minutes 28 Seconds West 776.00 feet and South 29 Degrees 51 Minutes 17 Seconds West 188.79 feet to the BEGINNING; and running thence, from the BEGINNING, so located.

1. South 10 Degrees 31 Minutes 52 Seconds East 104.81 feet to an iron pipe in line: thence.

2. South 22 Degrees 08 Minutes 01 Seconds East 126.17 feet to an iron pipe on the Western edge of Black River; thence,
3. Up the run of Black River and it meanders in a Westwardly and Northwestwardly direction the following being traverse courses and distances from point to point along or near the Northern edge of said river; South 12 Degrees 24 Minutes 22 Seconds West 110.90 feet. South 11 Degrees 34 Minutes 10 Seconds East 86.00 feet, North 84 Degrees 00 Minutes 47 Seconds East 47.78 feet. South 28 Degrees 08 Minutes 59 Seconds West 189.50 feet, South 60 Degrees 00 Minutes 21 Seconds West 217.04 feet, South 84 Degrees 50 Minutes 59 Seconds West 204.30 feet. North 75 Degrees 07 Minutes 43 Seconds West 167.06 feet, North 51 Degrees 46 Minutes 55 Seconds West 183.26 feet, North 37 Degrees 10 Minutes 37 Seconds West 248.17 feet. North 51 Degrees 32 Minutes 10 Seconds West 77.88 feet, North 35 Degrees 42 Minutes 10 Seconds West 106.64 feet and North 28 Degrees 40 Minutes 00 Seconds West 112.20 feet to an iron pipe in line: thence.
4. Leaving Black River North 55 Degrees 44 Minutes 45 Seconds East 90.48 feet to an iron pipe in line; thence,
5. North 26 Degrees 05 Minutes 50 Seconds East 101.07 feet to an iron pipe in line: thence.
6. North 40 Degrees 52 Minutes 38 Seconds West 50.33 feet to an iron pipe in line: thence
7. North 34 Degrees 15 Minutes 10 Seconds West 191.11 feet (passing over an existing inline iron pipe at 172.26 feet) to a point in a slough; thence,
8. Along said slough North 57 Degrees 31 Minutes 44 Seconds East 113.40 feet to a point in an old marked line; thence,
9. With said line North 79 Degrees 42 Minutes 49 Seconds East 612.68 feet to an iron pipe in line: thence,
10. South 14 Degrees 38 Minutes 37 Seconds East 107.06 feet to an iron pipe in line: thence
11. South 42 Degrees 00 Minutes 13 Seconds East 152.53 feet to an iron pipe in line: thence.
12. South 64 Degrees 03 Minutes 13 Seconds East 160.38 feet to an iron pipe in line: thence.
13. South 27 Degrees 07 Minutes 52 Seconds East 120.51 feet to the BEGINNING. containing
14. 19.37 acres more or less.

As a reference to the above described tract see Deed Book 1148 at Page 331 and Deed Book 1074 at Page 409, Sampson County Registry.

- Parcel 232000109500 (Horrell Dane): Lying and being in Lake Creek Township, Bladen County, North Carolina and being more particularly described as follows: That certain tract or parcel of land in Lake Creek Township, Bladen County, North Carolina, containing 30.28 acres, more or less, excluding road right-of-way, as shown on map of survey entitled

PROPERTY OF FRED L. FAIT, prepared by Clarence Hall, Jr., Registered Surveyor, dated May 19, 1993, and being more particularly described as follows:

Beginning at a nail in the centerline of N.C. Highway 210, the southeast corner of a 7.0 acre tract conveyed to Walter Simmons Et Al, in Book 326, Page 314, and runs thence with the Simmons line North 28 degrees 15 minutes 36 seconds East 1959.91 feet to the run of Black River; thence with the run of Black River, the following traverse calls and distances: South 65 degrees 10 minutes East 84.55 feet; South 61 degrees 07 minutes East 256.65 feet; South 29 degrees 44 minutes East 276.04 feet; South 20 degrees 18 minutes East 208.96 feet; South 06 degrees 07 minutes East 254.47 feet; South 10 degrees 36 minutes West 206.13 feet; South 29 degrees 32 minutes West 108.12 feet; South 42 degrees 34 minutes West 136.31 feet; South 67 degrees 01 minutes West 184.81 feet; South 77 degrees 44 minutes West 157.61 feet; South 36 degrees 16 minutes West 126.51 feet; South 06 degrees 58 minutes West 97.27 feet; thence leaving the river and running as the Alabama ditch South 66 degrees 47 minutes West 598.64 feet; thence continuing as a ditch South 75 degrees 27 minutes West 122.10 feet; thence South 43 degrees 53 minutes West 20.19 feet to an existing spike in the centerline of N.C. Highway 210 over a concrete culvert where Alabama ditch crosses under said highway; thence as the center of said highway North 61 degrees 15 minutes West 216.34 feet to the point and place of beginning. Parcel 2228-16-0322-0000 (Cone Mitigation Land Piedmont Triad WA, Area A): Beginning at marker No. 8 located on the South side of a farm road near the bank of the Black River, the same being point No. 17 on the attached survey of Area A by Gelbert & Company Forestry Consultants, P.A.; thence South 42 deg. 50' 11" West 807.9 feet to point No. 18; thence North 55 deg. 24' 16" West 165.4 feet to point No 19; thence South 27 deg. 41' 37'

- Parcel 2228-16-0322-0000 (Cone Mitigation Land Piedmont Triad WA, Area A): Beginning at marker No. 8 located on the South side of a farm road near the bank of the Black River, the same being point No. 17 on the attached survey of Area A by Gelbert & Company Forestry Consultants, P.A.; thence South 42 deg. 50' 11" West 807.9 feet to point No. 18; thence North 55 deg. 24' 16" West 165.4 feet to point No 19; thence South 27 deg 41' 37" West 1013.6 feet to point No 20; thence North 4 deg 46' 14" West 347.8 feet to point No 21; thence North 79 deg 57' 12" West 302.5 feet to point No 22; thence South 42 deg 29' 54" West 543.5 feet to Point No 23; thence South 1 deg 8' 4" East 608.6 feet to point No 24; thence South 65 deg 37' 24" West 116.4 feet to point No 25; thence South 10 deg 47' 37" East 207.5 feet to point No 26; thence South 79 deg 12' 23" West to the center line of the main channel of the Black River; thence with the center line of the main channel of the Black River 3786.5 feet to a point opposite Point No 1; thence North 50 deg 29' 25" East to Point No 1; thence North 50 deg 29' 25" East 336.9 feet to point No 2; thence North 36 deg 52' 12" West 257.0 feet to point No 4; thence North 25 deg 10' 54" East 103.3 feet to point No 5; thence North 85 deg 17' 45" East 168.6 feet to point No 6; thence North 21 deg 16' 46" East 239.0 feet to point No 7; thence North 31 deg 45' 22" West 607.8 feet to point No 8; thence North 58 deg 24' 11" West 272.3 feet to point No 9; thence North 23 deg 22' 32" West 676.4 feet to Point No 11; thence North 2 deg 18' 1" West 322.7 feet to point No 12; thence North 20 deg 42' 36" West 631.1 feet to point No. 13; thence North 56 deg. 18' 33" East 83.9 feet to point No. 14; thence North 27 deg. 42' 42" East 274.6 feet to point No. 15; thence North 34 deg. 5' 10" East 713.6 feet to point No. 16; thence

North 45 deg. 44' 21" West 104.3 feet to the point of Beginning, the same being Area A as per the attached survey by Gelbert & Company Forestry Consultants, P.A. dated September 2, 1998.

- Parcel 2228-13-7436-0000 (Cone Mitigation Land Piedmont Triad WA, Area B):
- Parcel 2228-21-6642-0000 (Cone Mitigation Land Piedmont Triad WA, Area C):
- Parcel 2227-65-4622-0000 (Cone Mitigation Land Piedmont Triad WA, Area E):
- Parcel 2237-21-1443-0000 (Cone Mitigation Land Piedmont Triad WA, Area F):
- Parcel 2236-69-2645-0000 (Cone Mitigation Land Piedmont Triad WA, Area G):
- Parcel 2246-06-5568-0000 (Cone Mitigation Land Piedmont Triad WA, Area H):
- Parcel 221800926515 (Hardbarger): Lying and being in Lake Creek Township, Bladen County, North Carolina and being more particularly described as follows: That certain tract or parcel containing 34.85 acres, more or less, as depicted on that plat of survey entitled "A Survey for Robert E. Hardbarger and wife Inez C. Hardbarger" prepared by Shelton Bordeaux, Registered Surveyor, and dated September 5, 1991" attached at Bladen County Deed Book Page 317, Page 27.
- Parcel 222800027399 (Squires Heirs 1): That certain tract or parcel lying and being in Lake Creek Township, Bladen County, North Carolina containing 84.32 acres, more or less being more particularly described on that plat of survey entitled "A Survey for H.P. Squires Heirs" prepared by Shelton Bordeaux, Registered Land Surveyor, dated February 14, 1991, a copy of which is attached Deed Book 312, Page 341 as Exhibit "A" being incorporated herein by reference,.
- Parcel 222700384558 (Squires Heirs 2-4 Barnhill Horrell): 173 acres
- Parcel 222700189968 (Squires Heirs 2-4 Barnhill Horrell): That certain tract or parcel lying and being in Lake Creek Township containing 10.42 acres more or less designated as Tract Number 2 on that plat of survey entitled "A Survey for H.P. Squires Heirs" drawn by Shelton Bordeaux, Registered Land Surveyor, dated February 14, 1991, a copy of which is attached Deed Book 312, Page 343 as Exhibit "C".
- Parcel 222700283443 (Squires Heirs 2-4 Barnhill Horrell): 29 acres
- Parcel 222700267500 (Squires Heirs 2-4 Barnhill Horrell): That certain tract or parcel lying and being in Lake Creek Township, Bladen County, North Carolina containing 45.48 acres and being designated as Tract Number 1 on that plat of survey entitled "A Survey for H.P. Squires Heirs" prepared by Shelton Bordeaux, Registered Land Surveyor, dated February 14, 1991, a copy of which is attached Deed Book 312, Page 342 as Exhibit "B" and incorporated herein for greater certainty of description,.
- Parcel 222700271279 (Squires Heirs 2-4 Barnhill Horrell): That certain tract or parcel lying and being in Lake Creek Township, Bladen County, North Carolina and being more particularly described as follows: That certain tract containing 10.48 acres more or less as depicted on that plat of survey entitled "A Survey for Angie Y. Horrell" prepared by Shelton Bordeaux, Registered Surveyor, dated November 5, 1991 a copy of which is attached at Sampson County Registry Book 320, Page 565.
- Parcel 222700534691 (Knapco): Lying and being in Frenches Creek Township, Bladen County, North Carolina and being more particularly described as follows:

Beginning at a stake, one pine and several black jack pointers, the second corner of a 100 acre survey sold by Beattys to H.G. Barnhill, and runs N. 45 W. with Alex Barnhill's line of 120 acre survey sold him by Beatty 42 chains to a stake, several blackjack pointers, Alex Barnhill's corner; the same continues 22 chains to James Brown's corner of a 300 acre survey patented by Ephriam Verner in 1745; thence with his line N. 10 W. 28 chains to Enoch Hawes corner of a 150 acre survey patented by Nathaniel Strawhorn; thence with his line North 80 E. 40 chains to his corner on the river; thence down the river the various courses to H.G. Branhill's corner of 100 acre survey; thence with his line S. 30 W. to the beginning, containing 305 acres, more or less, and being more particularly further described as follows: BEGINNING at an Old Point, the First and Southernmost corner of the herein described lands as set out in Deed dated May 04, 1979, to Knapco Incorporated, same being duly recorded in Deed Book 235 Page 128, Bladen County, N.C. Office of the Register of Deeds; and said BEGINNING Old Point being designated "900-Existing Stone" on a Survey Map entitled "A Survey of an Easement Area for THE NATURE CONSERVANCY", dated May 20, 2004, by William W. Blanchard, PLS, said Map being duly recorded in Map Book B-35 Page 0343, Bladen County, N.C. Office of the Register of Deeds; THENCE FROM SAID POINT OF BEGINNING, an old line (currently a line of other lands of The Nature Conservancy-Deed Book 756 Page 680), North 40 degrees 39 minutes 38 seconds West a distance of 2158.62 feet to an Old Point designated "45-P.K. Nail Set over Reaction" in the center of Haw Bluff Road; thence continuing with same old line (currently a line of lands of Jennifer D. Beyer-Deed Book 660 Page 896: see Map Book B-134, Page 1343, and Marc Neidig -Deed Book 660 Page 899), North 40 degrees 39 minutes 38 seconds West a distance of 2141.61 feet to an Old Point designated "43-Existing "DLG"Stone"; thence an old line of lands of Marc Neidig - Deed Book 755 Page 361, North 03 degrees 40 minutes 46 seconds West a distance of 476.46 feet to an Old Point designated "1700-ISS"; thence an old line of lands of Marc Neidig and then James E. Lewis -Deed Book 687 Page 484 and Deed Book 651 Page 893 (Map of Survey recorded in Plat Cabinet B-25 at Page 245), North 03 degrees 40 minutes 46 seconds West a distance of 183.17 feet to an Old Point designated "1501-EIS"; thence an old line with lands of James E. Lewis, North 03 degrees 40 minutes 46 seconds West a distance of 1187.86 feet to an Old Point designated "1600-EIS"; thence an old line with other lands of The Nature Conservancy -Deed Book 317 Page 726, North 85 degrees 37 minutes 4 7 seconds East, passing a line marker designated "1503-Iron Pipe" at 1652.54 feet, a Total Distance of 1662.54 feet to an Old Point designated "1701-Edge Of River"; thence Southeastwardly with and along the edge of Black River as set out on said recorded Map, to an Old Point designated "1602"; thence with an old line of other lands of The Nature Conservancy -Plat Cabinet A-87 Page 876 (see:Deed Book 698 Page 641), South 33 degrees 59 minutes 10 seconds West a distance of 2117.27 feet to an Old Point designated "901-ISS in Existing Lightwood Snag"; thence continuing with said old line of other lands of The Nature Conservancy, South 33 degrees 59 minutes 10 seconds West a distance of 737.84 feet to an Old Point designated "1510-Railroad Spike Set in Pavement" in the center of Haw Bluff Road; thence an

old line with other lands of The Nature Conservancy- Deed Book 756 Page 680, South 33 degrees 59 minutes 10 seconds West a distance of 906.89 feet to the Point of Beginning, containing 319.74 acres, more or less.

- Parcel 2256-00-7315-0000 (Boise Cascade 1):
- Parcel 223600098469 (Boise Cascade 2): Frenches Creek Township, Bladen County, North Carolina. Bounded on the North by the run of Black River and others, on the West by the old Kinlaw Land, now Knapco, Inc., on the South by the lands of Boise Cascade and Haw Bluff Baptist Church, and on the East by the lands of Ethel s. Squires, and more particularly described as follows:
 - Tract No. 2 containing 113 acres, and Tract No. 3 containing 109 acres of the "Haw Bluff Tracts" as shown on a map entitled "Survey for North Carolina Nature Conservancy," dated October 1990 by Stuart Gooden, R. s., which is recorded in map cabinet A-87 on page 876 of the Bladen Registry, reference to which is here made for a more complete description.
- Parcel 222700814894 (Boise Cascade 3): Frenches Creek Township, Bladen County, North Carolina. Bounded on the North by the run of Black River and others, on the West by the old Kinlaw Land, now Knapco, Inc., on the South by the lands of Boise Cascade and Haw Bluff Baptist Church, and on the East by the lands of Ethel s. Squires, and more particularly described as follows:
 - Tract No. 1 containing 99 acres of the "Haw Bluff Tracts" as shown on a map entitled "Survey for North Carolina Nature Conservancy," dated October 1990 by Stuart Gooden, R. s., which is recorded in map cabinet A-87 on page 876 of the Bladen Registry, reference to which is here made for a more complete description.
- Parcel 2246-85-9479-0000 (Williams): A certain tract of land situated in Caswell Township, Pender County, North Carolina described as follows:
 - Tract #3A (with r/w easement along the old Public Road see Map) located in Caswell Township, Pender County, North Carolina, adjacent to and Northeast of the main run of Black River, and bounded on the Northwest by the lands of Luther Sherman and Haywood Kelly; on the Northwest by the lands of Grady Shennan, Mrs. Thyra Debnam and Mrs. Hycinthia Black; on the Southeast by Tract #2 of the J.C. Pretlow, sr. Estate Division, and being more fully described as follows, to wit: BEGINNING. at a stone marked "DLG" (signifying a former corner of D.L. Gore lands which are now owned by Luther Sherman); and running thence with the old well-marked dividing line of J.C. Pretlow, Sr. 's Estate and Luther Sherman, N 30-52 E. 6964.4 feet (passing another "DLG." stone located on the South edge of the run of Colvin Creek, approximately 7.0 feet North of the old line) to a concrete pier with a mill shaft embedded in its center, J.C. Pretlow Grady Sherman's corner in Haywood Kelly's line; thence with the dividing line of said Pretlow and Grady Sherman S. 72-05 E 1124.5 feet to another concrete pier with a mill shaft in its center, another corner of J.C. Pretlow and Grady Sherman in Mrs. Thyra Debnam's line; thence S 45-54 E 645.5 feet, passing over a pipe that marks the dividing corner of Mrs. Thyra Debnam and Mrs. Hycinthia Black, to a concrete monument at the dividing corner of Tract #2 and Tract #3A of the J.C. Pretlow, Sr. Estate Division; thence with the dividing said Tracts, S 30-52 W 7512.3 feet (crossing the main run

of Colvin Creek at 1729.0 feet) to a high concrete monument in line on the edge of the main run of Black River; thence the same course continued (S 30-52 W) 8.0 feet, more or less, to the low Water line; thence up and with the low water line of the main run of Black River as it meanders to the BEGINNING, containing 295.05 acres, more or less.

- Parcel 2254-89-5833-0000 (Hall): Being that parcel of land situated in Caswell Township, Pender County, North Carolina and more particularly described as follows:

A certain tract of land containing 64 acres and lying and being in the County of Pender on the Bast bank of Black River, the old Mason corner, now Mrs. Isaah Pridgen's; and running thence North 82 degrees 45 minutes Bast (with the old Mason Line now the Jack Lewie line) 57 poles to a stake at the West bank of Caledonia Creek; thence down and with it to Black River; thence up the River to the first station. Being the land convey by the State of North Carolina to Ben P. Pridgen duly recorded in the Register of Deeds office of Pender County by deed recorded in Book E, Page 538 on November 15, 1881.

- Parcel 2264-00-2806-0000 (Boehling):
- Parcel 2264-94-7026-0000 (Squires Land Company): Being all of that tract containing 477.33 acres more or less, as shown on that map entitled "Survey for The Nature Conservancy" dated November 15, 2019 by Walker Surveying Company and recorded in Map Book 64, Page 147 of the Pender County Registry.

EXHIBIT B.1

BLACK RIVER PRESERVE DEDICATED NATURE PRESERVE UPPER BLACK RIVER BOTTOMLANDS SEGMENT

DESCRIPTION

COUNTY: Bladen and Sampson County

PHYSIOGRAPHIC PROVINCE: Coastal Plain

TOPOGRAPHIC QUAD(S): Rowan, Harrells, and Tomahawk

SIZE OF AREA: ca. 465 acres total (464 Primary Area acres, including 288 Restoration Area acres; 0.3 acres Buffer Area).

OWNER/ADMINISTRATOR: The Nature Conservancy

LOCATION: The Upper Black River Bottomlands segment consists of a series of widely separated parcels along the river from near NC 411, just below the confluence with Clear Run Creek, downstream to about 1 mile below Beatty Bridge, several miles below the confluence with the South River.

DESCRIPTION: In the Upper Black River Bottomlands segment, the Black River is generally narrow, shallow, and has more current than areas downstream. The floodplain has substantial topographic relief, with ridges and sloughs creating a mosaic of elevations within the floodplain. This natural area supports the best collection of Blackwater Bottomland Hardwoods communities in the state, with extensive mature acreage of the Swamp Transition, Low, and High subtypes. Some Cypress—Gum Swamp (Blackwater Subtype), Blackwater Levee/Bar Forest, and Sand and Mud Bar communities are similarly in good to excellent condition. This area also has notable upland communities, including a rare Piedmont/Coastal Plain Heath Buff and some Dry-Mesic Oak—Hickory Forest. The Upper Black River Bottomlands area supports a notable collection of rare plants and animals. Thin-walled quillwort (*Isoetes microvela*), golden hedge-hyssop (*Gratiola lutea*), false-hop sedge (*Carex lupuliformis*), and rainbow snake (*Farancia erythrogramma*) have what appears to be their best populations in the state. Rare bats, wood storks (*Mycteria americana*), and several other rare animals are also known here. Associated with the Upper Black River Bottomlands is the smaller Clear Run Flatwoods and Pocosin natural area, which is included as a Primary Area in the dedication. It supports good quality occurrences of Wet Pine Flatwoods (Typic Subtype) and Pond Pine Woodland communities. Two rare plants, Venus flytrap (*Dionaea muscipula*) and threadleaf sundew (*Drosera filiformis*), occur in the power line corridor along the edge of the natural area and could potentially spread back into the flatwoods with appropriate management.

The Black River in the upstream part of this segment is recognized as the Black River Headwaters Aquatic Habitat natural area. Despite some reduced water quality because of extensive animal

farming in the upper watershed, the aquatic system is highly significant. The part in the preserve supports two rare aquatic species: ironcolor shiner (*Alburnops chalybaeus*) and thinlip chub (*Cyprinella* sp. cf. *zanema*), the latter extending downstream through most of this segment. The river in the downstream part of the Upper Black River Bottomlands segment is recognized as the Black River Aquatic Habitat natural area. It supports two other rare aquatic animals: broadtail madtom (*Noturus* sp. 2) and pod lance (*Elliptio folliculata*).

In addition to the Primary Area of the preserve, there are several patches of Primary (Restoration) Area in this segment. Generally in uplands, much of their extent is successional forests of loblolly pine (*Pinus taeda*), but some is pine plantation and some is weedy hardwoods or other unnatural vegetation. Most of this area would have supported longleaf pine communities, but areas in ravines or near bluffs may have been Mesic Mixed Hardwood Forest or Dry-Mesic Oak—Hickory Forest.

BOUNDARY JUSTIFICATION: The Dedicated area includes all Nature Conservancy lands that are not otherwise covered by conservation easements. The Dedicated parcels are interspersed with other Nature Conservancy lands that have state conservation easements. The Primary Areas consist of the lands that support mature or reasonably intact natural communities and rare species. This includes almost all of the river floodplain and some intact areas of bluffs and uplands. The Primary (Restoration) Area encompasses almost all of the remaining land, which is more altered. Two small patches are treated as Buffer Areas. They are peripheral to the other parts of the Dedicated area but contribute to its integrity to some degree.

MANAGEMENT AND USE: The site will be managed for natural area protection and some public use. The majority of the Primary Area, in the river floodplain, needs no special management. The forests should be allowed to mature and remain as old-growth. Increased public use in the future may call for actions to reduce impacts of visitors. Any proposed activities within the Primary Area, such as trails or trail accessories, should be planned with care to avoid or minimize impacts to the terrestrial and aquatic ecosystems and species, and in consultation with the NC Natural Heritage Program.

Some areas near the water are infested with alligatorweed (*Alternanthera philoxeroides*). This invasive species has high potential to spread further and cause greater ecological damage, and control efforts are recommended. Flea beetles that are specific to this species are the least harmful method of control. Because many alligatorweed infestations are near or coincide with sensitive waters or rare plant habitat, herbicide use should be limited to areas where there is no potential for rare plants. A combination approach of using flea beetles to reduce populations, followed by hand pulling or limited carefully targeted herbicide treatment of remaining plants may be effective.

Primary Area lands in the uplands vary in their management needs. Prescribed burning will ultimately be crucial to the Wet Pine Flatwoods and Pond Pine Woodland, and would be beneficial to the oak forests. The Piedmont/Coastal Plain Heath Buff is not thought to need burning, but including it in a larger burn unit should not be harmful.

Regular prescribed burning is also recommended for all the Primary (Restoration) Area lands where longleaf pine communities are the restoration target and is also encouraged for upland oak forest areas.

EXHIBIT B.2

BLACK RIVER PRESERVE DEDICATED NATURE PRESERVE BLACK RIVER CYPRESS SWAMP SEGMENT

DESCRIPTION

COUNTY: Pender and Bladen County

PHYSIOGRAPHIC PROVINCE: Coastal Plain

TOPOGRAPHIC QUAD(S): Rowan, Atkins, Point Caswell, and Kelly

SIZE OF AREA: ca. 2,235 acres total (all Primary Area acres, including 685 Restoration Area acres).

OWNER/ADMINISTRATOR: The Nature Conservancy

LOCATION: The Black River Preserve Cypress Swamp segment consists of relatively contiguous parcels along the river from about 1 mile below Beatty Bridge Road, downstream to near the community of Point Caswell.

DESCRIPTION: The Black River Cypress Swamp segment encompasses the section where the river is more variable in width and depth and generally has slower current. Sections have numerous sloughs and overflow channels, and large open backwater areas are present. The river has recently made a notable, though gradual, change of course in the middle of this segment. The downstream end is approximately where tidal influence begins at the time of the recognition of the segments. Topographic relief in the floodplain is generally less in this section, with more of its extent in wet swamps. but some high terraces as well as low ridges are present.

The Black River Cypress Swamp segment has unique significance for its ancient cypress trees. Dendrochronology study has documented numerous cypress (*Taxodium distichum*) trees over 1,200 years old, with some exceeding 1,500 years old, and even older trees continuing to be discovered. These are the oldest trees in eastern North America. Despite their wet habitat, the tree ring patterns show a strong correlation with weather over the years, and study of them has made great contributions to the understanding of past climate. The ancient trees occur in several patches, many of them lining broad backwater openings such as the Three Sisters.

This segment has a mosaic of floodplain communities, but much of the area is Cypress—Gum Swamp. Blackwater Bottomland Hardwoods, most of it of the Swamp Transition and Low Subtype, is also fairly extensive and much is quite mature. This area also has Sand and Mud Bar and Oxbow Lake communities and some Mesic Mixed Hardwood Forest on the bluff. Upland flats above the bluffs support Wet Pine Flatwoods and Xeric Sandhill Scrub communities, most of which were previously altered by timber management and are undergoing restoration. This segment supports a large number of rare species. Southern water grass (*Luziola fluitans* var.

fluitans), golden hedge-hyssop (*Gratiola lutea*), blue water-hyssop (*Bacopa caroliniana*), green fly orchid (*Epidendrum conopseum*), rainbow snake (*Farancia erythrogramma*), and catchfly cutgrass (*Leersia lenticularis*) are among the best examples in the state. Significant populations of four rare bat species (*Corynorhinus rafinesquei macrotis*, *Myotis austroriparius*, *Myotis septentrionalis*, and *Perimyotis subflavus*) are also present.

Associated with the Black River Cypress Swamp is the Colvins Creek Sand Ridge Mesic Slopes natural area, on a steep north-facing slope along a tributary creek. It supports the state's best population of Georgia calamint (*Clinopodium georgianum*). High quality Mesic Mixed Hardwood Forest and Coastal Plain Small Stream Swamp occur here.

The Black River Aquatic Habitat natural area extends through this segment. It supports a number of rare aquatic animals, including the Cape Fear spike (*Elliptio marsupiobesa*), pod lance (*Elliptio folliculata*), and eastern lampmussel (*Lampsilis radiata*), iron-colored shiner (*Alburnops chalybaeus*), and blackbanded sunfish (*Enneacanthus chaetodon*). Additional rare species include the rainbow snake (*Farancia erythrogramma*) and several plants such as golden hedge-hyssop (*Gratiola lutea*), and southern water grass (*Luziola fluitans* var. *fluitans*). Several additional rare fish and mussels have been found here in the past and, though not recently documented recently, may again be found.

In addition to the Primary Area, this segment has a large acreage of Primary (Restoration) Area. Most of it is sandy upland flats that supported Xeric Sandhill Scrub, Wet Pine Flatwoods, or other longleaf pine natural communities that were converted to pine plantation. The native ground cover dominated by wiregrass (*Aristida stricta*) remains at good to fair density in large portions. The Nature Conservancy has already invested substantially to restore longleaf pine in much of this area, and its ecological significance is increasing over time. Restoration of these areas will increase the amount of rare longleaf pine communities in the state, enhance the value of the preserve, and protect floodplain functions.

BOUNDARY JUSTIFICATION: The Dedicated area includes all Nature Conservancy lands that are not otherwise covered by conservation easements with the state. This is almost all of the Nature Conservancy holdings on this part of the river. The Primary Area encompasses the lands that support mature natural communities and rare species. This includes almost all of the river floodplain and some intact areas of bluffs and uplands. The Primary (Restoration) Area encompasses all of the remaining land. Most of this is already actively being restored.

MANAGEMENT AND USE: The site will be managed for natural area protection and some public use. The majority of the Primary Area, in the river floodplain, needs no special management. The forests should be allowed to mature and remain as old-growth. Increased public use in the future may call for actions to reduce impacts of visitors. Any proposed activities within the Primary Area, such as trails or trail accessories, should be planned with care to avoid or minimize impacts to the terrestrial and aquatic ecosystems and species, and in consultation with the NC Natural Heritage Program.

Some areas near the water are infested with alligatorweed (*Alternanthera philoxeroides*). This invasive species has high potential to spread further, and control efforts are recommended. Flea

beetles that are specific to this species are the least harmful method of control. Because many alligatorweed infestations are near or coincide with sensitive waters or rare plant habitat, herbicide use should be judicious and targeted to areas where there is no potential for rare species. A combination approach of using flea beetles to reduce populations, followed by hand pulling or limited specific herbicide treatment of remaining plants may be effective.

Primary Area lands in the uplands vary in their management needs. Prescribed burning at frequent intervals is crucial to restoring the longleaf pine forests. It would also be beneficial to the oak forests on the bluffs. The high quality Mesic Mixed Hardwood Forest, occurring on a north-facing bluff, is not thought to need burning, but including it in a larger burn unit should not be harmful.

EXHIBIT B.3

BLACK RIVER PRESERVE DEDICATED NATURE PRESERVE LOWER BLACK RIVER SWAMP SEGMENT

DESCRIPTION

COUNTY: Pender County

PHYSIOGRAPHIC PROVINCE: Coastal Plain

TOPOGRAPHIC QUAD(S): Point Caswell and Currie

SIZE OF AREA: ca. 693 acres total (all Primary Area acres, including 237 Restoration Area acres).

OWNER/ADMINISTRATOR: The Nature Conservancy

LOCATION: The Lower Black River Swamp segment extends from near the community of Point Caswell, downstream to near Birds Cove, a short way below the confluence with Moores Creek.

DESCRIPTION: The Lower Black River Swamp lies along the lower river where it is virtually at sea level and where tidal fluctuations spread upstream from the Cape Fear River. The floodplain is mostly a flat expanse of organic soil that has buried the fluvial landforms. The predominant natural community here is Tidal Swamp (Cypress—Gum Subtype). Small patches of Blackwater Bottomland Hardwoods on remnant higher ridges are the only higher natural communities. As is typical for tidal reaches of rivers, the swamps show the influence of rising sea level, and it is expected that Tidal Freshwater Marsh patches, already present downstream, will appear in this portion and that the swamps will eventually retreat.

Riverbank evening-primrose (*Oenothera riparia*) is present within and along the edges of portions of the dedicated area. Grassleaf arrowhead (*Sagittaria weatherbiana*) has been observed nearby and may extend onto the dedicated area. The populations of both rare species are among the largest in the state.

The Primary (Restoration) Area is an area of Tidal Swamp which was recently clearcut. Though it will not have a mature forest structure for many years, it is likely to recover either to Tidal Swamp or, as sea level continues to rise, to develop into Tidal Freshwater Marsh.

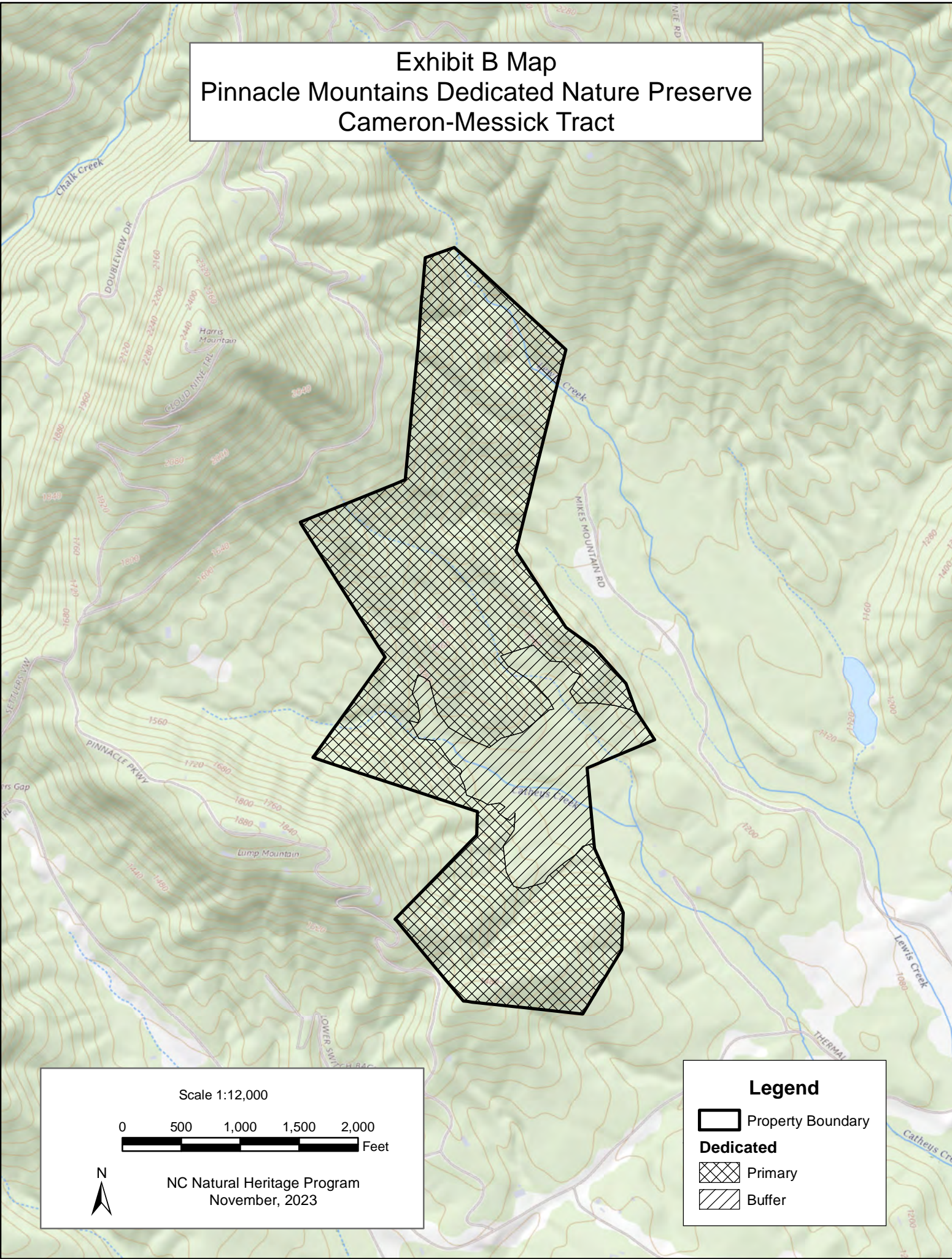
BOUNDARY JUSTIFICATION: The Dedicated area in this segment includes all Nature Conservancy lands not covered by state conservation easements. The Primary Areas consist of the lands that support reasonably intact natural communities and rare species, all of it in the river swamp. The Primary (Restoration) Area is the recently clearcut area.

MANAGEMENT AND USE: The site will be managed for natural area protection and some public use. Any proposed activities within the Primary Area, such as trails or trail accessories, should be planned with care to avoid or minimize impacts to the terrestrial and aquatic ecosystems and species, and in consultation with the NC Natural Heritage Program. The majority of the Primary Area, in the river floodplain, needs no special management. The forests should be allowed to develop as the environment dictates. It is expected that rising sea level will add increasing stress to the trees, that the canopy will thin, and trees will ultimately die. Concurrently, herbaceous species will increase and the species typical of Tidal Freshwater Marsh will assume dominance. This should be treated as a natural process. It may happen gradually or may occur more abruptly, driven by storm surges and salt intrusion.

In the Primary (Restoration) Area, restoration may best be done passively, allowing the forest to naturally regenerate and mature. It is unknown how mature it may become before rising sea level induces its transition to marsh.

The preserve should be monitored for invasive non-native species, especially common reed (*Phragmites australis*), and occurrences treated promptly before they spread widely. Common reed has the potential to become dominant and foreclose the development of high quality natural marshes as sea level continues to rise. The clearcut area, in particular, should be assessed and monitored for non-native species, which might include alligatorweed (*Alternanthera philoxeroides*), Asian dayflower (*Murdannia keisak*), Chinese tallow tree (*Triadica sebifera*), or other species as well as common reed.

Exhibit B Map
Pinnacle Mountains Dedicated Nature Preserve
Cameron-Messick Tract



Scale 1:12,000

0 500 1,000 1,500 2,000 Feet

NC Natural Heritage Program
November, 2023

Legend

- Property Boundary
- Dedicated**
 - Primary
 - Buffer

ARTICLES OF DEDICATION

PINNACLE MOUNTAINS NATURE PRESERVE
CAMERON-MESSICK TRACT

THESE ARTICLES OF DEDICATION (hereinafter sometimes referred to as “**Dedication**”) is made, entered into and effective as of the _____ day of _____, 202_, by and between the FOOTHILLS CONSERVANCY OF NORTH CAROLINA, a nonprofit corporation organized and existing under the laws of the State of North Carolina with an address of 204 Avery Avenue, Morganton, NC 28655 (hereinafter “the **Grantor**”) and the STATE OF NORTH CAROLINA (hereinafter “the **State**”) whose address is State Property Office, 116 W. Jones Street, Raleigh, North Carolina 27603.

WITNESSETH:

Preamble

WHEREAS, the State is authorized by G.S. 143B-135.250 *et seq.* of the North Carolina General Statutes (hereinafter “**the Nature Preserves Act**”) to establish a system of nature preserves in the State of North Carolina in a variety of ways, including acquisition by purchase or gift of interests in land by accepting Articles of Dedication from owners of natural areas; and

WHEREAS, the Grantor owns, as of the date set forth above, real property consisting of 221 acres, more or less, in Rutherford County, North Carolina, as described in **Exhibit A** and warrants that the same is without mortgage, lien, or other encumbrance except easement and restrictions of record, including an easement for a walking trail held by ____ recorded at Deed Book 2408, pages 783-786, Rutherford County Register of Deeds, June 29, 2021; and

WHEREAS, the Grantor desires to convey to the State a conservation easement in and to Pinnacle Mountains Nature Preserve, said portion containing approximately 221 acres with the physical features described on **Exhibit B** attached hereto (hereinafter the “**Preserve**”), for dedication in perpetuity as a nature preserve pursuant to the Nature Preserves Act, and the State recognizes that the Pinnacle Mountains Nature Preserve constitutes a qualified natural area and desires to accept the dedication of the Pinnacle Mountains Nature Preserve as a nature preserve pursuant to the Nature Preserve Act and in accordance with these Articles, and hold the same in trust for the public as a nature preserve; and

WHEREAS, the Preserve is deemed by the Secretary of the N.C. Department of Natural and Cultural Resources to qualify as an outstanding natural area under the statutory criteria for nature preserve dedication in G.S. 143B-135.250 *et seq.* and further serves the public purposes for a dedicated preserve as stated in G.S. 143B-135.252; and

WHEREAS, at a meeting held in the city of _____, North Carolina, on the ____ day of _____, 20__, the Governor and Council of State approved the acceptance of this dedication and conveyance of this conservation easement in trust for the uses and purposes expressed in the Nature

Preserves Act.

NOW, THEREFORE, the Grantor hereby gives, grants, and conveys in perpetuity, and the State accepts, a conservation easement in, on, over, under, through, across, and to the lands composing the Pinnacle Mountains Nature Preserve hereafter described in **Exhibit A**. The dedication and the conservation easement herein conveyed has and imposes on the Preserve in perpetuity the following terms, conditions, and restrictions, as agreed to by the Grantor and the State.

THIS DEDICATION AND CONSERVATION EASEMENT PROVIDES AND IMPOSES THE FOLLOWING TERMS, CONDITIONS, AND RESTRICTIONS ON THE PRESERVE IN PERPETUITY:

1. **Definitions:** As used in these Articles, including the foregoing Preamble, the terms “Articles of Dedication,” “natural area,” and “nature preserve” shall have the same meaning as contained in N.C. General Statute 143B-135.250.
2. **Dedication:** The Pinnacle Mountains Nature Preserve as described in **Exhibits A and B** hereof is hereby dedicated as a nature preserve for the purposes provided in the Nature Preserves Act, as it now exists, or as it may hereafter be amended, and it shall be held, maintained, and used therefore.
3. **Primary Custodian:** The primary Custodian of the Pinnacle Mountains Nature Preserve shall be the Grantor, which shall be responsible for managing the Preserve in accordance with North Carolina Administrative Code 07 NCAC 13H.0300 and under periodic review from the State’s representative.
4. **Primary Classification:** The primary classification and purposes of the Preserve shall be for natural area conservation, watershed protection, scientific research, and nature education, and recreation uses compatible with the purposes of the Preserve.
5. **Management Areas:** For the purposes of management, the Preserve shall be considered to consist of a Primary Area (approximately 184 acres) and a Buffer Area (approximately 37 acres), as more particularly described in Exhibit B, attached hereto and by this reference made a part hereof. The Primary Area – composed of the natural area described above -- is deemed by the Secretary of the North Carolina Department of Natural and Cultural Resources to qualify as an outstanding natural area under statutory criteria for nature preserve dedication (G.S. 143B-135.260) and further serves one or more of the public purposes for a dedicated preserve as stated in G.S. 143B-135.252. The Buffer Area, which contributes to the management and protection of the Primary Area, consists of less mature, lower quality natural communities and other areas which connect and adjoin the Primary Area.
6. **Rules for Management of the Primary Area:**
 - a. **Character of Activities:** The principal activities in the Preserve shall be nature

observation, teaching, walking, research, boating, hunting, and fishing. Secondary activities may include low impact mountain biking outside of rare plant populations and sensitive areas. These activities shall be regulated by the Custodian to protect and preserve the natural values of the Preserve. Activities and uses which are unrelated to the activities listed above are prohibited except as provided for herein or unless necessary to carry out the purposes of the Preserve. Prohibited activities include, but are not limited to, construction of buildings, picnic shelters/picnic decks, and parking lots, development of active recreation amenities (i.e. ballfields, playfields, playgrounds, tennis courts, basketball courts, volleyball courts, equestrian trails, etc.), dumping, changes in topography, commercial silviculture, agriculture and grazing, gathering of plants or plant products, the removal, disturbance, molestation, or defacement of minerals, archaeological and natural resources except for educational, research, or ecological restoration purposes, and those activities specifically restricted in these Articles. No littering shall be permitted. There shall be no open fires, except as necessary for research or ecological management of the Preserve or in conjunction with supervised educational activities of the Grantor, or further excepted as herein provided or otherwise expressly permitted by the State or its designated representative.

- b. Consumptive Wildlife Uses: Hunting, fishing, and trapping may be permitted on the Preserve subject to the regulations of and management by the North Carolina Wildlife Resources Commission.
- c. Orientation and Guidance of Visitors: The Grantor reserves the right to orient and guide visitors for educational programs, for scientific research, for hunting and fishing uses, and for preserve management. Exhibits, programs, and printed materials may be provided by the Grantor in service areas. Grantor may install signs to mark the trail, to provide information related to the trail, and for interpretive purposes. The Grantor shall restrict access to visitors in those instances or in such areas that restrictions are determined necessary to safeguard sensitive environmental resources in the Preserve. The Grantor may create and maintain kiosks, overlooks, fences, barriers, pedestrian bridges, culverts, guardrails, overlooks, steps, and boardwalks, and other facilities incidental to and for the convenience of trail users including benches, picnic tables, and waste baskets (hereinafter referred to as "Trail Accessories") associated with trails to be constructed within the preserve. The location of any Trail Accessories shall be decided in consultation with the North Carolina Natural Heritage Program and shall be for the purpose of ensuring the safe, permitted use of the preserve while protecting the preserve from unwanted or excessive visitor traffic.
- d. Visitor Protection: Signs, fences, steps, guardrails, and bridges may be provided when essential to the safety of reasonably alert and cautious visitors. The Grantor reserves the right to erect such structures as may be necessary to protect the Preserve from unwanted or excessive visitor traffic.

- e. Other Structures and Improvements: Structures or facilities shall not be erected within the Preserve, except as may be consistent with the purposes of the Preserve as stated in these Articles. Site selection shall be consistent with these Articles.
- f. Roads and Trails: New roads shall not be constructed in the Primary Area. When necessary, the Grantor may construct and maintain access limited to staff for management purposes, such as service paths (single lane vegetated paths) for patrol, fire control, right-of-way maintenance, and other management activities, within the Primary Area. The Grantor may maintain roads presently existing within the Preserve. The Grantor may locate, build and maintain trails within the boundary of the preserve in a manner consistent with the conservation values of this dedication and in consultation with the North Carolina Natural Heritage Program. The North Carolina Natural Heritage Program may require that the Grantor reroute, restrict or limit access to specific areas of the preserve or the Wilderness Gateway State Trail if it is determined by the North Carolina Natural Heritage Program that such reroute, restriction or limitation is necessary to safeguard sensitive environmental resources in the preserve. Number and width of new paths and trails will be minimized, and sensitive areas avoided when possible. When constructing new natural surface trails within the nature preserve for the purpose of hiking and non-motorized bicycling, all new trail construction and realignment requiring soil disturbance must follow best practices for sustainable trail design and construction. The Custodian may construct and maintain bridges or other stream crossings up to ten (10) feet wide across streams in the nature preserve, provided such crossings are connected to trails permitted herein, constructed in a way as to maximize water quality protection, and permitted by all applicable regulatory authorities. The number of stream crossings must be minimized.

Existing roads that occur within or form a boundary of the Primary Area may be maintained by grading of the roadbed, replacing culverts, or adding stone as needed in order to maintain the integrity of the road for vehicular use. Daylighting of roads within the Primary Area should be minimized, but may be used if necessary to maintain the condition of the road. Access management and construction will be part of the overall management planning process and will include consultation with the North Carolina Natural Heritage Program.

- g. Research and Collecting Permits: Any person wishing to engage in scientific research requiring collecting or otherwise affecting anything within the Preserve shall first secure written permission from the Grantor.
- h. Pollution and Dumping: There will be no storage or dumping of ashes, trash, garbage, hazardous substances, toxic waste, other unsightly or offensive material, or fill material, including dredge materials in, on, or under the Preserve. No underground storage tanks may be placed within the Preserve. Pollutants may not be added to surface or ground waters within the Preserve.

- i. Excavation: There will be no mining, drilling, removal of topsoil, sand, gravel, rock, minerals, or other material, nor any change in topography or surface hydrology of the Preserve. Exceptions may be made for permitted archeological research or for ecological restoration to more natural conditions, consistent with the Management Plan, may be made in consultation with the North Carolina Natural Heritage Program.
- j. Fences: Fences and barriers may be installed as necessary to maintain and protect natural features, control access, deter trespass, and to further the purposes of the Preserve.
- k. Water Level Control: The purpose of any water level control shall be to maintain the Preserve's natural water regime. Water levels which previously have been altered may be maintained or may be changed if necessary to restore the Preserve to its natural condition, and structures to accomplish this goal may be constructed. Water levels may change naturally because of beaver activities, and these changes generally should be allowed. In a preserve with altered hydrology, water levels may be managed to perpetuate the ecosystems that have evolved around the hydrology. Millponds are an example of situations in which water levels have been historically managed.
- l. Bringing in Flora and Fauna: No exotic flora and no animals except leashed dogs and cats, horses on trails designated for horseback riding, or animals being reintroduced shall be brought into the Preserve. Any reintroduction will be of species native to the natural community and shall be done according to an approved resource management plan.
- m. Wildfire Control/Prescribed Burning: Use of prescribed burning is permitted as necessary for the biological management of the Preserve. Any prescribed burning must be done according to a prescribed fire plan approved by the County Fire Marshall or County Forest Ranger. Wildfires may mimic natural processes historically occurring in an ecosystem on a landscape level. When the extent of a wildfire does not threaten human life or structures, it may be allowed to burn with minimal control. If firebreaks need to be established for prescribed burning or wildfire control, where possible, existing roads and firebreaks will be utilized. When new firebreaks need to be established, environmentally sensitive areas will be avoided when possible. Old firebreaks which affect the natural hydrology of wetlands will be filled and allowed to revegetate. Planning of firebreak restoration should occur in consultation with the North Carolina Natural Heritage Program.
- n. Disturbance of Natural Features: The cutting or removal of trees, dead or alive, or the disturbance of other natural resources is prohibited except for removal of hazards to visitors, control of disease that would damage or reduce the significance of the Preserve, reduction of fire fuel load after severe storm damage, trail clearance or maintenance, or for purposes of maintenance or restoration of natural

communities or rare species populations as stipulated in the preserve management plan and that which is consistent with the purposes of this Dedication. Salvage timber cuts which may be necessary due to natural catastrophe will be allowed, but in a manner that will contribute to the recovery of the prevailing natural conditions of the forest and in consultation with the North Carolina Natural Heritage Program.

- o. Control of Populations (natural and exotic): Any control of animal or plant populations on the Preserve shall be for the purpose of correcting situations where those populations are significantly affecting natural conditions on the Preserve, and in accordance with the established N.C. Wildlife Resources Commission regulations for hunting, trapping, or fishing of designated game animals. The Custodian may, in consultation with the North Carolina Natural Heritage Program, apply biological controls, herbicides and pesticides, and other means deemed necessary or appropriate to control or eradicate exotic or native species of plant or animal that are degrading the natural character of the Preserve.
- p. Control of Vegetational Succession: Control of vegetational succession may be undertaken if necessary to maintain or restore a particular natural ecosystem type or to preserve endangered, threatened, rare, or other unusual species. Controls will be done in the manner that best imitates the natural forces believed responsible for maintaining the natural ecosystem type, or that minimizes unnatural effects on non-target portions of the ecosystem. Prescribed burning is particularly essential to ecosystems where natural wildfire historically suppressed woody vegetation and promoted herbaceous diversity.
- q. Designation of Representatives: In cases in which these Articles permit action to be taken by a designated representative of the State, the designation of the representative shall be made in writing by the Secretary of the Department of Natural and Cultural Resources, and copies of the designation shall be mailed to the Grantor and shall be maintained in the official files of the Department of Natural and Cultural Resources or the appropriate agency of the State. The Grantor Representative shall be:

Executive Director
Foothills Conservancy
204 Avery Avenue
Morganton, NC 28655
- r. Custodian and Management Responsibility: The Grantor shall retain custody and possession of the Preserve upon the execution of these Articles, and the Grantor shall enforce the rules for management in conformity with the purposes of the Preserve.
- s. Management Plan: The Primary Custodian shall be required to prepare and submit for approval to the Secretary of the Department of Natural and Cultural Resources

a management plan for the Preserve. This plan shall be subject to all the provisions of this Dedication and shall additionally be consistent with the management principles set forth in the North Carolina Administrative Code 07 NCAC 13H.0300 and .0400. The dedicated nature Preserve will continue to be subject to other applicable regulations within NCAC Title 7, Chapter 13. The management principles stated in 07 NCAC 13H.0402 shall apply to the Preserve unless exceptions are expressly provided in these Articles.

7. **Rules for Management of the Buffer Area(s)**: Primary Area rules also apply except that additional forestry and wildlife management activities may be planned and carried out as needed. Construction and maintenance of roads, trails, and other access structures within Buffer Area(s) of the preserve will be limited to the level necessary to appropriately manage the preserve. These activities will be conducted in accordance with policy of the Primary Custodian, in addition to providing for the buffer functions in relation to the Primary Area. Buffer functions within the dedicated area may include protecting the Primary Area(s) from indirect detrimental ecological effects, providing additional area for species and ecological processes that require larger areas, and providing important successional stages and disturbance regimes and other habitat diversity for wildlife. Based on these general objectives, the following buffer functions will be addressed in the management plan.
 - a. Managing landscape level function of community type and structure. (Buffer Area management may involve timber harvest and other forms of stand manipulation but will not involve forest canopy type conversion over more than limited areas, other than to restore stands to types suited for the site. Introduction of exotic species known to be invasive in natural communities will be avoided.)
 - b. Maintaining habitat connectivity and continuity among Primary Areas.
 - c. Providing for habitat diversity.
 - d. Managing the needs of rare animal and plant species populations occurring within the Buffer Area.
 - e. Protecting soil and hydrologic resources and processes within the Primary Area and extending into the Buffer. (Naturally vegetated riparian zones will be retained along streams, and watersheds of Primary Areas will be protected from hydrologic alteration.)
8. **Amendment and Modification**: The terms and conditions of this Dedication may be amended or modified upon agreement of the Grantor and the Secretary of the Department of Natural and Cultural Resources, and approved by the Council of State.
9. **Termination**: A portion of the tract dedicated pursuant to this instrument may be removed from dedication in accordance with the provisions of North Carolina General Statutes 143B-135.250, the Nature Preserves Act, as it now exists or as it may hereafter be amended.

These Articles may be terminated upon agreement of both parties as set forth in the Nature Preserves Act.

10. Liability: To the extent and in the manner allowed under law, the Grantor agrees to indemnify, defend, and hold harmless the State against any claims, damages, obligations, or suits arising out of or connected with the use of the Preserve, caused by acts of negligence by Grantor, its assigns, or invitees, servants, employees, or agents, or any of them, except for any claims, damages, obligations, or suits arising out of acts by the State, or its assigns, invitees, servants, employees, or agents, or any of them. In the event any such claim is made or lawsuit initiated, the State shall promptly notify Grantor in writing and the State shall cooperate fully in the defense of such lawsuit and permit the Grantor or its insurance carrier to participate in the defense of such claim or lawsuit. It is further agreed that the right to settle or offer the settlement of any such claim or lawsuit shall reside with the Grantor, subject to the State's approval of any final settlement, which approval shall not be unreasonably withheld.

Use of any portion of the Preserve by members of the general public is at their own risk. Notwithstanding any provision herein to the contrary, neither Grantor nor the State by entering into this Agreement intend to assume any duty to or for the benefit of the general public for defects in the location, design, installation, maintenance or repair of the Trail Facilities; for any unsafe conditions within the Preserve; or for the failure to inspect for or warn against possibly unsafe conditions; or to close the Trail Facilities to public access when unsafe conditions may be present. Grantor will endeavor to repair damaged Trail Facilities but has no duty to the general public or to any other person to do so. Nothing in this Agreement limits the ability of the State or Grantor to avail themselves of the protections offered by any applicable law affording immunity to the State or Grantor, including, to the extent applicable, the North Carolina recreational use statutes, codified in N.C.G.S. Section 38A-1 et. seq., or the North Carolina Trails System Act, codified in N.C.G.S. Section 113A-83 et. seq., as they may be amended from time to time.

11. Transfer of the Preserve: Any time the Preserve, or any interest therein, is transferred by the Grantor to any third party, the Grantor shall notify the State in writing within thirty (30) days prior to the transfer of the Property, and the document of conveyance shall expressly refer to these Articles. The failure of Grantor to perform any act required by this Paragraph shall not impair the validity of these Articles or of the transfer or limit their enforceability in any way.

12. Parties: Every provision of these Articles that applies to the Grantor shall also apply to Grantor's successors in title as their interest may appear.

TO HAVE AND TO HOLD the conservation easement herein described and conveyed to the State of North Carolina in trust for benefit of the public in accordance with the provisions of 143B-135.250 of the North Carolina General Statute.

These Articles of Dedication shall run with the land and burden the Preserve in perpetuity unless

terminated as provided herein or extinguished in accordance with the provision of the Nature Preserves Act.

The Governor and Council of State have approved the dedication of the lands hereinabove described as the Pinnacles Mountain Nature Preserve, by acceptance of the conservation easement, to be held in trust by the Grantor and the State for the uses and purposes expressed in the Nature Preserves Act at a meeting held in the City of _____, North Carolina, on the ___ day of _____, 20__.

[SIGNATURES AND NOTARIZATION APPEAR ON THE NEXT PAGE]

DRAFT

IN WITNESS WHEREOF, Grantor, by authority duly given, has hereunto caused these presents to be executed under seal in such form as to be binding, the day and year first above written, and the State accepts these Articles of Dedication and conservation easement by the recording hereof in the public records.

GRANTOR:

**FOOTHILLS CONSERVANCY OF NORTH
CAROLINA, A NORTH CAROLINA NONPROFIT
CORPORATION**

By: _____ **(SEAL)**

Executive Director

Corporate Seal

[Affix County Seal]

**STATE OF NORTH CAROLINA
COUNTY OF BURKE**

I, the undersigned Notary Public of the aforesaid county, North Carolina, do hereby certify that _____ personally appeared before me this day and acknowledged that he/she is the Executive Director of the Foothills Conservancy, a North Carolina nonprofit corporation, and that by authority duly given and acknowledge the due execution of the foregoing instrument on behalf of the company.

Witness my hand and notarial seal this the _____ day of _____, 20__.

Notary Public: _____

Printed Name: _____

My commission expires: _____

STAMP/SEAL

EXHIBIT A
LEGAL DESCRIPTION
of the Pinnacles Mountain Nature Preserve

BEING those certain tracts or parcels of land situated in Morgan Township, Rutherford County, North Carolina and being more particularly described as follows:

All of Tract I, being 221.19 acres, more or less, and recorded in Plat Book 2048, Page 783-786, Rutherford County Registry.

EXHIBIT B

PINNACLE MOUNTAINS DEDICATED NATURE PRESERVE CAMERON-MESSICK TRACT

DESCRIPTION

COUNTY: Rutherford County

PHYSIOGRAPHIC PROVINCE: Piedmont

TOPOGRAPHIC QUAD: Sugar Hill

SIZE OF AREA: 221 acres (184 acres Primary Area; 37 acres Buffer Area)

OWNER/ADMINISTRATOR: Foothills Conservancy of North Carolina

LOCATION: The Pinnacle Mountains Nature Preserve is located on the south side of the mountainous area known as the Pinnacle Mountains, on the flanks of Lump Mountain and Harris Mountain. The Preserve is accessed from Thermal City Road by Private Drive.

DESCRIPTION: The Preserve consists of moderate to steep mountain slopes, coves, and spur ridges. In the Primary Area, the largest portion of the area consists of Montane Oak—Hickory Forest (Acidic Subtype), dominated by white oak (*Quercus alba*) along with chestnut oak (*Quercus montana*) and red oak (*Quercus rubra*), with ground cover primarily of wild blueberries (*Vaccinium pallidum*, *Vaccinium stamineum*) and mountain laurel (*Kalmia latifolia*). Smaller areas of the mountain slopes are Montane Oak—Hickory Forest (Basic Subtype), dominated by the same tree species but with understory trees and shrubs indicative of less acidic soil conditions. Some areas on higher spur ridges support Chestnut Oak Forest (Dry Heath Subtype). The ravines and coves in the preserve support a mix of Acidic Cove Forest and Rich Cove Forest (Foothills Intermediate Subtype). Acidic Cove Forest occurs primarily in narrow ravines, and is dominated by tulip poplar (*Liriodendron tulipifera*) with a dense shrub layer of great rhododendron (*Rhododendron maximum*). The Rich Cove Forest has a more mixed canopy that includes tulip poplar along with ash (*Fraxinus biltmoreana*, *Fraxinus americana*), beech (*Fagus grandifolia*), red oak (*Quercus rubra*), and sometimes basswood (*Tilia americana* var. *heterophylla*) and other species. The herb layer contains a great diversity of species typical of rich mesophytic conditions. The forest communities in the Primary Area range from fairly mature to very mature with large trees.

Two areas in the Primary Area support small clusters of white irisette (*Sisyrinchium dichotomum*), a federally and state endangered plant species.

The Buffer Area consists of younger forest and successional forest in the wider valley bottom and gentle lower slopes. Most is recognizable as Rich Cove Forest or Acidic Cove Forest. Some areas

of successional forest have fairly large trees but consist solely of species indicative of young or recovering forest, such as tulip poplar and Virginia pine (*Pinus virginiana*).

BOUNDARY JUSTIFICATION: The Primary Area includes the mature natural communities and the rare plant locations. It also includes riparian zones of 100 feet on each side of creek in areas of more altered forest. The Buffer Area includes other parts of the tract that are younger or of successional composition and that are not in riparian zones.

MANAGEMENT AND USE: The Preserve will be managed as a natural area and may include public access for recreation. The Natural Heritage Program should be consulted in planning for any recreational amenities in the Primary Areas. Public access should not be promoted or encouraged at the white irisette locations. Trails should be monitored for potential impacts and re-routed or modified as needed to protect rare plants or other sensitive features, and water quality.

Forest areas should be allowed to continue maturing and to remain in old-growth condition. No special management is recommended. However, prescribed burning may be beneficial to the oak forests, and may prove crucial for sustaining them in the long run.

The site should be monitored for invasive non-native species. If possible, invasions should be treated promptly, before the species spread and control becomes more difficult. Treatment should be carefully targeted to avoid impact to associated native species.

Exhibit A Overview Map Sandhills Game Land Dedicated Nature Preserve

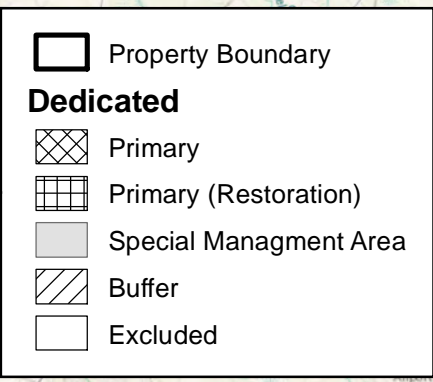
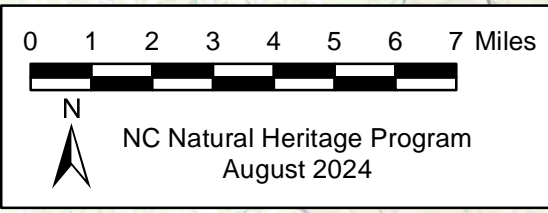
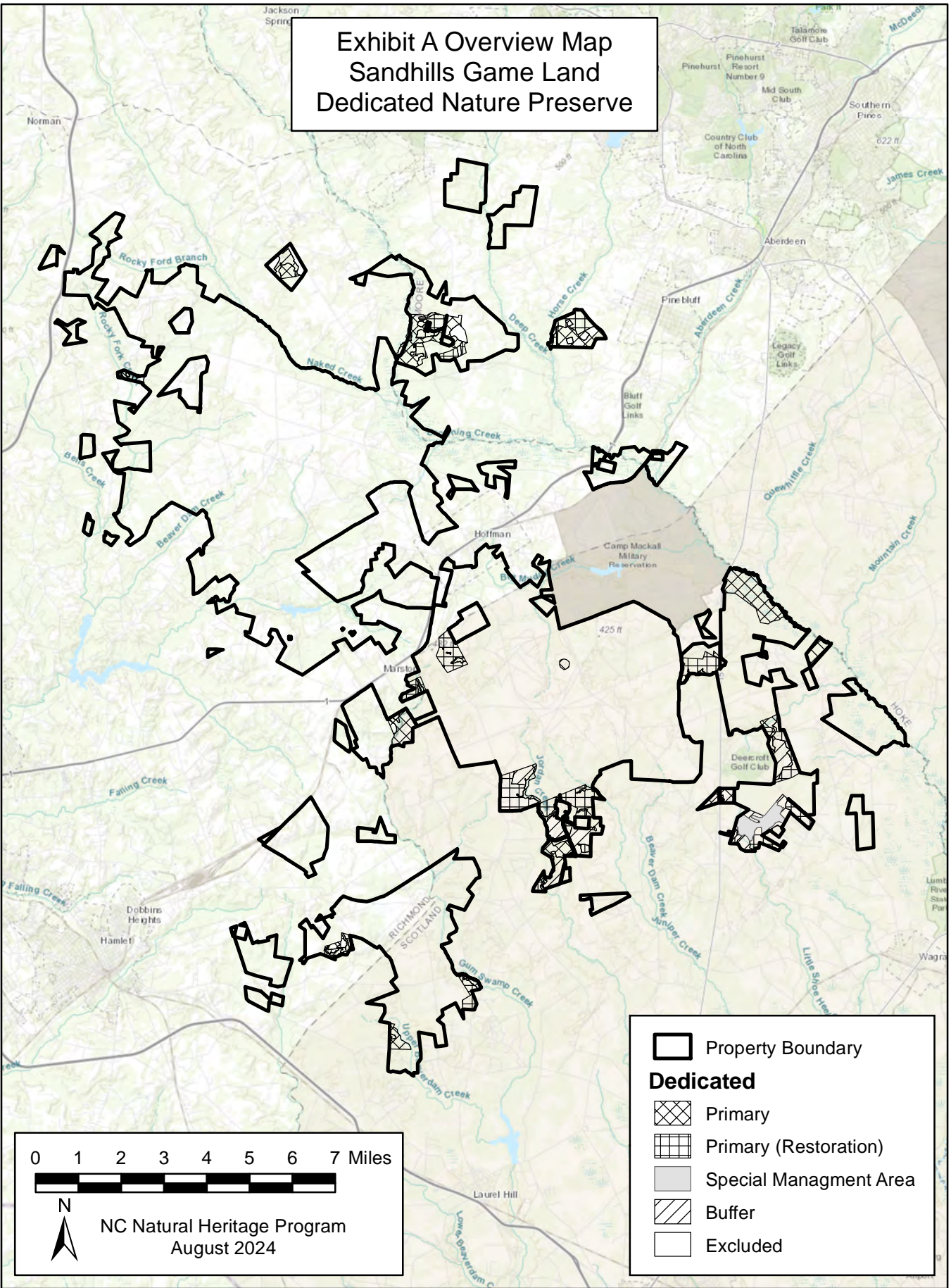
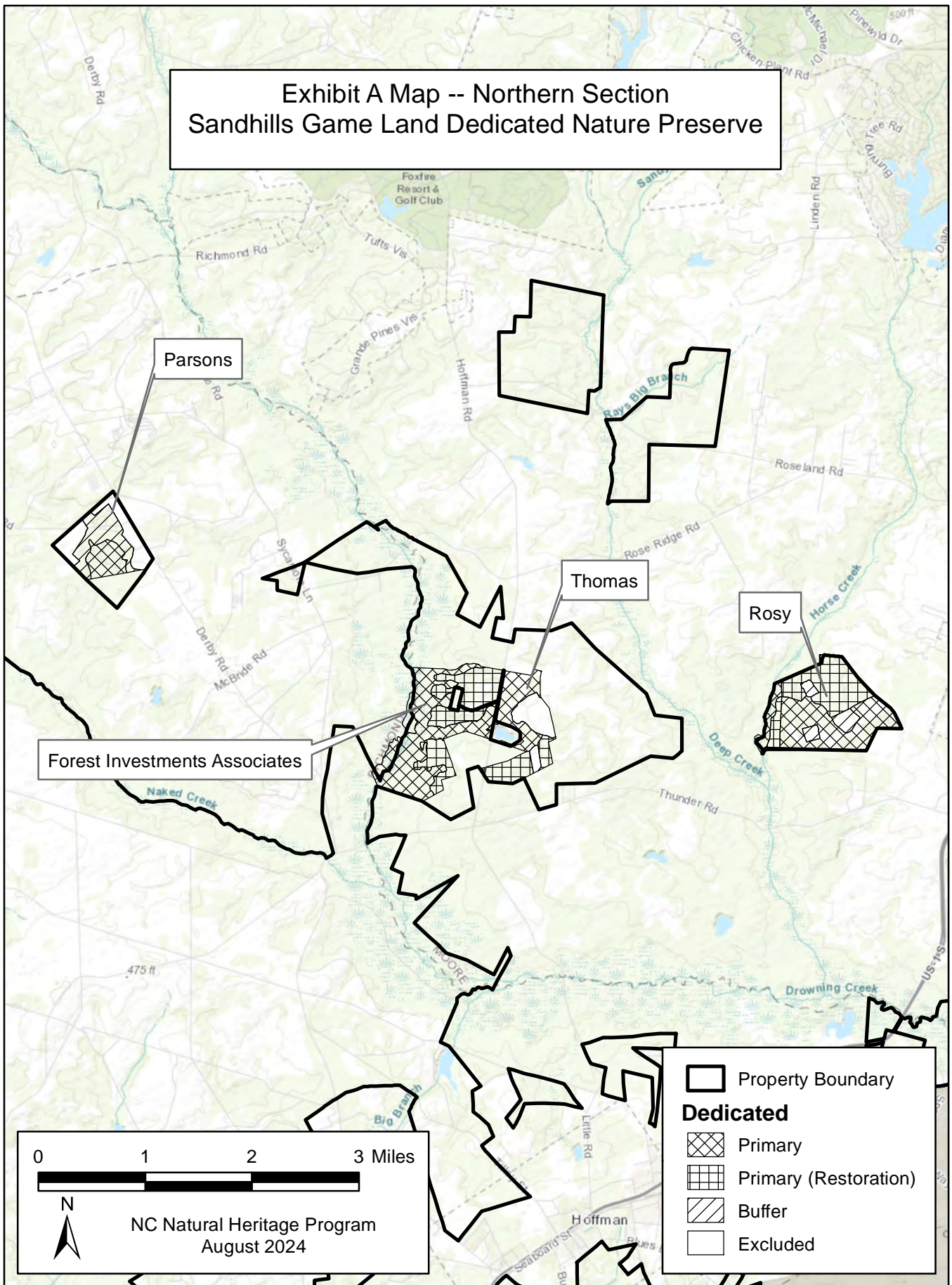


Exhibit A Map -- Northern Section
Sandhills Game Land Dedicated Nature Preserve








Parsons

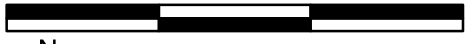
Thomas

Rosy

Forest Investments Associates

-  Property Boundary
- Dedicated**
-  Primary
-  Primary (Restoration)
-  Buffer
-  Excluded

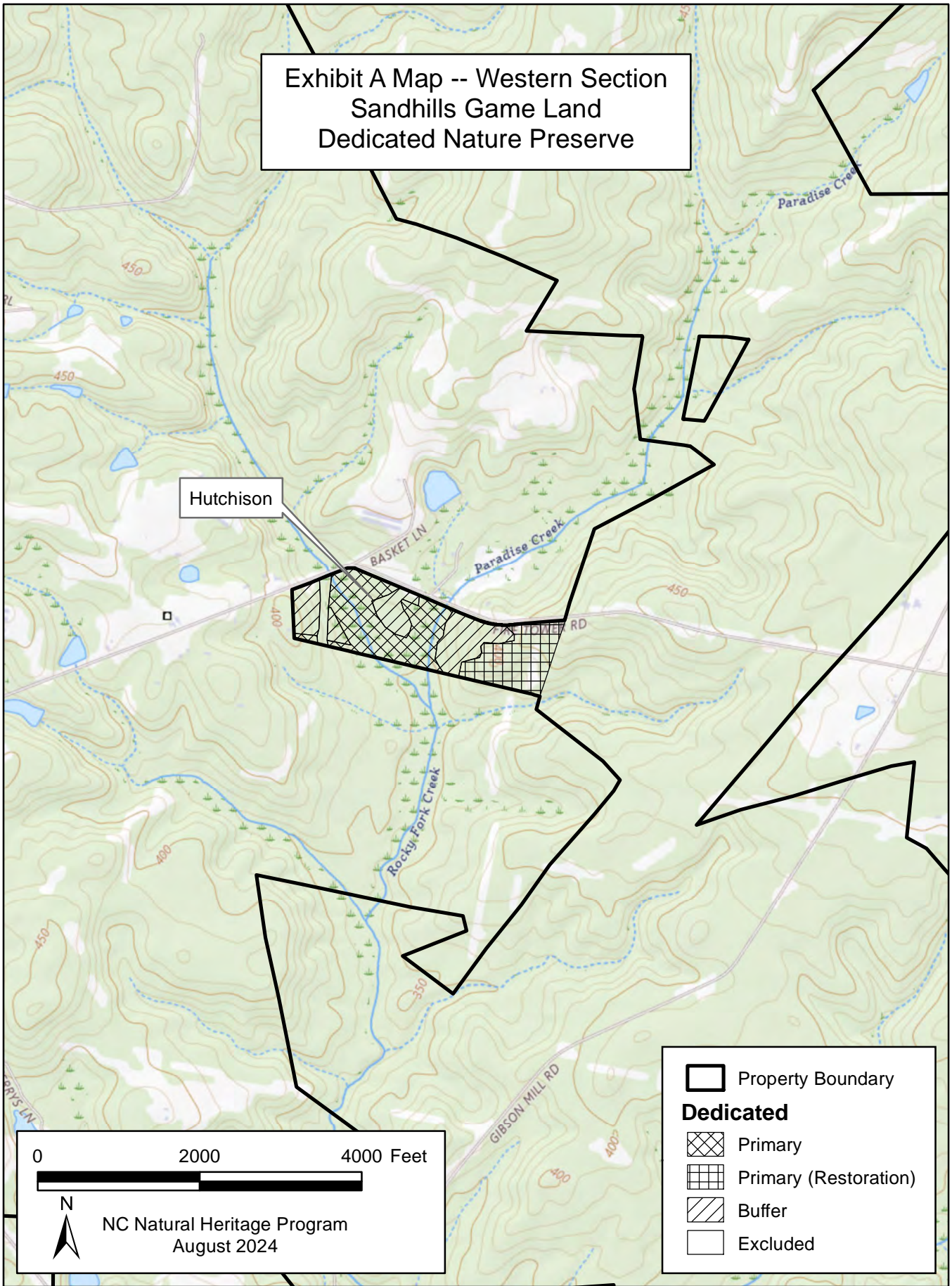
0 1 2 3 Miles



N

NC Natural Heritage Program
August 2024

Exhibit A Map -- Western Section
Sandhills Game Land
Dedicated Nature Preserve



Hutchison

0 2000 4000 Feet



NC Natural Heritage Program
August 2024

Property Boundary

Dedicated

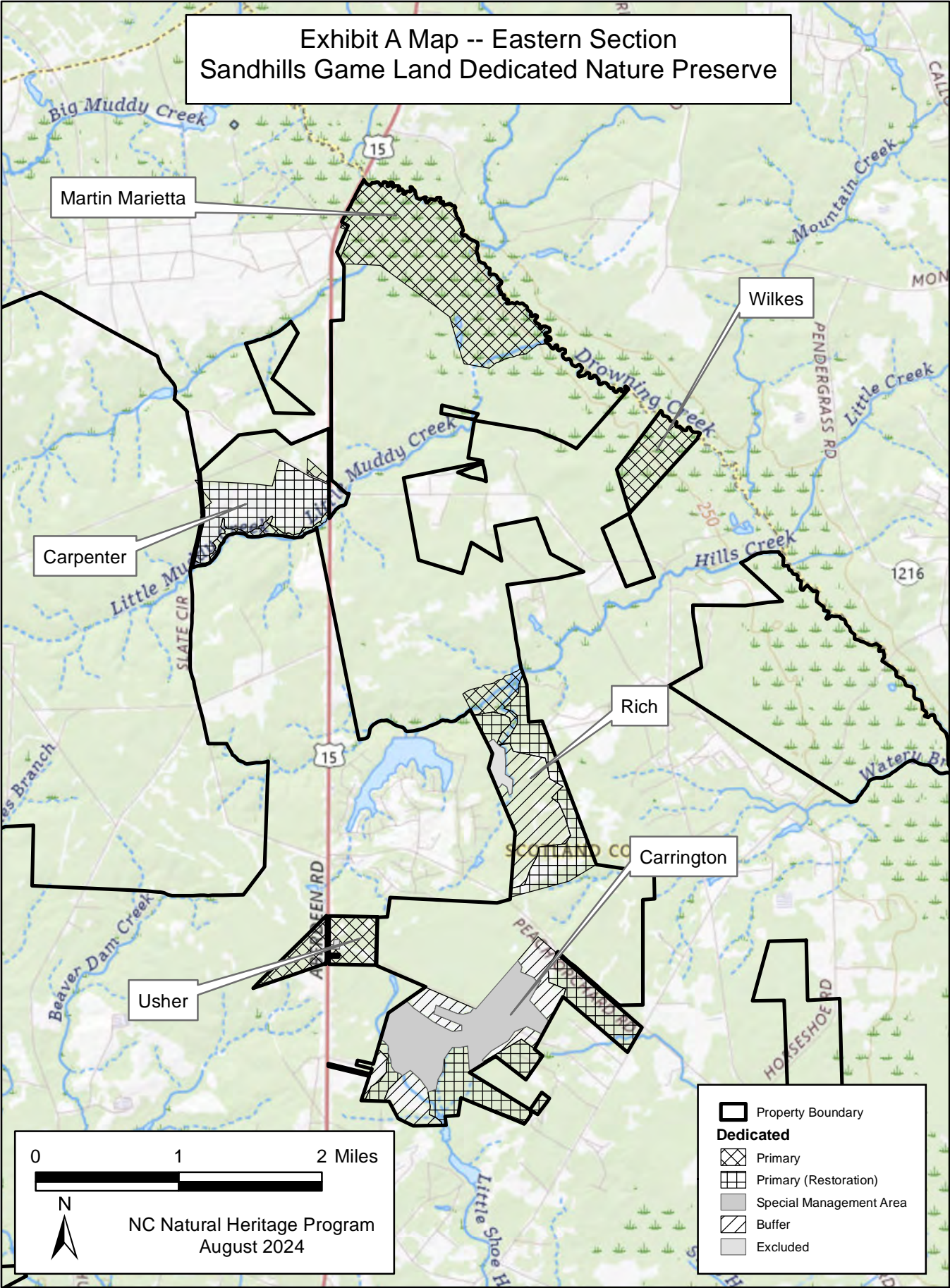
Primary

Primary (Restoration)

Buffer

Excluded

Exhibit A Map -- Eastern Section
Sandhills Game Land Dedicated Nature Preserve



Martin Marietta

Wilkes

Carpenter

Rich

Carrington

Usher

0 1 2 Miles

N

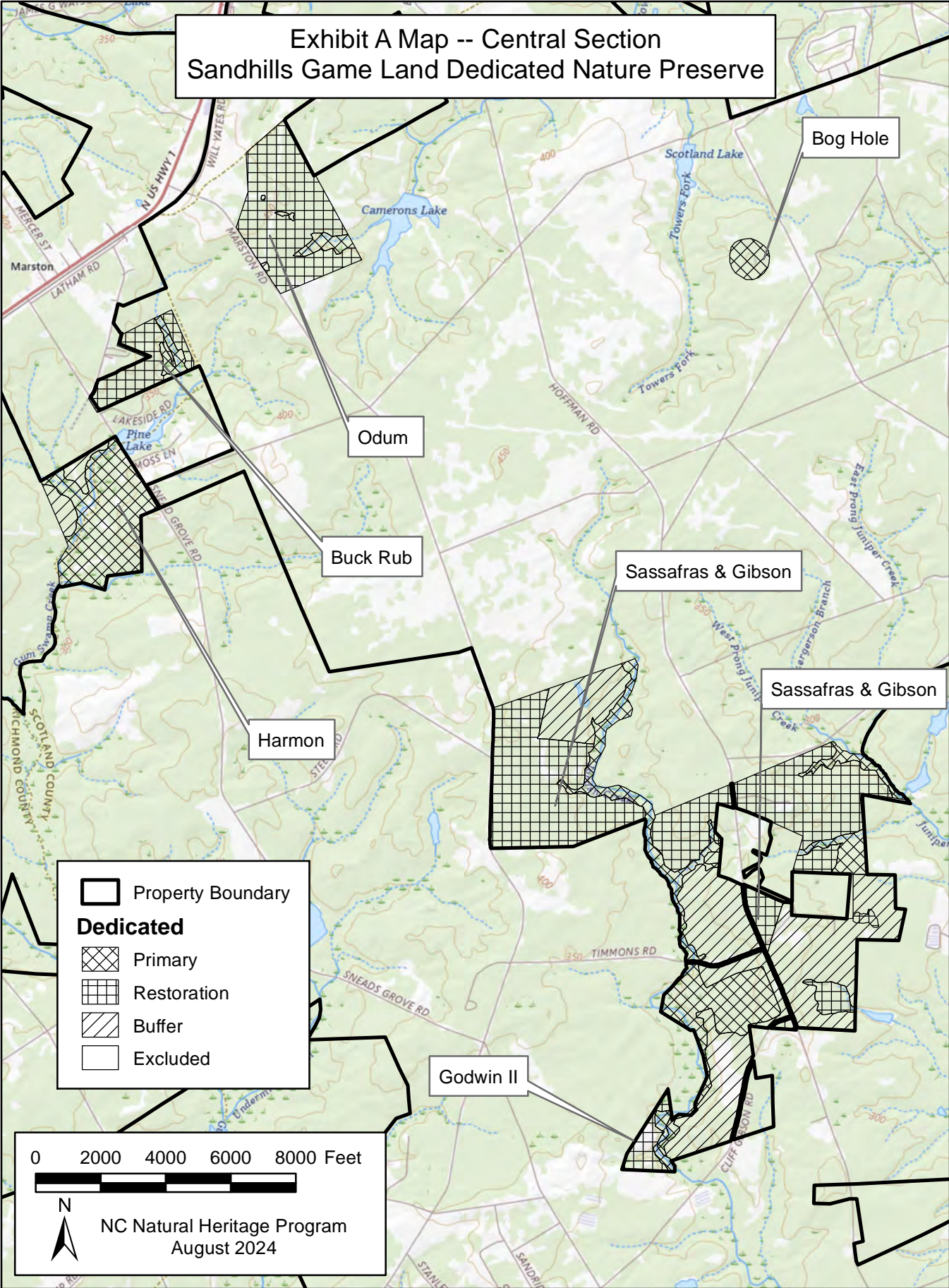
NC Natural Heritage Program
August 2024

Property Boundary

Dedicated

- Primary
- Primary (Restoration)
- Special Management Area
- Buffer
- Excluded

Exhibit A Map -- Central Section Sandhills Game Land Dedicated Nature Preserve



Property Boundary

Dedicated

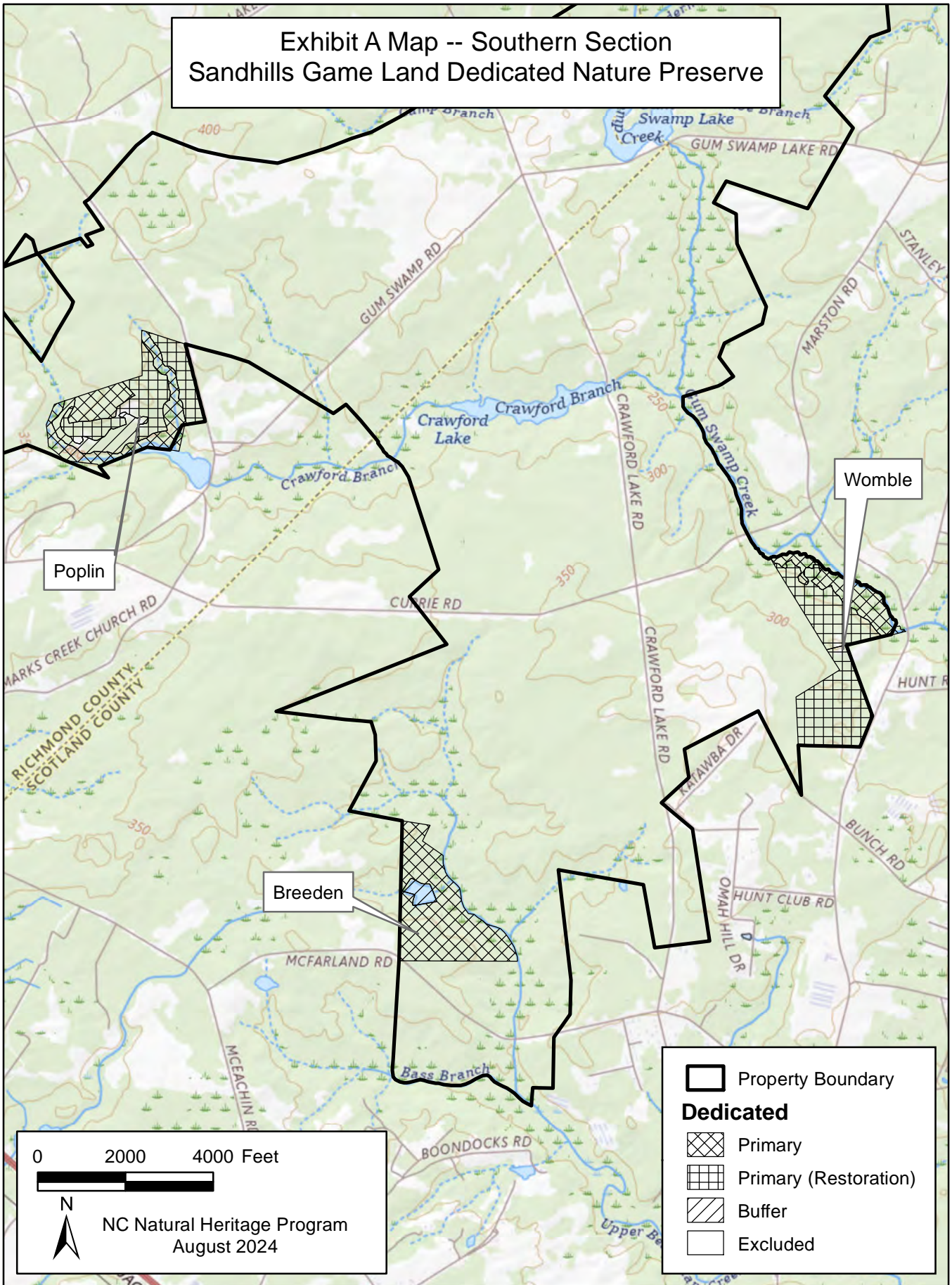
- Primary
- Restoration
- Buffer
- Excluded

0 2000 4000 6000 8000 Feet



NC Natural Heritage Program
August 2024






Exhibit A Map -- Southern Section
Sandhills Game Land Dedicated Nature Preserve



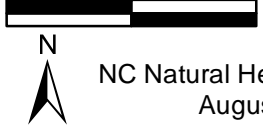
Poplin

Womble

Breeden

-  Property Boundary
- Dedicated**
-  Primary
-  Primary (Restoration)
-  Buffer
-  Excluded

0 2000 4000 Feet



NC Natural Heritage Program
August 2024

(ON DEPARTMENT OF ADMINISTRATION STATIONARY)

(DATE)(LINE 6)(NOT BOLD)

Secretary D. Reid Wilson
Department of Natural and Cultural Resources
4601 Mail Service Center
Raleigh, North Carolina 27699-4601

Mr. Cameron N. Ingram, Executive Director
N.C. Wildlife Resources Commission
1701 Mail Service Center
Raleigh, North Carolina 27699-1701

Subject: Dedication of Portions of the **Sandhills Game Land**, Moore, Richmond and Scotland Counties

Dear Secretary Wilson and Mr. Ingram:

Pursuant to Part 42 of Article 2 of Chapter 143B of the North Carolina General Statutes, this letter of allocation is executed for the purpose of dedicating the State-owned lands hereinafter described as a North Carolina Nature Preserve. These articles of dedication replace the articles of dedication approved by the Council of State at their November 14, 2023 meeting. The articles were amended to reflect ownership boundary corrections and additions of property to the preserve.

This real property is currently administered by the North Carolina Wildlife Resources Commission and consists of approximately 6,215 acres located in Moore, Richmond and Scotland Counties and composed of:

- | | |
|---|--------------|
| 1. Sandhills Game Land Preserve (Primary Area) | 4,742 acres, |
| including restoration area of 2,349 acres | |
| 2. Sandhills Game Land Preserve (Buffer Area) | 1,198 acres |
| 3. Sandhills Game Land Preserve (Special Management Area) | 275 acres |

which are specifically described in Exhibit A, attached hereto and by reference made a part hereof. The dedicated lands shall be known collectively as the Sandhills Game Land Nature Preserve.

Dedication of the qualified portions of any tracts acquired through The Nature Conservancy fulfill a commitment made by the Wildlife Resources Commission to The Nature Conservancy and is consistent with the terms of any management plans prepared for individual tracts. In addition, dedication is a condition of grant agreements for the NC Land and Water Fund, which provided funding in part or full for the Martin Marietta, Breeden, Sassafras-Gibson, Hutchinson, Buckrub, Poplin, Parsons, Rosy, Ritch, Carrington, Odom, Carpenter, Wilkes, Harmon, Thomas, Godwin 2, Usher, Womble, and Forest Investments Associate tracts. The Ecosystem Enhancement Program provided funding in part for the Forest Investments Associate tract.

The Governor and Council of State have approved the dedication of the State-owned lands hereinabove described as the Sandhills Game Land Nature Preserve to be held in trust by the Custodian for the uses and purposes expressed in the Nature Preserves Act at a meeting held in the City of _____, North Carolina, on the _____ of _____, (YEAR). (TYPE IN DATE AFTER COUNCIL OF STATE APPROVAL.)

Sincerely,
(Name)

CONSENTED AND AGREED TO:

Secretary D. Reid Wilson, Department of Natural and Cultural Resources

Cameron N. Ingram, Executive Director, Wildlife Resources Commission

THIS ALLOCATION IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. **Definitions:** As used in this Letter, the terms “natural area” and “nature preserve” have the same meaning as contained in North Carolina General Statutes 143B-135.254.
2. **Dedication:** Pursuant to North Carolina General Statutes 143B-135.264, all State-owned lands lying within the above designated area are hereby dedicated as nature preserves for the purposes provided in the Nature Preserves Act, as amended, and other applicable law, and said State-owned land shall be held, maintained, and used exclusively for said purposes.
3. **Primary Custodian:** The primary Custodian of the preserve will be the North Carolina Wildlife Resources Commission, which will be responsible for managing the preserve in accordance with State Administrative Code 07 NCAC 13H.0300 and .0400.
4. **Primary Classification:** The primary classification and purpose of the preserve will be conservation, nature education, wildlife management, hunting, fishing, trapping scientific research, passive recreation, and other recreational uses authorized by the Primary Custodian. The ecological significance of the preserve is described in Exhibit A.
5. **Management Areas:** For the purposes of management, the preserve shall be considered to consist of a Primary Area (4,742 acres), including a Primary Restoration Area (2,349 acres); a Special Management Area (275 acres); and a Buffer Area (1,198 acres), as more particularly described in Exhibit A, attached hereto and by this reference made a part hereof. The Primary Area consists essentially of the core natural area encompassing Pine/Scrub Oak Sandhill, Xeric Sandhill Scrub, Mesic Pine Flatwoods, Small Stream Swamp, Streamhead Pocosin, and Cypress-Gum Swamp natural communities, along with their known rare species occurrences.

The Primary Area is deemed by the Secretary of the North Carolina Department of Natural and Cultural Resources to qualify as an outstanding natural area under statutory criteria for nature preserve dedication (G.S. 143B-135.260) and further serves all of the public purposes for a dedicated preserve as stated in Administrative Rules 15 NCAC 12H.0301(b).

The Buffer Area, which contributes to the management and protection of the Primary Area, consists of more heavily altered forests and openings which connect and adjoin the Primary Area.

6. **Rules for Management:**
 - a. **Character of Visitor Activity:** The principal activities in the preserve shall be hunting, fishing, trapping, walking, research, and observation. These activities may be regulated by the Custodian to protect and conserve the natural values of the preserve. Activities and uses unrelated to those listed above are prohibited except as provided in this Dedication or unless necessary to carry out the purposes of the Preserves. Prohibited activities include, but are not limited to, commercial development; commercial silviculture; agriculture and grazing; gathering of plants or plant products for purposes other than approved research; the removal, disturbance, molestation, or defacement of

minerals, archaeological and natural resources; and those activities specifically restricted in these Articles. There shall be no fires, except as necessary for ecological management of the preserve, for wildfire hazard reduction to the surrounding community, or in conjunction with supervised educational activities of the Custodian, or further excepted as herein provided or otherwise expressly permitted.

- b. Consumptive Wildlife Uses: Hunting, fishing, and trapping shall be permitted on the preserve subject to regulations and management by the North Carolina Wildlife Resources Commission.
- c. Orientation and Guidance of Visitors: The Custodian reserves the right to orient and guide visitors for educational programs, scientific research, and preserve management. Exhibits, programs and printed materials may be provided by the Custodian. The Custodian may create and maintain nature trails, overlooks, boardwalks, and primitive campsites adequate to promote the permitted use of the preserve. Guardrails, fences, steps, bridges, and boardwalks may be provided when appropriate. The Custodian reserves the right to erect structures necessary to protect the preserve from unwanted or excessive visitor traffic and structures to restrict visitor access to sensitive environmental resources.
- d. Roads and Trails: New roads shall not be constructed in the Primary Area. When necessary, the Custodian may construct and maintain access limited to staff for management purposes, such as service paths for patrol, fire control, right-of-way maintenance, and other management activities. The Custodian may maintain roads presently existing within the preserve. Number and width of new paths will be minimized, and sensitive areas avoided when possible. Existing roads that occur within or form a boundary of the Primary Area may be maintained by grading of the roadbed, replacing culverts, or adding stone as needed in order to maintain the integrity of the road for vehicular use. Daylighting of roads within the Primary Area should be minimized, but may be used if necessary to maintain the condition of the road. Access management and construction will be part of the overall management planning process and will include consultation with the North Carolina Natural Heritage Program.

If an existing North Carolina Department of Transportation (“NCDOT”) road runs within or along a boundary of the Primary Area and NCDOT demonstrates a compelling need to do so, then subject to the written approval of both the Primary Custodian and the Natural Heritage Program, NCDOT may within the Primary Area use a strip of land up to fifty feet (50’) wide outside and adjacent to the road’s existing NCDOT right-of-way for the purpose of improving the NCDOT road. A strip of land approved under this provision shall not be longer than 1,000 feet long. The Primary Custodian and the Natural Heritage Program shall concur only if the proposed improvements and the associated activities will not cause significant impacts to rare species, small-patch natural communities, adjacent streams, or other Natural Heritage resource values. Rare species and small-patch natural communities at Sandhills Game Land are described in Exhibit A. The existing NCDOT roads that run within or along a boundary of the Primary Area at the time of the issuance of this letter of allocation are as follows: US Hwy 15, SR 1001, SR 1004, SR 1468, SR 1343, SR 1323, SR 1400, SR 1328, and SR 1604.

- e. Other Structures and Improvements: Buildings or facilities other than those defined in this document shall not be erected by the Custodian within the preserve, except as may be consistent with the purposes of the preserve as stated herein. Site selection shall be consistent with this dedication.
- f. Research and Collecting Permits: Any person wishing to engage in scientific research or collecting shall first secure written permission from the Custodian.
- g. Pollution and Dumping: There will be no storage or dumping of ashes, trash, garbage, hazardous substances, toxic waste, other unsightly or offensive material, or fill material, including dredge spoil, in, on, or under the preserve. No underground storage tanks may be placed within the preserve. No surface or ground waters of the preserve may have pollutants added within the preserve.
- h. Excavation: There will be no mining, drilling, removal of topsoil, sand, gravel, rock, minerals, or other material, nor any change in topography or surface hydrology of the preserve. Exceptions for ecological restoration to more natural conditions, consistent with the Management Plan, may be made in consultation with the North Carolina Natural Heritage Program.
- i. Water Level Control: The purpose of water level control shall be to maintain the Preserves' natural water regimes. Water levels that have been altered by human activities may be changed, if necessary, to restore the preserve to its natural condition. In a preserve with a long history of managed hydrology, water levels may be managed to perpetuate the ecosystems that have evolved around the hydrology. Millponds are an example of situations in which water levels have been historically managed.
- j. Bringing in Flora and Fauna: No exotic flora and no animals except leashed dogs and cats, hunting dogs as permitted in game lands, horses on trails designated for horseback riding, or animals being reintroduced shall be brought into the preserve. Any reintroduction will be of species native to the natural community and shall be done according to an approved resource management plan.
- k. Wildfire Control: Wildfires may mimic natural processes historically occurring in an ecosystem on a landscape level. When the extent of a wildfire does not threaten human life or structures, it may be allowed to burn with minimal control. If wildfire control is necessary, firebreaks may need to be established; when possible, existing roads and firebreaks will be utilized. When new firebreaks need to be created, environmentally sensitive areas will be avoided when possible. Old firebreaks that affect the natural hydrology of wetlands will be filled and allowed to revegetate. Planning of firebreak restoration should occur in consultation with the North Carolina Natural Heritage program.
- l. Disturbance of Natural Features: The cutting or removal of trees, dead or alive, or the disturbance of other natural resources is prohibited except as necessary for removal of hazards to visitors, control of disease or insect infestations that would damage or reduce the significance of the preserve, restoration after severe storm damage, trail clearance and maintenance, or for purposes of maintenance or restoration of natural communities or rare species populations as stipulated in the preserve management plan and that which is

consistent with the purposes of these Articles. Specifically, a component of the management plan, the longleaf restoration plan, will address restoration of areas (identified as Primary (Restoration) Areas in the Exhibit A map) which have been planted in dense longleaf, where off-site canopy species have been planted, or where the canopy has been cleared. Longleaf restoration will minimally focus on thinning of dense longleaf to enhance the condition of the ground layer. The longleaf restoration plan will be submitted to the Natural Heritage Program for review and approval. Subsequent modification of the longleaf restoration plan may occur through mutual consent of Wildlife Resources Commission and Natural Heritage Program staff, as additional areas in need of restoration or new methods of restoration are determined.

The following language is being included in this letter of allocation because the dedicated preserve contains habitat types which may be managed for maintenance or recruitment of colonies of the Federally Endangered Red-cockaded Woodpecker (*Dryobates borealis*). In the Recovery Plan for the Red-Cockaded Woodpecker (*Dryobates borealis*) (US Fish and Wildlife Service: Southeast Region, Atlanta, GA), a range of management actions is prescribed for this purpose. While these objectives take precedence in the preserve because of the rarity of the species involved, Primary Areas should be managed to promote the full range of natural characteristics. Management should focus on prescribed burning. If canopy thinning is needed to meet guidelines, it should be done to the minimum degree necessary, unless it is agreed that other treatment would better promote the natural multi-aged, patchy character of Longleaf Pine communities. Canopy and midstory treatments should be done in ways that minimize disturbance to the ground cover vegetation and the soil.

It is mutually understood that periodic treatment within the longleaf communities, including occasional thinning, might be necessary to facilitate fire management under a sufficiently broad range of conditions. When such a treatment is proposed, the Wildlife Resources Commission will consult with the Natural Heritage Program and The Nature Conservancy.

Salvage timber cuts which may be necessary due to natural catastrophe will be allowed in both Primary and Buffer Areas, in a manner that will contribute to the recovery of the prevailing natural conditions of the forest and in consultation with the North Carolina Natural Heritage Program.

The Primary Areas defined along streams within the Eastern Section (Forest Investments Associate Tract) that extend for 300 feet from each edge of the stream are the areas that were protected through deed restrictions required by the Ecosystem Enhancement Program. These deed restrictions are recorded in Moore County, NC, Register of Deeds, August 31, 2006, Deed Book 3091, Pages 180-184.

Site-specific plans may be developed to restore degraded wetlands where succession and accumulated organic debris have altered the hydrology and made the ponds unsuitable for amphibians. When such restoration is proposed, the Wildlife Resources Commission will consult with the Natural Heritage Program.

A Special Management Area is designated in the Eastern Section (Carrington Tract, Drowning Creek Sandhills natural area) which supports mature Longleaf Pine canopy over an herbaceous layer typical of pasture. Management of this portion of the preserve will be to maintain and restore suitable habitat for Red-cockaded Woodpeckers. Any existing buildings will be used as storage sheds and not expanded.

Military training activities occur on the Sandhills Game Land. The deed transferring land from the Department of Defense (DOD) to the State of North Carolina cites Public Law 537 (approved by the 80th Congress on May 19, 1948) as the Authority to transfer the land to the state with the condition that the DOD has the right to use the land for maneuvers. The military planning office should refer to available GIS information delineating the boundaries of Primary, Primary (Restoration), and Special Management Areas of the Dedicated Nature Preserve. Military training within those areas should be restricted to foot training and should specifically avoid any fixed activities (camping, placement of equipment, etc.) which might impact vegetation or soils.

- m. Control of Populations (natural and exotic): Any control of animal or plant populations shall be for the purpose of correcting those situations where those populations are significantly affecting natural conditions on the preserve, and in accordance with the Custodian's established regulations for hunting, trapping, or fishing of designated game animals. The Custodian may, in consultation with the North Carolina Natural Heritage Program, apply biological controls, herbicides and pesticides, and other means deemed necessary or appropriate to control or eradicate exotic or native species of plant or animal that are degrading the natural character of the preserve. Because of potential impacts on native species, no exotic flora or fauna shall be introduced into the preserve.
- n. Control of Vegetational Succession: Control of vegetational succession may be undertaken if necessary to maintain or restore a particular natural ecosystem type or to preserve endangered, threatened, rare, or other unusual species. Controls will be done in the manner that best imitates the natural forces believed responsible for maintaining the natural ecosystem type, or that minimizes unnatural effects on nontarget portions of the ecosystem. Prescribed burning is essential to some ecosystems and may be used where natural wildfire historically kept understories open and promoted herbaceous diversity.

Additionally, a transmission line right-of-way containing the same or similar special elements of natural diversity representative of the preserve generally is present in portions of the Sandhills Game Land. The Department of Natural and Cultural Resources and NC Wildlife Resources Commission, by and through the Natural Heritage Program and NC Wildlife Resources Commission, respectively, may enter into agreement(s) with the party or parties responsible for managing the right-of-way in order to ensure that the management practices of such party or parties are consistent with the conservation values associated with the preserve.

- o. Management Plan: The Primary Custodian shall be required to prepare and

submit for approval to the Secretary of the Department of Natural and Cultural Resources a management plan for the preserve. This plan shall be subject to all the provisions of this dedication and shall additionally be consistent with the management principles set forth in the North Carolina Administrative Code 07 NCAC 13H.0300 and .0400. The dedicated nature preserves will continue to be subject to other applicable regulations within NCAC Title 07, Chapter 13. Where contradictions may arise between this instrument of dedication and other management regulations, the terms of this Dedication shall take precedence.

7. **Rules for Management of the Buffer Area(s)**: Primary Area rules also apply except that additional forestry and wildlife management activities may be planned and carried out as needed. Construction and maintenance of roads, trails, and other access structures within Buffer Area(s) of the preserve will be limited to the level necessary to appropriately manage the preserve. These activities will be conducted in accordance with policy of the Primary Custodian, in addition to providing for the buffer functions in relation to the Primary Area. Buffer functions within the dedicated area may include protecting the Primary Area(s) from indirect detrimental ecological effects, providing additional area for species and ecological processes that require larger areas, and providing important successional stages and disturbance regimes and other habitat diversity for wildlife. Based on these general objectives, the following buffer functions will be addressed in the management plan.
 - a. Managing landscape level function of community type and structure. Buffer Area management may involve timber harvest and other forms of stand manipulation but will not involve forest canopy type conversion over more than limited areas, other than to restore stands to types suited for the site. Introduction of exotic species known to be invasive in natural communities will be avoided.
 - b. Maintaining habitat connectivity and continuity among Primary Areas.
 - c. Providing for habitat diversity.
 - d. Managing the needs of rare animal and plant species populations occurring within the Buffer Area.
 - e. Protecting soil and hydrologic resources and processes within the Primary Area and extending into the Buffer Area. Naturally vegetated riparian zones will be retained along streams, and watersheds of Primary Areas will be protected from hydrologic alteration.
8. **Amendment, Modification, and Termination**: Any changes to this Dedication must be made in accordance with the provisions of North Carolina General Statutes 143B-135.264, which require the approval of the Governor and the Council of State.

EXHIBIT A

**MAPS SHOWING LOCATION OF
SANDHILLS GAME LAND DEDICATED NATURE PRESERVE
NORTHERN, CENTRAL, EASTERN, SOUTHERN, AND
WESTERN SECTIONS**

EXHIBIT A

SANDHILLS GAME LAND DEDICATED NATURE PRESERVE OVERVIEW

COUNTY: Moore, Richmond, Scotland

PHYSIOGRAPHIC PROVINCE: Coastal Plain (Sandhills Region)

TOPOGRAPHIC MAP: Gibson, Hoffman, Norman, Millstone Lake, Pinebluff, Silver Hill, West End

SIZE OF AREA: ca. 6,215 acres (Primary Area 4,742 acres, including a restoration area of 2,349 acres; special management area of 275 acres; Buffer Area 1,198 acres)

OWNER/ADMINISTRATION: State of North Carolina
Wildlife Resources Commission

The Fall-line Sandhills region is incredibly important for the biodiversity of North Carolina due to the diversity of topography, wetlands and drainages that result from the sandhill formations and clay based soils. The 65,100-acre Sandhills Game Land sits prominently in the Fall-line Sandhills region (Sandhills). The Sandhills Game Land and Fort Liberty comprise the majority of the remaining intact natural Longleaf Pine forest in the North Carolina portion of the Sandhills. The Sandhills Game Land Dedicated Nature Preserve is a fraction of the larger Sandhills Game Land. In addition to extensive high-quality Longleaf Pine forests that make up the matrix habitat for the Sandhills, the natural areas of the Sandhills Game Land contain a cross-section of the natural communities that represent the diverse habitats of the Sandhills region, including Streamhead Pocosins and Seeps, Cypress-Gum Swamps, Atlantic White Cedar stands, Coastal Plain Small-Stream Swamps, and upland depressional wetlands.

The vital importance of fire in the Sandhills' Longleaf Pine ecosystem has not diminished despite changes in fire frequency due to suppression and habitat conversion over the past 200 years. Two of the most dominant species, Longleaf Pine and wiregrass, are specifically adapted for active fire regimes and thrive in frequent burn cycles. Some plants are specifically adapted to survive fire events; others tend to colonize newly burned patches. Many of the vegetative species in the Sandhills ecosystem have low reproductive rates or require fire or smoke to release seed or stimulate seed production. Furthermore, the habitat structure and species composition of Sandhills natural communities is determined by fire frequency – for some, fire suppression leads to hardwood overgrowth and decreasing levels of species richness. The ability for this natural fire regime to exist on the scale it once did is no longer possible due to the complexity of human development in the Area. Now, fire must be prescribed and managed according to standards that protect human communities while benefitting natural communities.

Drowning Creek Aquatic Habitat includes Drowning Creek and tributaries in Montgomery, Richmond, Hoke, and Scotland Counties. The Aquatic Habitat flows through many sections of Sandhills Game Land including tracts in the Northern and Eastern portions of the Dedicated Nature Preserve, ending at the confluence with Watery Branch and Buffalo Creek where the Lumber River begins. Drowning Creek is considered an Excellent example of a blackwater stream in the Sandhills Region. Two fishes endemic to the Sandhills of NC and northern SC, the Pinewoods Darter (*Etheostoma mariae*) and the Sandhills Chub (*Semotilus lumbee*), are found at many

locations in this aquatic natural area. Other rare species include Blackbanded Sunfish (*Enneacanthus chaetodon*). Terrestrial natural areas associated with the floodplains, such as Cypress-Gum Swamp and Blackwater Bottomland Hardwoods are described in the Northern and Eastern Sections descriptions.

The diverse vegetational communities and hydrologic conditions (from overwhelmingly xeric to aquatic) provide habitat for many wildlife species. Numerous rare or endangered animal species are resident, including one of the state's largest populations of Red-cockaded Woodpecker, as well as some of the best locations known for Bachman's sparrow (*Peucaea aestivalis*), Pine Barrens Treefrog (*Hyla andersonii*), Carolina Gopher Frog (*Rana capito*), Eastern Tiger Salamander (*Ambystoma tigrinum tigrinum*), Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Southern Hognose Snake (*Heterodon simus*), and endemic Sandhills Chub (*Semotilus lumbee*).

Several species of rare plants are present, including Endangered Michaux's Sumac (*Rhus michauxii*), Threatened Branched Gerardia (*Agalinis virgata*), Special Concern Sandhills Milk-vetch (*Astragalus michauxii*), Threatened Soft Milk-pea (*Galactia mollis*), and Threatened Quillwort Arrowhead (*Sagittaria isoetiformis*), to name a few. Many other animals and plants characteristic of and sometimes restricted to the Sandhills region are well represented.

The Sandhills Game Land is a large collection of parcels that occurs over a multi-county area, and not a contiguous preserve. The dedicated nature preserve descriptions are organized into five geographic clusters (north, central, south, east, and west), and further organized within those section by the natural areas designated by the NC Natural Heritage Program.

MANAGEMENT AND USE: The multiple tracts will be managed to provide habitat for a wide array of wildlife species, for natural community conservation, for passive recreation, and to be used by hunters as a game land. Other activities such as bird-watching, nature study, and military training are expected to take place as well. Regular prescribed burning is essential to maintaining the natural communities in the uplands and along the riparian corridors within both the Streamhead Pocosin and margins of Sandhill Streamhead Swamp natural communities. The Preserve is also managed for foraging and nesting habitat for the Federally Endangered Red-cockaded Woodpecker (*Dryobates borealis*).

SANDHILLS GAME LAND DEDICATED NATURE PRESERVE

NORTHERN SECTION

DESCRIPTION

DESCRIPTION: The Northern section of the dedicated nature preserve lies west of Pinebluff, Aberdeen, and Pinehurst. This section of the preserve lies within the watershed of the Drowning Creek Aquatic Habitat, including Drowning Creek and its tributaries Horse Creek and Deep Creek. Some of the Preserve in this area lies in the floodplain of Drowning Creek and Horse Creek and is included within the Upper Drowning Creek Swamp Forest, Horse Creek Longleaf Pine Forest, and the Block Y Streamhead Pocosin and Sandhills natural areas. The northern section has a landscape typical of the Sandhills Region, with nearly flat upland areas of coarse sandy soils alternating with moderately sloped ravines having sand underlain or mixed with clay. Drainages along the creeks support saturated, mucky bottomland.

Block Y Streamhead Pocosins and Sandhills Natural Area

Thomas Tract (107 acres): The relatively flat upland areas contain Xeric Sandhill Scrub (Typic Subtype) with an open canopy dominated by Longleaf Pines of varying ages. The average size of Longleaf Pine is 12 inches DBH, with the largest being approximately 20 inches and estimated to be perhaps 100 years old. The understory is dominated by Turkey Oak (*Quercus laevis*), which are dense in some areas. Wiregrass cover is extensive throughout and is very dense in patches. Other species in the understory include Bluejack Oak (*Quercus incana*), Sand Post Oak (*Q. margaretiae*), and Blackjack Oak (*Q. marilandica*), with Winged Sumac (*Rhus copallina*), and Sassafras (*Sassafras albidum*) in the shrub layer. The herbaceous layer is very diverse with species such as Grassleaf Roseling (*Cuthbertia graminea*), Wireplant (*Stipulicida setacea*), Virginia Goat's-rue (*Tephrosia virginica*), Spurge-nettle (*Cnidioscolus stimulosus*), Wild Ipecac (*Euphorbia ipecacuanhae*), Licorice Goldenrod (*Solidago odora*), and Hairy Wild Indigo (*Baptisia cinerea*). Watch List Lupine Scurfpea (*Orbexilum lupinellum*) occurs along the roadside on the northwestern boundary.

A natural depression supports a Pine/Scrub Oak Sandhill (Blackjack Subtype) community. This natural community has mature Longleaf Pine, with some of the largest Longleaf Pines up to 20-23 inches DBH. The mid-story is somewhat dense and dominated by Blackjack Oak (*Quercus marilandica*), blue jack oak (*Q. incana*), Turkey Oak (*Q. laevis*), Water Oak (*Q. nigra*), mockernut hickory (*Carya tomentosa*), dogwood (*Cornus florida*), and American Holly (*Ilex opaca*). Wiregrass is present and is dense in very small patches but is generally sparse throughout this area. Other herbs noted include *Tephrosia virginica*, *Solidago odora*, and *Euphorbia ipecacuanhae*. This area also supports a population of Carolina Violets (*Viola villosa*), a state Watch List species.

Many rare species occur on the game lands within the immediate vicinity of Block Y Streamhead Pocosins and Sandhills, such as the federally endangered Michaux's Sumac (*Rhus michauxii*). Rare animals documented on the tract include the Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Southern Hognose Snake (*Heterodon simus*), Carolina Pygmy Rattlesnake (*Sistrurus miliarius miliarius*), and Frosted Elf (*Callophrys irus*). And rare animals found within the vicinity include the Bachman's Sparrow (*Peucaea aestivalis*), Timber Rattlesnake (*Crotalus horridus*), and, on the watchlist, Fox Squirrel (*Sciurus niger*). The high-quality natural communities on the tract provide important habitat for these animals.

The area in the southern portion of the tract was previously a pine plantation and was timbered. This area has sparsely scattered trees, primarily mature Longleaf Pine trees that were left after timber harvest, with few Loblolly Pines. There is some evidence of soil disturbance remaining.

Young hardwood saplings are beginning to establish in this area. Herbaceous species include Coastal Dog-fennel (*Eupatorium compositifolium*), Fireweed (*Erechtites hieraciifolius*), Desmodium (*Desmodium ciliare*), Broomsedge (*Andropogon virginica*), Silvery Lespedeza (*Lespedeza hirta*), Narrow-leaved Lespedeza (*Lespedeza angustifolia*), Twisted-leaf White-topped Aster (*Sericocarpus tortifolius*), and Elephant's Foot (*Elephantopus tomentosus*). No wiregrass remains in this area. A slight drainage running off the southern property boundary consists of dense Loblolly Pines that were not timbered.

BOUNDARY JUSTIFICATION: At Block Y Streamhead Pocosins and Sandhills, the portions of the Thomas tract with good quality natural communities are designated as Primary Areas. The Primary (Restoration) Areas include those where community structure is in poor condition or has been significantly altered by past land use but retains natural character. This includes the area in the southeastern corner and the recent timbered area in the southern portion because of the mature Longleaf Pine trees that remain and the potential for Red-cockaded Woodpecker (*Dryobates borealis*) foraging and nesting habitat. Two large agricultural fields which occur within the tract are excluded from the dedication.

MANAGEMENT AND USE: The Thomas tract near Block Y Streamhead Pocosins and Sandhills will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed burning is essential to maintaining the natural communities in the Primary Areas. The Pine/Scrub Oak Sandhill (Blackjack Subtype) natural community between the pond off-site and the large agricultural field shows evidence of greater fire suppression with a very thick duff layer, perhaps one foot thick in some places. This area should initially have low intensity winter burns to prevent damage to existing vegetation. In the restoration area in the southeast corner, prescribed fire will be needed to return the vegetation to more natural conditions. When natural structure is restored, prescribed fire alone will be sufficient to manage these areas as primary natural areas. In the recent timbered area in the southern portion, the herbaceous layer is sparse enough that there may not be enough fuel to carry fire throughout the habitat. If this area is to be managed mainly for Red-cockaded Woodpecker habitat, and a prescribed fire regime cannot be established, mowing or grazing is recommended.

Horse Creek Longleaf Pine Forest Natural Area

Rosy Tracts (510 acres): The upland parts of the site support Longleaf Pine-dominated communities, primarily Pine/Scrub Oak Sandhill along with some Xeric Sandhill Scrub. The two communities together support clusters of Red-cockaded Woodpeckers (*Dryobates borealis*) and their foraging habitat. Small bands of Streamhead Pocosin communities are present along the small drainages, while swamp forests predominate along the larger mucky bottomland of Horse Creek. This section of Horse Creek is part of the Lumber River Drowning Creek Aquatic Habitat, which contains rare aquatic species including Sandhills Chub (*Semotilus lumbee*) and Pinewoods Darter (*Etheostoma mariae*).

The Pine/Scrub Oak Sandhill community has an open canopy of Longleaf Pine (*Pinus palustris*), with a midstory of Turkey Oak (*Quercus laevis*), Blackjack Oak (*Quercus marilandica*), and Bluejack Oak (*Quercus incana*). The ground cover is dominated by Wiregrass (*Aristida stricta*), but contains a diversity of other herbs, particularly grasses, composites, and legumes.

The Xeric Sandhill Scrub (Typic Subtype) community has a similar open canopy of Longleaf Pine, and midstory dominated strongly by Turkey Oak, sometimes along with Bluejack Oak. The ground cover is dominated by wiregrass, with a variety of other herbs.

Both Longleaf Pine communities vary in structure throughout the area. Substantial parts of the Primary Area have a moderate and somewhat patchy cover typical of natural conditions. Sizeable portions were selectively cut some years ago and have sparser canopies, while a few areas have a

denser canopy. The restoration areas include large portions with unnaturally dense even-aged canopies, and large areas where the canopy was removed. The midstory varies in structure through the site. In the areas of more open canopy, the oaks are often tall and dense, and suppress the ground cover. Watch List species include Virginia Marbleseed (*Onosmodium virginianum*) and Sandhills Bean (*Phaseolus sinuatus*). Under denser canopy and where fire has been more effective, the oaks are reduced to shrub-sized sprouts or are sparse. Streamhead Pocosin communities have open canopies dominated by Pond Pine (*Pinus serotina*), with dense thickets of evergreen shrubs beneath. Watch list species observed in the Streamhead Pocosin habitat include Brownish Beaksedge (*Rhynchospora leptocarpa*).

BOUNDARY JUSTIFICATION: The Primary Area boundary around Horse Creek Longleaf Pine Forest (Rosy tracts) is drawn to encompass the area that is substantially in natural condition. In uplands, these are the stands with a well-developed canopy and with wiregrass-dominated ground cover of at least moderate density. It also includes the riparian area along Horse Creek and its fringe of Streamhead Pocosin. Several small, previously disturbed areas are included within the Primary Area boundary: a gas line right-of-way, an old pond bed, several forest roads, and an old home site. The Primary (Restoration) Areas include those where community structure has been significantly altered by past land use but retains enough natural character to be readily restorable. This includes the very dense Longleaf Pine areas, the heavily cut sandhill areas, and the moist pine areas along the lower slopes. The Buffer Area includes more heavily altered areas that are embedded in the Primary Area.

MANAGEMENT AND USE: Management plans for the Horse Creek Longleaf Pine Forest are detailed in the Horse Creek Management Plan. In general, the site will be managed for protection of natural features, for Red-cockaded Woodpecker maintenance and enhancement, and for public hunting and passive recreation. Prescribed burning is essential to maintaining and restoring natural ecological conditions. Hand cutting of midstory oaks and local canopy thinning may be needed as minor treatments to improve natural conditions in some of these areas, and thinning may be done to meet guidelines for Red-cockaded Woodpecker management.

In the restoration areas, prescribed fire and silvicultural treatments will be needed to return the vegetation to more natural conditions. When natural structure is restored, prescribed fire alone will be sufficient to manage these areas as primary natural areas.

Derby Road Sandhills Natural Area

Parsons Tract (168 acres): This tract lies in a disjunct parcel of the Sandhills Game Land between Naked and Drowning Creeks, near the northwestern edge of the game land. Most of the flatter uplands are occupied by abandoned fields, and several abandoned homes and sheds are in these fields or along their margins.

The remaining part of the site is forested. Most of the uplands are Xeric Sandhill Scrub (Typic Subtype), with a canopy composed almost completely of Longleaf Pines (*Pinus palustris*), and the understory in most places contains a dense stand of Turkey Oaks (*Quercus laevis*). Some of the lower slopes are more mesic and contain Pine/Scrub Oak Sandhill (Blackjack Oak Subtype), with Blackjack Oak (*Q. marilandica*) mixed with the Turkey Oak. One of these lower slopes/ecotones contains a large population of the Watch List Carolina Violet (*Viola villosa*), known in the state from only a few Sandhills sites. The forested uplands on the tract had been used in the past for selective timber harvest and pine straw production. The forests also have been fire-suppressed for decades. The areas included in the Primary Area are those that still have a substantial canopy of Longleaf Pine. Those included in the Buffer Area have had most of the pine canopy removed.

Wetlands occur along the two streams whose headwaters begin on the tract, and which converge at the southern edge of the tract. A Streamhead Pocosin natural community dominates the wetlands. Pond Pine (*Pinus serotina*), Tulip Poplar (*Liriodendron tulipifera*), and Red Maple (*Acer*

rubrum) dominate the canopy. Dense evergreen shrubs and small trees are the visual dominants of these pocosins; common species include Red Bay (*Persea borbonia*), Big Gallberry (*Ilex coriacea*), and Shining Fetterbush (*Lyonia lucida*). The Eastern Fox Squirrel (*Sciurus niger*) has been observed on several occasions on the Parsons tract. Rare species include Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Bachman's Sparrow (*Peucaea aestivalis*), and Endangered Michaux's Sumac (*Rhus michauxii*).

BOUNDARY JUSTIFICATION: The Primary Area boundary of the Parsons Tract is drawn to encompass the most intact stands of Longleaf Pine, those most removed from the fields and home sites, in the south-central part of the tract. Most of the wetland communities along the drainages are included in the Primary Area, but the man-made pond and the area immediately adjacent to it, are placed in the Buffer Area. The Buffer Area includes sandhill communities in poorer condition. This includes areas with little Longleaf Pine remaining and areas where the oak understory has become dense to the detriment of the herbaceous ground cover. Excluded from dedication are the fields and all homes and sheds, as well as a small finger of woods (full of exotic plants) just southwest of the northern cluster of buildings along SR 1003.

MANAGEMENT AND USE: Management plans are detailed in the Parsons Tract Management Plan. In general, the site will be managed for protection of natural features, for Red-cockaded Woodpecker enhancement, and for public hunting and passive recreation. Prescribed burning is essential to maintaining and restoring natural ecological conditions. Hand cutting of midstory oaks and local canopy thinning may be needed as minor treatments to improve natural conditions in some of these areas and may be done to meet guidelines for Red-cockaded Woodpecker management. Other Red-cockaded Woodpecker management, such as creation of artificial cavities, may also occur.

Upper Drowning Creek Swamp Forest Natural Area

Forest Investments Associates (526 acres): The floodplain of Drowning Creek supports a Coastal Plain Small Stream Swamp natural community dominated by Swamp Tupelo (*Nyssa biflora*), Red Maple (*Acer rubrum*), and Sweetgum (*Liquidambar styraciflua*). American Holly (*Ilex opaca*), Titi (*Cyrilla racemiflora*), and scattered Atlantic White Cedar (*Chamaecyparis thyoides*) occur in the understory, generally along with dense shrubs, Switchcane (*Arundinaria tecta*) and greenbriers (*Smilax laurifolia*, *Smilax rotundifolia*). The forest is mostly middle-aged, with scattered older trees up to 3 feet dbh. A small clearing in the floodplain supports a small population of Georgia Indigo-bush (*Amorpha georgiana*), a state Endangered plant species. This is one of the few populations occurring outside of Fort Liberty. This population needs regular prescribed fire to help reduce competition from other vegetation. A healthy population of the rare Pinewoods Darter (*Etheostoma mariae*) inhabit this portion of Drowning Creek, which is part of the Lumber River Drowning Creek Aquatic Habitat.

A few tributary creeks drain the adjacent uplands, supporting a typical Streamhead Pocosin plant community, much of it fire suppressed. Swamp tupelo, Red Maple, Sweetbay Magnolia (*Magnolia virginiana*), Sourwood (*Oxydendrum arboreum*), and some Atlantic White Cedar occur there.

Uplands rise nearly 100 feet from Drowning Creek. Extensive examples of clay hilltop/hardpan soils occur here, representative of soil types which are relatively scarce in the Sandhills region. These hardpans are somewhat linear in shape. One extends in a northeast-southwest direction just east of a private home/inholding. The steep 5-6' slope to the west of an inholding exhibits some "paint rock" and contains shrubs often associated with pocosin wetlands, such as Titi, Inkberry (*Ilex glabra*), Red Bay (*Persea palustris*), and Evergreen Bayberry (*Morella caroliniana*). The xeric sandy and gravelly flats on top of the hardpan contain stunted pines – both Longleaf and Loblolly – and open, stunted Turkey Oaks (*Quercus laevis*), but with herbs of deep sands, such as Pine-barren Sandwort (*Minuartia caroliniana*) and Wireplant (*Stipulicida setacea*). Trailing

Arbutus (Epigaea repens) is abundant on the hardpan ridge. Additional hardpans lie along tributary streams to Drowning Creek. One east-west hardpan at the northern end of the tract contains an abundance of *Nestronia (Nestronia umbellula)*, a clonal shrub that occurs by the thousands here. This species is on the watch list. Farther west and southwest along another hardpan is a stand of Mountain Laurel (*Kalmia latifolia*), uncommon in this region.

Formerly, much of these uplands were covered with Longleaf Pine (*Pinus palustris*) and oaks, but they now support young Loblolly Pine plantations, often mixed with longleaf. Native Wiregrass (*Aristida stricta*), in combination with plant species typically associated with xeric examples of longleaf communities in the Sandhills, is intact over many acres, but needs prescribed burn management to fully restore the herb layer. The northeastern corner of the Forest Investments Associates tract has plantations of Longleaf Pine, and the herb layer is more diverse in this area. Restoration of Longleaf Pine communities on these uplands is likely to result in restoration of a relatively uncommon community type, due to the underlying soils.

BOUNDARY JUSTIFICATIONS: The entire floodplain of Drowning Creek is designated as part of the Primary Area, as it lies within the Upper Drowning Creek Natural Area and protects the Drowning Creek Aquatic Habitat, even though much is not in mature condition. The Primary Area also includes eastward extending fingers along several tributary streams that extend to Block Y Pocosin and Sandhills and protect the Streamhead Pocosin or Coastal Plain Small Stream Swamp vegetation. The Primary Area also extends upslope into the Loblolly Pine plantation on the northern ridge, in order to protect the population of *Nestronia* from damage if the shading overstory of Loblolly Pines was removed. Primary (Restoration) Areas include the entire Longleaf Pine plantation in the northeastern corner and Loblolly Pine plantations with intact native herbaceous layers; while the canopy layer consists of off-site species such as loblolly or longleaf with plantation density and structure, the restorability of longleaf forest is evaluated based on the condition of the herbaceous layer.

MANAGEMENT AND USE: The Forest Investments Associates tract in the Upper Drowning Creek Swamp Forest Natural Area will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed burning is essential to maintaining and restoring natural ecological conditions. In the Primary (Restoration) areas, prescribed fire and silvicultural treatments will be needed to return the vegetation to more natural conditions. When natural structure is restored, prescribed fire alone will be sufficient to manage these areas as primary natural areas.

SANDHILLS GAME LAND DEDICATED NATURE PRESERVE
WESTERN SECTION
DESCRIPTION

Rocky Fork Creek and Sandhills Natural Area

Hutchinson tract (61 acres): This tract is located on the south side of Fire Tower Road, approximately 4.1 air miles east of Ellerbe. Paradise Creek and Rocky Fork Creek both bisect the tract just upstream from their confluence. The dedicated land contains the riparian corridor of Paradise Creek and Rocky Fork Creek along with the Sandhill Streamhead Swamp natural community and their tributaries and about half of the uplands within the natural area. The majority of the uplands in the dedicated area support restoration quality Pine/Scrub Oak Sandhill (Mesic Transition Subtype). The canopy is dominated by relatively young Longleaf Pine (*Pinus palustris*) with an average dbh of 7", with a few Loblolly Pines (*Pinus taeda*). The understory is dominated by Turkey Oak (*Quercus laevis*) with Water Oak (*Quercus nigra*) being sub-dominant. Other species present in include American Holly (*Ilex opaca*), Sassafras (*Sassafras albidum*), Sand Post Oak (*Quercus margaretiae*), Blackjack Oak (*Quercus marilandica*), and some Shining Fetterbush (*Lyonia lucida*). Carolina Jasmine (*Gelsemium sempervirens*) is an abundant vine, often covering small shrubs. Wiregrass (*Aristida stricta*) ranges from sparse to moderate in abundance with Splitbeard Bluestem (*Andropogon ternarius*) common. Other species present in the herb layer include, Dog Fennel (*Eupatorium capillifolium*), Eastern Bracken Fern (*Pteridium latiusculum*), Winged Sumac (*Rhus copallinum*), Poison Oak (*Toxicodendron pubescens*), and Southern Blueberry (*Vaccinium tenellum*).

The remaining uplands in the dedicated area support restoration quality Streamhead Pocosin. In this example, the canopy is dominated by Loblolly Pine (*Pinus taeda*) while Sweetgum (*Liquidambar styraciflua*) is sub-dominant and Red Maple (*Acer rubrum*) is also present. Water Oak (*Quercus nigra*) is dominant, and Sourwood (*Oxydendrum arboreum*) is co-dominant in the understory. Shining Fetterbush (*Lyonia lucida*) is dominant in the shrub layer with Coastal Sweet-pepperbush (*Clethra alnifolia*) and Inkberry (*Ilex glabra*) being abundant. Titi (*Cyrilla racemiflora*), American Holly (*Ilex opaca*), Winterberry (*Ilex verticillata*), Coastal Doghobble (*Leucothoe axillaris*), Sweetbay (*Magnolia virginiana*), and Sassafras (*Sassafras albidum*) are also present in the shrub layer. The herb layer is sparse but includes several species: Switch Cane (*Arundinaria tecta*), Pipewort (*Eriocaulon* sp.), Roundleaf Thoroughwort (*Eupatorium rotundifolium*), American Royal Fern (*Osmunda spectabilis*), and Cinnamon Fern (*Osmundastrum cinnamomeum*).

The corridor of Rocky Fork Creek supports a good quality Sandhill Streamhead Swamp with a canopy dominated by Tulip Poplar (*Liriodendron tulipifera*) with Sweetgum (*Liquidambar styraciflua*) sub-dominant in the canopy of this natural community. The canopy has an average tree diameter (dbh) of 8 – 12" with the biggest tree reaching about 18". The canopy consists of Red Maple (*Acer rubrum*), Loblolly Pine (*Pinus taeda*), and a few Pond Pines (*Pinus serotina*).

Swamp Black Gum (*Nyssa biflora*) is abundant in certain parts of the understory along with less abundant Sourwood (*Oxydendrum arboreum*) and other young canopy species. The shrub layer consists of Titi (*Cyrilla racemiflora*), Coastal Sweet-pepperbush (*Clethra alnifolia*), American Holly (*Ilex opaca*), Shining Fetterbush (*Lyonia lucida*), Sweetbay (*Magnolia virginiana*), and Poison Sumac (*Toxicodendron vernix*).

Three rare animal species are known to inhabit the tract. Red-cockaded Woodpeckers (*Dryobates borealis*) are in the Longleaf Pine uplands, Pine Barrens Treefrogs (*Hyla andersonii*) are known from a powerline right-of-way that crosses the Rocky Fork Creek, and Sandhills Chub (*Semotilus lumbee*) are known from the Rocky Fork Creek.

BOUNDARY JUSTIFICATIONS: Portions of the tract with good quality natural communities are designated as Primary Areas. The riparian corridor along Paradise Creek and Rocky Fork Creek are designated as Primary, along with the entire Sandhill Streamhead Swamp natural community that occurs along those two creeks. The area that contains both the Pine/Scrub Oak Sandhill (Mesic Transition Subtype) and Streamhead Pocosin natural communities, is designated as Primary (Restoration). Four distinct upland areas on this tract are designated as buffer; these areas lack natural canopy species, herb layers are not intact, and they have significant signs of disturbance stemming from past timber practices.

MANAGEMENT AND USE: The Hutchinson tract in the Rocky Fork Creek and Sandhills natural area will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed burning is essential to maintaining and restoring natural ecological conditions. In the Primary (Restoration) Areas, prescribed fire and silvicultural treatments will be needed to return the vegetation to more natural conditions. When natural structure is restored, prescribed fire alone will be sufficient to manage these areas as primary natural areas.

SANDHILLS GAME LAND DEDICATED NATURE PRESERVE

EASTERN SECTION

DESCRIPTION

The Eastern Section of the Sandhills Game Land Dedicated Nature Preserve lies in Scotland County south of Camp Mackall along US 15 (Aberdeen Road) and Drowning Creek and is composed of sandhills and floodplain associated with Drowning Creek and its tributaries.

Aberdeen Road Sandhills Natural Area

Carpenter Tract (245 acres): This tract occupies a hilltop on the west side of US 15 which slopes down to Little Muddy Creek, a blackwater stream. Most of the tract supports a Xeric Sandhill Scrub community, which was clearcut several years ago. Turkey oak (*Quercus laevis*) sprouts are abundant, along with some Bluejack Oak (*Q. incana*). Wiregrass (*Aristida stricta*) is abundant and herbaceous plants frequent. Despite the general lack of fire in the past decades, herb diversity is good. Longleaf Pine (*Pinus palustris*) regeneration is good around the margins of the property, but sparse in central portions. Lupine Scurfpea (*Orbexilum lupinellum*) and Narrowleaf Dawnflower (*Stylisma patens* var. *angustifolia*), uncommon plants in North Carolina, occur here.

One branch of Little Muddy Creek supports a Streamhead Pocosin community of Tulip Poplar (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), Swamp Black Gum (*Nyssa sylvatica*), and Sweetbay Magnolia (*Magnolia virginiana*). A well-developed shrub-Switchcane (*Arundinaria tecta*) layer occurs beneath, as well as beds of sphagnum moss and Cinnamon Fern and Virginia Chain-fern. Two watch list plants are found here: Screwstem (*Bartonia paniculata*) and Brownish Beaksedge (*Rhynchospora leptocarpa*).

The forest along Little Muddy Creek is a more mature Streamhead Pocosin community, with trees up to 80 feet tall. In addition to the above trees, Pond Pine (*P. serotina*) is co-dominant, many exceeding one-foot diameter. The pocosin community is broad, but the shrubby ecotone is narrow.

Rare species include Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Southern Hognose Snake (*Heterodon simus*), Coachwhip (*Masticophis flagellum*), Timber Rattlesnake (*Crotalus horridus*), Pine Barrens Treefrog (*Hyla andersonii*), Pigmy Rattlesnake (*Sistrurus miliarius miliarius*), Pinewoods Darter (*Etheostoma mariae*), Sandhills Milkvetch (*Astragalus michauxii*), and Endangered Michaux's Sumac (*Rhus michauxii*).

BOUNDARY JUSTIFICATION: The Primary Area boundary is drawn to include the Streamhead Pocosin and ecotone along Little Muddy Creek. The Primary (Restoration) Area includes the upland areas where the natural community is in poorer condition.

MANAGEMENT AND USE: In 2009 or 2010 the tract was burned for the first time in many years. Burn management should continue every 3-4 years, including the shrubby ecotone to Little Muddy Creek.

Drowning Creek/Quewhiffle Creek Floodplain Natural Area

Martin Marietta Tract (536 acres): This tract lies along the west side of Drowning Creek at the confluence with Quewhiffle Creek, extending 1.75 miles downstream from NC 15-501. The eastern boundary of the tract is the creek itself. The northwest boundary of the tract fronts on 15-501, opposite Camp Mackall (U.S. Army); the southern and western boundaries front on Sandhills Game Land (NCWRC).

The Martin Marietta tract occupies the broad floodplain of Drowning Creek plus, apparently, a

small sliver of upland adjacent to NC 15-501. Two small creeks enter from the west: Beaver Dam Creek at the northwestern part of the property and Little Muddy Creek at the southern boundary. Two man-made ponds lie just north of Little Muddy Creek.

Most of the floodplain supports a mature Blackwater Bottomland Hardwoods (High Subtype) community, dominated by Laurel Oak (*Quercus laurifolia*), Red Maple (*Acer rubrum*), Loblolly Pine (*Pinus taeda*), Swamp Black Gum (*Nyssa biflora*), and Sweetgum (*Liquidambar styraciflua*) over dense thickets of shrubs, vines, and ferns. Understory trees include Sweetbay Magnolia (*Magnolia virginiana*), American Holly (*Ilex opaca*), and Titi (*Cyrilla racemiflora*). Laurel-leaf greenbrier (*Smilax laurifolia*) and Crossvine (*Bignonia capreolata*) are common climbers. Fetterbush (*Lyonia lucida*), Toothed Gallberry (*Ilex coriacea*), and Switchcane (*Arundinaria tecta*) are common in the shrub layer.

Cypress-Gum Swamp (Blackwater Subtype) is present locally along the river channel and in a few backup areas. Dominants are Pond Cypress (*Taxodium ascendens*), Swamp Black Gum, Red Maple, and Sweetgum. Trees of both community types are 100 or more feet tall and roughly 18-24 inches in diameter; the largest individuals reach 3 feet diameter. A large population of Watch List Sarvis Holly (*Ilex amelanchier*) is present, primarily on the river banks but also extending into the forest along backup channels.

Pond Pine Woodland (Typic Subtype) is present between the Blackwater Bottomland Hardwoods (High Subtype) and upland Longleaf Pine communities. Pond Pine (*Pinus serotina*) is the dominant canopy species, along with Loblolly Pine (*Pinus taeda*). Red Maple (*Acer rubrum*) is increasing due to absence of fire. The understory includes Titi (*Cyrilla racemiflora*), Sweetbay Magnolia (*Magnolia virginiana*), and Red Bay (*Persea palustris*) among a great variety of pocosin shrubs. Honey-cups (*Zenobia pulverulenta*) is locally common along the wetter ecotones and Sheep-laurel (*Kalmia carolina*) is locally numerous in ecotones.

Along the western periphery of the tract the forest is less often flooded by Drowning Creek. The forest here has more mixed composition and includes a few groves of Atlantic White Cedar (*Chamaecyparis thyoides*), several of which reach 90 feet tall and nearly two feet diameter.

Rare species documented on the tract include Red-cockaded Woodpecker (*Dryobates borealis*), Pine Barrens Treefrog (*Hyla andersonii*), Timber Rattlesnake (*Crotalus horridus*), Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Silvery Sedge (*Carex disjuncta*). The Federally Endangered Michaux's Sumac (*Rhus michauxii*) occurs at the northwestern edge of the tract. A population of American Alligator (*Alligator mississippiensis*) occurs along this section of Drowning Creek and in borrow pits along the boundary of this tract. The stretch of Drowning Creek that flows along the boundary of the property contains rare aquatic species, including Pinewoods Darter (*Etheostoma mariae*), Sandhills Chub (*Semotilus lumbee*), and Blackbanded Sunfish (*Enneacanthus chaetodon*), and is part of the natural area designated as Drowning Creek Aquatic Habitat.

Wilkes Tract (114 acres): This tract is located along Drowning Creek, northeast of Hill Creek Road. It is nearly surrounded by natural areas and state Game Lands. This tract extends from the Drowning Creek/Quewhiffle Creek Floodplain natural area up into the Drowning Creek Sandhills natural area.

On the eastern section of the Wilkes Tract, the Drowning Creek floodplain has an average width of about half a mile on the Scotland County side. Most of the floodplain is Blackwater Bottomland Hardwoods (High Subtype). The dominant tree is Red Maple (*Acer rubrum*), though some portions contain considerable Laurel Oak (*Quercus laurifolia*). Other canopy trees include Tulip Poplar

(*Liriodendron tulipifera*), Swamp Tupelo (*Nyssa biflora*), Sweetgum (*Liquidambar styraciflua*), and pond-cypress (*Taxodium ascendens*). Atlantic White Cedar (*Chamaecyparis thyoides*) is scattered and some Pond Pine (*Pinus serotina*) and Loblolly Pine (*P. taeda*) are also present. The understory is represented by broadleaf evergreens such as American Holly (*Ilex opaca*), Red Bay (*Persea palustris*), and Sweetbay Magnolia (*Magnolia virginiana*). The shrub layer is dense to very dense. Titi (*Cyrilla racemiflora*), Toothed Gallberry (*Ilex coriacea*), and Shining Fetterbush (*Lyonia lucida*) are common, as is Laurel-leaf Greenbrier (*Smilax laurifolia*). Some Switchcane (*Arundinaria tecta*) is present locally. At the drier end of the floodplain, dense stands of Coastal Doghobble (*Leucothoe axillaris*) are common. Ferns such as Cinnamon Fern (*Osmunda cinnamomea*) are common in small openings.

Inland from the river floodplain, Pond Pine Woodland dominates. Pond pine is the main canopy species, though Red Maple appears to be succeeding in the absence of fire. The shrub layer is very dense and “pocosin-like”; it includes shrubs as above plus Inkberry (*Ilex glabra*), Sweet Pepperbush (*Clethra alnifolia*), Swamp Azalea (*Rhododendron viscosum*), and Carolina Sheeplauder (*Kalmia carolina*). Honeycups (*Zenobia pulverulenta*) is locally common along the wetter ecotones. Slightly elevated, sandier soils support Wet Pine Flatwoods dominated by Longleaf Pine (*Pinus palustris*), Pond Pine, and scattered Sweetbay. Shrubs are moderate to dense. Wiregrass (*Aristida stricta*) dominates the ground layer, with scattered patches of Watch List Carolina Dropseed (*Sporobolus pinetorum*).

The vegetation immediately along Drowning Creek is a not well-developed example of a Cypress-Gum Swamp (Blackwater Subtype). However, it does contain a good population of the Watch List Sarvis Holly (*Ilex amelanchier*), which is found typically along the banks of the creek.

Three rare fish species occur within Drowning Creek: Black Banded Sunfish (*Enneacanthus chaetodon*), Pinewoods Darter (*Etheostoma mariae*), and the Sandhills Chub (*Semotilus lumbee*). This stretch of Drowning Creek is part of the natural area designated as Drowning Creek Aquatic Habitat.

To the west, the floodplain grades up to upland sandhills within the Naomi Church Sandhills natural area. This area contains fire-suppressed sandhills, with the typical vegetation of Longleaf Pine (*Pinus palustris*) over a subcanopy of Turkey Oak (*Quercus laevis*) and Bluejack Oak (*Q. incana*), among others.

BOUNDARY JUSTIFICATION: The Primary Area boundary is drawn along property lines; this includes the natural communities that remain in good condition.

MANAGEMENT AND USE: The dedicated portions of Drowning Creek/Quewhiffle Creek Floodplain Natural Area will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed burning is essential to maintaining and restoring natural ecological conditions. In the restoration areas, prescribed fire and silvicultural treatments will be needed to return the vegetation to more natural conditions. When natural structure is restored, prescribed fire alone will be sufficient to manage these areas as primary natural areas.

Drowning Creek Sandhills

Carrington tract (723 acres): This tract is located between US 15-501(Aberdeen Road) and Turnpike Road (SR 1412), and south of Peach Orchard Road (SR 1132), on the south side of Drowning Creek Sandhills natural area. More than half of the Carrington tract is an abandoned horse pasture, with scattered, mature Longleaf Pines (*Pinus palustris*). Other habitats on the tract include fair to good stands of typical Sandhills vegetation (dominated by Longleaf Pine), regenerating early successional stands, open pastures and fields (with no trees), and several ponds. Though there are no known clusters of the Federally Endangered Red-cockaded Woodpecker

(*Dryobates borealis*) on the tracts, such clusters exist on the adjacent Sandhills Game Land to the north, and birds are known to forage in the mature pines on the Carrington property. Two state listed animals occur on this tract: Bachman's Sparrow (*Peucaea aestivalis*) and Southern Hognose Snake (*Heterodon simus*).

The widely scattered pines, even though in an abandoned pasture, provide good to excellent habitat for a variety of birds. Several pairs of the State Special Concern Loggerhead Shrike (*Lanius ludovicianus*) are present, especially at the edges of this habitat at the field ecotones. Brown-headed Nuthatch (*Sitta pusilla*), Summer Tanager (*Piranga rubra*), Eastern Wood-pewee (*Contopus virens*), and Orchard Oriole (*Icterus spurius*) have breeding populations in the open stand of pines.

More natural sandhills vegetation on the tract contains several Watch List plant species. A boggy area near a stream contains the round-leaved goldenrod (*Solidago salicina*), whereas the Virginia Marbledseed (*Onosmodium virginianum*) is found on more mesic slopes.

BOUNDARY JUSTIFICATIONS: Seventy-five to eighty percent of the tract is dedicated as either Primary (Restoration) Area or Special Management Area. The forested areas with reasonably intact herbaceous layers are designated as Primary (Restoration) Areas. These include a small portion in the south-central section of the tract containing fire-suppressed sandhills vegetation and natural communities, and a small area of natural pocosin at the southern end. Also included are portions of the tract on the northeastern, southeastern, and southwestern corners which contain early succession or mid-succession pine stands. However, for the most part, the herb layer is still reasonably intact in these stands.

Close to half of the tract contains unusual, human-influenced habitat probably not represented elsewhere on the Sandhills Game Land. This habitat is the open stand of mature Longleaf Pines over pasture grasses – the former horse pastures. Because the natural herb layer is completely gone, as are the shrub and hardwood understory layers, this habitat likely cannot be restored to a natural system, but the canopy layer should be managed and restored for Red-cockaded Woodpecker habitat. This habitat is designated as a Special Management Area.

The remainder of the tract, encompassing five large treeless areas managed as either cropland or pasture, is dedicated as buffer. While they do not retain natural community composition or structure, they connect areas which are restorable longleaf communities or Special Management Area managed for Red-cockaded Woodpecker. Several ponds also lie within these open lands.

MANAGEMENT AND USE: The tract will be managed to provide habitat for wildlife species, to be used by hunters as a game land (addition to Sandhills Game Land). The presence of extensive fields provides excellent habitat for dove hunting. Also, the ponds provide considerable opportunities for fishing. The tract will be managed for foraging and eventual nesting for the Red-cockaded Woodpecker. Bird-watching and other types of nature study are also suitable activities on the tract, especially in the very open stands of Longleaf Pines and the margins of the fields.

The areas designated as Primary (Restoration) Areas can be managed by use of prescribed burns every few years, though some timber harvest of Loblolly Pines may be needed. On the other hand, maintenance of the pastures with scattered mature Longleaf Pines probably cannot be done through fire because the pasture grasses might not be capable, or there might not be enough fuel, to carry fire through the habitat. Because this habitat is to be managed mainly for the open, mature pine condition for Red-cockaded Woodpecker, and because the natural herb layer has already been destroyed and likely cannot return on its own, mowing or grazing are recommended within the Special Management Area.

Rich Tract (417 acres): This tract is located between US 15-501(Aberdeen Road) and Turnpike Road (SR 1412), and north of Peach Orchard Road (SR 1132) east of the Deercroft neighborhood.

This section of the dedicated area is a rectangular parcel of land, roughly 1.3 miles long (north to south) by 0.5 mile wide (east to west), which connects two sections of the Sandhills Game Land that are not included in the Dedicated Nature Preserve. Nearly all of the uplands have been utilized for timber production and were planted in both Loblolly Pine (*Pinus taeda*) and Longleaf Pine (*P. palustris*) plantations, prior to being clearcut in the early 2000's. Thus, practically the entire tract except for wetlands exists in earlier successional stages, where the vegetation is 3-10' tall. Most of the uplands are quite sandy, and they still retain a good variety of common or widespread herb species typical of sandhills natural communities. The Watch List eastern prairie-clover (*Dalea pinnata*) is present in such a sandy clearcut opening. These uplands support stands of sapling scrub oaks, predominantly Turkey Oak (*Quercus laevis*) and Bluejack Oak (*Q. incana*); some seedling/sapling Longleaf Pines are present. The uplands also contain an unusually embedded depression where oaks and other tree species are suppressed by either wetness or unusual soil conditions.

In the northeastern corner of the tract, a dammed pond on Hills Creek supports state Threatened Southern White Beaksedge (*Rhynchospora macra*) and Special Concern Robbins' Spikerush (*Eleocharis robbinsii*). The Significantly Rare Pine Barren Boneset (*Eupatorium resinosum*) occurs upstream, along a small tributary of Hills Creek.

Below a small man-made lake is a mature Small Stream Swamp natural community, with Pond Pine (*Pinus serotina*) and Tuliptree (*Liriodendron tulipifera*) as dominant canopy trees. The swamp has a good variety of pocosin shrubs and small tree species. In a small roadbed clearing just below the dam of the lake is a small population of the Significantly Rare Pine Barren Boneset (*Eupatorium resinosum*). The stream on which the lake has been built flows north to empty into Hills Creek, and just below this confluence is another small lake, probably man-made, with a very extensive marsh and much floating vegetation.

The tract contains at least two rare animal species. Bachman's sparrow (*Peucaea aestivalis*), a State Special Concern bird, nests in the adjacent sections of game land where there is a lush grass layer and scattered mature Longleaf Pines, though it likely does not presently breed on the Rich tract. The Federally Endangered Red-cockaded Woodpecker (*Dryobates borealis*) inhabits a small area of this tract.

BOUNDARY JUSTIFICATIONS: The mature forest lying along Hills Creek and the tributary to the base of the lake are included as Primary Areas. Though it is unclear if the pond on Hills Creek is man-made or a natural beaver pond, the marsh and associated areas of open water are significant, contain rare plant species, and are considered part of the Primary Area. The portions of the tract included as Primary (Restoration) Areas are those where the ground cover is diverse and contains species characteristic of sandhills habitats; Longleaf Pines are either present as seedlings, or Longleaf Pines can be planted. Such sites, mainly on the sandiest soils on the tract, can be restored back to typical sandhills natural communities. Much of the uplands on the tract contain either Loblolly Pine saplings and seedlings, or the herb and shrub layers contain many weedy species characteristics of abandoned fields and other disturbed settings. These areas typically contain more clay and loam and less sand, or they may also have been former homesites or other disturbed habitat in previous decades. Recovery of such land to a Longleaf Pine-dominated sandhills would be difficult, and such areas are designated as Buffer Area. The man-made lake, two abandoned cabins along the western shore of the lake, and other land on the west side of the lake are not proposed for dedication.

MANAGEMENT AND USE: The tract will be managed to provide habitat for a wide array of wildlife species and to be used by hunters as a game land. Because it provides a connector between existing game land parcels, the tract will be important as a movement corridor for deer and other animals, especially as the land to the west has already been developed as a golf course and residential area. The tract is also expected to be managed for eventual foraging and nesting habitat

for the Federally Endangered Red-cockaded Woodpecker (*Dryobates borealis*), which nests on the game land tracts both to the north and south. The presence of a lake will allow the Wildlife Resources Commission to manage for wood duck, and the lake is expected to be used for fishing. Other activities such as bird-watching and nature study are expected to take place, as well.

It is noted that there is a potential source of nutrient enrichment to streams within the nature preserve. To the west of the Rich tract and upstream, there is a pond within a golf course. Fertilization of the surrounding golf course could enter the pond and subsequently the stream through surface runoff. Efforts should be made to encourage the golf course management to minimize this effect through proper land management.

Usher tract (123 acres): This tract is located on both sides (east and west) of US 15-501 (Aberdeen Road), around the Scotland County headquarters of the NC Forest Service and just south of the Deercroft Golf Course. To the east of US 15-501, the tract is within Drowning Creek Sandhills; to the west, the tract is in Aberdeen Road Sandhills. The uplands are in good condition and appear to be utilized for sparse straw-raking in the past, given that the herbaceous layer is still relatively intact. A wildfire broke out around the radio tower located on the southern side of the property that is located east of US 15-501. Plowing is evident and fresh fire scars are visible. The wildfire opened up the canopy and grasses flourished. The entire tract has a Longleaf Pine (*Pinus palustris*) canopy and a mix of the usual Xeric Sandhill Scrub (Typic Subtype) species.

The Xeric Sandhill Scrub (Typic Subtype) natural community occurs in both the western and eastern sections of this tract. Longleaf Pine (*Pinus palustris*) is dominant in the canopy with Loblolly Pine (*Pinus taeda*) occasionally present. One small area in the eastern section has a few Shortleaf Pines (*Pinus echinata*). Little shrub cover is present, but Turkey Oaks (*Quercus laevis*) are abundant with some Bluejack Oaks (*Quercus incana*) present. Herbs are similar in both sections, with Wiregrass (*Aristida stricta*), Carolina Wild Indigo (*Baptisia cinerea*), Blue Sandhill Lupine (*Lupinus diffusus*), and Silkgrass (*Pityopsis* sp -likely a mix of *Pityopsis aspera* var. *adenolepis* and *Pityopsis microcephala*) being common.

In the Aberdeen Road Sandhills Natural Area, west of US 15-501, the start of the Sandhill Streamhead Swamp natural community occurs at the southern boundary and likely extends off this tract. Tulip Poplar (*Liriodendron tulipifera*) and Red Maple (*Acer rubrum*) are common in the canopy and midstory. Other midstory trees include Black Gum (*Nyssa biflora*) and Longleaf Pine (*Pinus palustris*). The shrub layer is dense with Sweet Pepperbush (*Clethra alnifolia*), Gallberry (*Ilex glabra*), and other species. A few herbs are present which include Cinnamon Fern (*Osmundastrum cinnamomeum*), Common Rush (*Juncus effusus*), and Netted Chain Fern (*Lorinseria areolata*).

No known rare animals or plants occur on the tract but adjacent portions of the Sandhill Game Land harbor several rare species, including Bachman's Sparrow (*Peucaea aestivalis*), Red-cockaded Woodpecker (*Dryobates borealis*), Carolina Pigmy Rattlesnake (*Sistrurus miliarius miliarius*), Eastern Coachwhip (*Coluber flagellum flagellum*), Pine Barrens Treefrog (*Hyla andersonii*), Meske's Skipper (*Hesperia meskei*), and Sandhills Milk-vetch (*Astragalus michauxii*)

BOUNDARY JUSTIFICATION: The Primary Area boundary is drawn along property lines; this includes the natural communities that remain in good condition. A homesite is excluded from the dedication.

MANAGEMENT AND USE: The Usher tract will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed fire is essential to maintaining natural ecological conditions.

SANDHILLS GAME LAND DEDICATED NATURE PRESERVE

CENTRAL SECTION

DESCRIPTION

LOCATION: The Central Section is located south of Camp Mackall Military Reservation, East of US 1 and west of US 15 (Aberdeen Road). The nature preserve includes sandhills, drainages, and floodplains associated with Gum Swamp Creek, Juniper Creek, and Jordan Creek.

Bog Hole and Uplands Natural Area

Block B (28 acres): This area is located around an upland depression east of Towers Fork. The site consists of a shallow seasonal pond that provides habitat for a large cluster of rare plant and animal species, and the surrounding uplands. This natural wetland represents one of the most extensive, well-developed wetland communities of its type and serves many amphibians as a breeding site. The extremely high diversity of amphibians contributes to the high ecological significance of the site. Dr. Henry Wilbur (Duke University) recorded as many as seventeen frog species here during a single night, (hence the other name the natural area is commonly known by, "Seventeen Frog Pond"). Rare reptile and amphibians associated with the Bog Hole natural area include Carolina Gopher Frog (*Rana capito*), Pine Barrens Treefrog (*Hyla andersonii*), Eastern Tiger Salamander (*Ambystoma tigrinum*), Eastern Chicken Turtle (*Deirochelys reticularia reticularia*), Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Oak Toad (*Anaxyrus quercicus*), Eastern Coachwhip (*Coluber flagellum flagellum*), and Carolina Pigmy Rattlesnake (*Sistrurus miliarius miliarius*). The unusual grassland habitat which rims the pond attracts wintering birds not common in the state. The dominant grass, Southern Cutgrass (*Leersia hexandra*), is an unusual species in the Sandhills, and is nowhere common in the state. An intermediate zone is dominated by Wrinkled Jointgrass (*Mnesithea rugosa*), a watch list species. The surrounding Longleaf Pine stands are in good to excellent condition, and provide habitat for the rare animals. Few woody species have invaded the margins of the shallow pond indicating that the pond community is in a stable rather than a successional condition and resulting in two rare natural communities -- Small Depression Pond (Cutgrass Prairie Subtype) and Small Depression Drawdown Meadow (Typic Subtype). Fire and varying water levels are probably the mechanisms preventing invasion by woody species. Rare plants known from the natural area include Branched Gerardia (*Agalinis virgata*), Soft Milk-pea (*Galactia mollis*), Branched Hedge-hyssop (*Gratiola ramosa*), Shrubby Seedbox (*Ludwigia suffruticosa*), Mudbank Crown Grass (*Paspalum dissectum*), Quillwort Arrowhead (*Sagittaria isoetiformis*), Sandhills Milkvetch (*Astragalus michauxii*), and One-flower Hardscale (*Sclerolepis uniflora*).

BOUNDARY JUSTIFICATIONS: The dedicated nature preserve boundary is drawn to include the pond and an ecotonal buffer 100 meters wide. This boundary does not include the upland habitat for amphibians -- some of which have an extensive home range -- but this is provided for by the surrounding Sandhills Game Land.

MANAGEMENT AND USE: The dedicated area will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. The site also plays an important role in ongoing research projects and as a teaching tool for the state's biologists. Periodic prescribed burning and monitoring hydrology are recommended.

Gum Swamp Creek and Sandhills

Harmon Tract (239 acres): This tract lies approximately 1 mile south of US 1, on the west side of Sneads Grove Road (SR 1001). Gum Swamp Creek bisects the tract just downstream of Pine Lake. The dedicated land contains the riparian corridor of Gum Swamp Creek and its tributaries and much of the uplands on the tract. The majority of uplands in the dedicated area support good

quality Pine/Scrub Oak Sandhill (Blackjack Subtype). The canopy is dominated by relatively young Longleaf Pines (*Pinus palustris*) with an average diameter of 5-8", with a mixture of primarily Blackjack Oak (*Quercus marilandica*), with Sand Post Oak (*Q. margaretiae*), Turkey Oak (*Q. laevis*), and Bluejack Oak (*Q. incana*) scattered throughout. The herb layer is dominated by dense Wiregrass (*Aristida stricta*) and a very diverse herbaceous groundcover.

A Pine/Scrub Oak Sandhill (Mesic Transition Subtype) community occurs in a shallow swale in the eastern portion of the tract. This natural community is dominated primarily by Longleaf Pines with an understory primarily of Horse-sugar (*Symplocos tinctoria*), Sweetbay (*Magnolia virginiana*), and Muscadine (*Muscadinia rotundifolia*). Wiregrass, along with typical sandhill legume species and other herbs, are dense in much of this natural community.

The corridor of Gum Swamp Creek supports a mature Sandhill Streamhead Swamp dominated by mature Tulip Poplar (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), and Pond Pine (*Pinus serotina*) with some American Holly (*Ilex opaca*) and Red Bay (*Persea palustris*) in the understory. Beavers have dammed sections of this creek near the center of the tract and the tributaries in the northwestern portion of the tract. The beaver activity has created a series of Coastal Plain Semipermanent Impoundment (Typic Marsh Subtype) communities, with one small open water area that is Coastal Plain Semipermanent Impoundment (Open Water Subtype), just above a large beaver dam. The edges of the impoundment are dominated by a sparse canopy of Swamp Tupelo (*Nyssa biflora*) and Red Maple (*Acer rubrum*). Herbaceous species observed within edges of the beaver pond near the dam include barnyard grass (*Echinochloa muricata*), seedbox (*Ludwigia sp.*), and water lily (*Nymphaea odorata*). The rare Pinewoods Darter (*Etheostoma mariae*) occurs within Gum Swamp Creek.

Downstream of the beaver dam is a shifting mosaic of Streamhead Pocosin, Sandhill Streamhead Swamp, and beaver impoundments. The Streamhead Pocosin is dominated by mature hardwoods including Tulip Poplar, Red Maple, and Swamp Tupelo, with a subcanopy of Sweet Bay, Titi (*Cyrilla racemiflora*), and Red Bay, and a dense shrub layer dominated by Sweet Pepper Bush (*Clethra alnifolia*), Big Gallberry (*Ilex coriacea*), and Shining Fetterbush (*Lyonia lucida*), with Blaspheme Vine (*Smilax laurifolia*) tangled throughout.

Two rare snake species occur on this tract. The Timber Rattlesnake (*Crotalus horridus*) prefers habitats within bottomland and floodplain areas and within heavily forested uplands. The Southern Hognose Snake (*Heterodon simus*) prefers upland Longleaf Pine sandhill/scrub oak communities.

BOUNDARY JUSTIFICATIONS: The portions of the tract with good quality natural communities are designated as Primary Areas. The uplands along the northern boundary and the western quarter of the tract are designated as Buffer Areas. The northern area is adjacent to a pine plantation and contains dense Loblolly Pine. Few young Longleaf Pines are scattered within this area with few small patches of wiregrass, however, there is generally very little herbaceous understory. The Buffer Area in the western quarter of the tract contains a canopy dominated with Loblolly Pine trees with few longleaf scattered throughout, but essentially no wiregrass and very sparse herbaceous groundcover. This area is very fire suppressed.

MANAGEMENT AND USE: The tract will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Regular prescribed burning is essential to maintaining the natural communities in the uplands of the Primary Areas. Very few invasive exotic species were noted in the interior of the tract; however, some tree-of-heaven (*Ailanthus altissima*) and Chinese wisteria (*Wisteria chinensis*) occur near the roadside along the eastern boundary. Invasive species should be removed and managed to avoid further spreading into the natural areas.

Buck Rub tract (106 acres): This tract lies approximately 3/4 mile south of US 1, on the east side of Marston / Sneads Grove Road (SR 1001). Gum Swamp Creek bisects the tract just upstream of

Pine Lake. The dedicated land contains the riparian corridor of Gum Swamp Creek and some of the uplands on the tract. The majority of the uplands in the dedicated area support restoration quality Pine/Scrub Oak Sandhill (Blackjack Subtype). This example lacks a canopy as it is regenerating from a timber harvest, with young Longleaf Pine (*Pinus palustris*) that are at the tallest, approximately 8 feet tall. Loblolly Pine (*Pinus taeda*) has colonized much of this community to the extent that Longleaf and Loblolly are at an approximately even ratio in some portions of the tract, but Longleaf Pine (*P. palustris*) is still dominant through most of the uplands. Scattered throughout this community is a mix of sandhill oaks, including Bluejack Oak (*Quercus incana*), Sand Post Oak (*Quercus margaretiae*), with Turkey Oak (*Quercus laevis*) and Blackjack Oak (*Quercus marilandica*) being co-dominant. The herb layer is dominated by Wiregrass (*Aristida stricta*), which varies from sparse to moderate coverage. Other species in the herb layer include bluestem (*Andropogon* sp.), Split Beard Grass (*Andropogon ternarius*), Dog Fennel (*Eupatorium capillifolium*), Sandhills Chaffhead (*Carphephorus bellidifolius*), Prickly-pear Cactus (*Opuntia* sp.), and patches of Southern Blueberry (*Vaccinium tenellum*).

The corridor of Gum Swamp Creek supports a mature Streamhead Pocosin dominated by mature Pond Pine (*Pinus serotina*), with some Red Maple (*Acer rubrum*). Other canopy species include Tulip-Poplar (*Liriodendron tulipifera*) and Sweetgum (*Liquidambar styraciflua*). Water Oak (*Quercus nigra*) are present in the understory. The shrub layer is dense in the open portions of the community and is dominated by Big Gallberry (*Ilex coriacea*) and Southern Sweet Bay (*Magnolia virginiana*). Little Gallberry (*Ilex glabra*) is abundant with other shrubs including Shining Fetterbush (*Lyonia lucida*) and Titi (*Cyrilla racemiflora*). The herb layer is largely concentrated along a small stream, where Switch Cane (*Arundinaria tecta*) is abundant and Threeway Sedge (*Dulichium arundinaceum*), Pipewort (*Eriocaulon* sp.), Eastern Bracken (*Pteridium latiusculum*), Meadow-beauty (*Rhexia* sp.), and Yellow-eyed Grass (*Xyris* sp.) are also present. Another small example of Streamhead Pocosin is found toward the eastern side of the tract and is located along either an unnamed creek or natural seep. This smaller example was heavily altered and disturbed during the timber harvest that took place on this tract, and is considered restoration quality; the habitat would benefit greatly from prescribed fire.

North of the Streamhead Pocosin and within the same corridor of Gum Swamp Creek is a restoration quality Sandhill Streamhead Swamp natural community. The canopy in this example is dominated by Tulip Poplar (*Liriodendron tulipifera*) and Red Maple (*Acer rubrum*). The understory is dominated by Swamp Black Gum (*Nyssa biflora*) and includes some Pond Pine (*Pinus serotina*). The shrub layer is diverse and includes Titi (*Cyrilla racemiflora*), Big Gallberry (*Ilex coriacea*), Shining Fetterbush (*Lyonia lucida*), Southern Sweet Bay (*Magnolia virginiana*), Black Willow (*Salix nigra*), Sassafras (*Sassafras albidum*), and Poison Sumac (*Toxicodendron vernix*).

BOUNDARY JUSTIFICATIONS: The portions of the tract with good-quality natural communities are designated as Primary Areas, along with the riparian zones of creeks per NC Land and Water Fund standards for dedication. The Streamhead Pocosin natural community is designated as Primary while the remainder of the tract, which includes both the Pine/Scrub Oak Sandhill (Blackjack Subtype), Sandhill Streamhead Swamp, and the small example of a Streamhead Pocosin natural communities are designated as Primary (Restoration).

MANAGEMENT AND USE: The tract will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Regular prescribed burning is essential to maintaining the natural communities in the uplands and along the riparian corridor within both the Streamhead Pocosin and margins of Sandhill Streamhead Swamp natural communities. Very few invasive exotic species were noted in the interior of the tract; however, one tree-of-heaven (*Ailanthus altissima*) specimen was observed within the small example of a

Streamhead Pocosin. Invasive species should be removed and managed to avoid further spreading into the natural areas.

Jordan Creek Sandhills, East Prong Juniper Creek and Wilkes Branch Sandhills and Pocosins

Sassafras-Gibson tract (2,100 acres) is a large tract that has been divided into five parcels that are all near or adjacent to Jordan Creek, approximately 6.2 air miles south of Hoffman. The tract is east of Old Laurel Hill Road, north of Cliff Gibson Road, and along the east and west sides of Hoffman Road. The nature preserve includes primary, buffer, and restoration areas that span from Jordan Creek up to Old Laurel Road Sandhills on the west and Wilkes Branch Sandhills on the east. The dedicated area contains five natural communities which include, Sandhill Streamhead Swamp, Streamhead Pocosin, Xeric Sandhill Scrub (Typic Subtype), Streamhead Atlantic White Cedar Forest, and Pine/Scrub Oak Sandhill (Blackjack Subtype). Special Concern Bachman's Sparrow (*Peucaea aestivalis*) is found here in open Longleaf Pine forests and old fields.

The two upland natural communities occur along and within a matrix of pine plantations. The Xeric Sandhill Scrub (Typic Subtype) community is the larger and occurs on more than one parcel. The canopy is dominated by mixed aged Longleaf Pine (*Pinus palustris*) with an average diameter (dbh) of 10 – 11" and an understory with scattered oaks with Turkey Oak (*Quercus laevis*) dominant. Wiregrass (*Aristida stricta*) is dominant in the herb layer, and other abundant species include Spurge-nettle (*Cnidoscolus stimulosus*), Coastal Plain Dwarf Iris (*Iris verna*), Smooth Trailing Lespedeza (*Lespedeza repens*), Carolina Ipecac (*Euphorbia ipecacuanhae*), Kidney-leaf Rosin-weed (*Silphium compositum*), and Licorice Goldenrod (*Solidago odora*). The example of Pine/Scrub Oak Sandhill (Blackjack Subtype) is found in a forested matrix with the Xeric Sandhill Scrub (Typic Subtype). The canopy is dominated by mature Longleaf Pine (*Pinus palustris*) but with Blackjack Oak (*Quercus marilandica*) dominant in the understory. Both Sand Post Oak (*Quercus margaretiae*) and Mockernut Hickory (*Carya tomentosa*) are also present in the understory. Abundant shrubs include Sassafras (*Sassafras albidum*) and Dwarf Huckleberry (*Gaylussacia dumosa*). Wiregrass (*Aristida stricta*) is dominant in a few patches with Bracken Fern (*Pteridium latiusculum*).

Jordan Creek flows south along the margins of three parcels and supports two natural communities: Sandhill Streamhead Swamp and Streamhead Atlantic White Cedar Forest. This Sandhill Streamhead Swamp natural community is in good condition and is relatively large, extending for approximately 130 acres. The canopy is dominated by Tulip Poplar (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), Black Gum (*Nyssa biflora*) with a few Pond Pine (*Pinus serotina*), with an average dbh of 10 inches. Larger canopy trees are between 16 – 22 inches dbh. The shrub layer in this community is diverse, well developed, and includes Sparkleberry (*Vaccinium arboreum*), Big Gallberry (*Ilex coriacea*), Titi (*Cyrilla racemiflora*), and Staggerbush (*Lyonia mariana*). The herb layer is also diverse and includes Sandhills Iris (*Iris verna*), Virginia Chainfern (*Anchistea virginica*), Woodland Coreopsis (*Coreopsis major*), Yellow-eyed Grass (*Xyris* sp.), Bracken Fern (*Pteridium latiusculum*), and others. The rare Pine Barrens Treefrog (*Hyla andersonii*) is found here. This Sandhills Streamhead Swamp transitions into Streamhead Atlantic White Cedar Forest downstream on Jordan Creek. This example of a Streamhead Atlantic White Cedar Forest has a canopy that consists of Atlantic White Cedar (*Chamaecyparis thyoides*) and Pond Pine (*Pinus serotina*). The canopy consists of mature trees and this good quality natural community is considered large, extending for approximately 50 acres.

Another example of a Sandhills Streamhead Swamp community occurs west of Hoffman Road. This example of a Sandhills Streamhead Swamp is small in size and has a canopy that consists of Water Oak (*Quercus nigra*), Tulip Poplar (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), and Black Gum (*Nyssa biflora*). Switch Cane (*Arundinaria tecta*) and Horse Sugar (*Symplocos tinctoria*) are abundant, along with Sweet Bay (*Magnolia virginiana*), Shining Fetterbush (*Lyonia*

lucida) and Highbush Blueberry (*Vaccinium formosum*). Herbs include Soft Rush (*Juncus effusus*) and Fibrous-rooted Sedge (*Carex communis*). Directly downstream of this natural community is a Streamhead Pocosin, which has a canopy dominated by Pond Pine (*Pinus serotina*), Tulip Poplar (*Liriodendron tulipifera*), and Red Maple (*Acer rubrum*). Shrubs within this community include Shining Fetterbush (*Lyonia lucida*), Sweet Pepperbush (*Clethra alnifolia*), Swamp Bay (*Persea palustris*), Titi (*Cyrilla racemiflora*), and Big Gallberry (*Ilex coriacea*). Herbs include Sandhills Heartleaf (*Hexastylis sorrei*), Bracken Fern (*Pteridium latiusculum*), and Orange Milkwort (*Polygala lutea*).

Additional rare species include Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Southern Hognose Snake (*Heterodon simus*), Eastern Coachwhip (*Coluber flagellum flagellum*), Carolina Pygmy Rattlesnake (*Sistrurus miliarius miliarius*), Pine Barrens Treefrog (*Hyla andersonii*), Southern Chorus frog (*Pseudacris nigrita*), Reversed Roadside Skipper (*Amblyscirtes reversa*), Brenda's Hypagyrtis Moth (*Hypagyrtis brendae*), and Sandhills Milkvetch (*Astragalus michauxii*).

BOUNDARY JUSTIFICATIONS: The portions of the tract with good quality natural communities are designated as Primary Areas. The riparian corridor along Jordan Creek and Juniper Creek are designated as Primary, along with the entire Sandhill Streamhead Swamp, Streamhead Atlantic White Cedar Forest, and Streamhead Pocosin natural communities that occur along these two creeks. Areas that have been managed but retain some natural character, including herbaceous ground cover, are included as Primary (Restoration). Several upland areas are designated as Buffer Areas; these areas lack natural canopy species and intact herb layers, and have significant signs of disturbance due to past timber practices.

MANAGEMENT AND USE: The tract will be managed to provide habitat for wildlife species, for rare plant conservation, for passive recreation, and to be used by hunters as a game land. Regular prescribed burning is essential to maintaining and/or restoring the natural communities in the uplands, as well as along the riparian corridor within both the Streamhead Pocosin and margins of Sandhill Streamhead Swamp natural communities. No exotic species were noted during 2016-17 dedication inventory.

Kinney Cameron Lake and Tributaries Natural Area

Odom tract (261 acres): This tract lies about a mile east of the village of Marston and US 1, bounded on its southwestern side by Marston Road (SR 1346). It is upstream of Kinney Cameron Lake and is surrounded by the Sandhills Game Land.

The tract can be divided into two portions: the natural streamhead and the highly disturbed pine upland. The streamhead occurs along a tributary of Kinney Cameron Lake and supports a plant community typical of the Sandhills region. Canopy trees include Tulip Poplar (*Liriodendron tulipifera*), Swamp Black Gum (*Nyssa biflora*), Pond Pine (*Pinus serotina*), and Red Maple (*Acer rubrum*). Below is a moderate to dense shrub layer of Sweet Pepperbush (*Clethra alnifolia*), Fetterbush (*Lyonia lucida*), Dangleberry (*Gaylussacia frondosa*) and others, along with Cinnamon Fern (*Osmundastrum cinnamomea*). This community is in good condition.

Originally the Odom Tract uplands supported Xeric Sandhill Scrub, but was largely converted to a plantation of Slash Pine (*Pinus elliottii*) and Loblolly Pine (*P. taeda*), mixed with native Longleaf Pine (*P. palustris*). Fire was excluded for decades and pinestraw was raked annually, virtually eliminating the Wiregrass (*Aristida stricta*) groundcover. Over a third of the tract, Water Oak (*Quercus nigra*) and Black Cherry (*Prunus serotina*) have invaded the pinelands. Sandhills Golden-aster (*Pityopsis pinifolia*), a native but weedy plant, is abundant. In the central portion of the tract is a semi-natural community of Longleaf Pine, Turkey Oak (*Q. laevis*) and Blackjack Oak (*Q. marilandica*), with several native grasses and wildflowers but lacking wiregrass and with poor pine regeneration.

Red-cockaded Woodpecker (*Dryobates borealis*), Northern Pinesnake (*Pituophis melanoleucus melanoleucus*), Eastern Coachwhip (*Coluber flagellum flagellum*), Carolina Pygmy Rattlesnake (*Sistrurus miliarius miliarius*), Southern Hognose (*Heterodon simus*), and Bachman's Sparrow (*Peucaea aestivalis*) are present in the Primary and Primary (Restoration) Areas.

BOUNDARY JUSTIFICATION: The Primary Area boundary is drawn to include the natural community that remains in good condition along the streamhead. The Primary (Restoration) Area includes all uplands. Pine plantations are included, because they harbor some remnant Longleaf Pine and provide habitat for rare animal species.

MANAGEMENT AND USE: The tract will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Since 2009, fire has been reintroduced to the tract and has had a positive effect on herbaceous plant diversity and number. The goal for Odom should be to restore Longleaf Pine and the scrub oaks to dominance, over a cover of wiregrass and other ground-layer natives. In the process, offsite pines may be harvested.

Jordan Creek Floodplain

Godwin II tract (45 acres): This tract is located between Cliff Gibson and Sneads Grove Roads, just north of the junction. Jordan Creek flows south along the eastern boundary of this tract and then crosses Cliff Gibson Road.

The uplands are considered Xeric Sandhill Scrub (Typic Subtype) and along Jordan Creek two natural communities are present -- Streamhead Atlantic White Cedar Forest and Sandhill Streamhead Swamp. No records of rare animals or plants are on the tract but just offsite is a record for the rare Brenda's Hypagyrtis Moth (*Hypagyrtis brendae*), which is likely to be present within the Primary Area on the tract as well.

The uplands are typical Xeric Sandhill Scrub (Typic Subtype) with planted Longleaf Pine (*Pinus palustris*) at about 16 years (planted in ~2008). Turkey Oak (*Quercus laevis*) is dominant in the shrub layer, with Persimmon (*Diospyros virginiana*) abundant. Blackjack Oak (*Quercus marilandica*) and Bluejack Oak (*Quercus incana*) are present but in lower quantities. Herbs include Wiregrass (*Aristida stricta*), Small Dwarf Blueberry (*Vaccinium tenellum*), Poison Oak (*Toxicodendron pubescens*), and Wire-plant (*Stipulicida setacea*).

The bottomlands along Jordan Creek support two natural communities – Streamhead Atlantic White Cedar Forest and Sandhill Streamhead Swamp. The Streamhead Atlantic White Cedar Forest Natural Community has a canopy dominated by Atlantic White Cedar (*Chamaecyparis thyoides*), with few Pond Pine (*Pinus serotina*) and Loblolly Pine (*Pinus taeda*) present. The Sandhill Streamhead Pocosin has a canopy consisting of Black Gum (*Nyssa biflora*) and Red Maple (*Acer rubrum*) with some Tulip-poplar (*Liriodendron tulipifera*) and Loblolly Pine (*Pinus taeda*) present. Shrubs and understory in both are similar with Shining Fetterbush (*Lyonia lucida*) and Big Gallberry (*Ilex coriacea*) abundant.

BOUNDARY JUSTIFICATION: The Primary Area boundary is drawn to include natural communities that remain in good condition along Jordan Creek and areas within 100-foot of Jordan Creek. Primary (Restoration) Areas include all uplands and some transitional bottomlands, including a small streamhead, that are limited in their natural condition. The upland areas on this tract, including the Xeric Sandhill Scrub, are within the Primary (Restoration) Area.

MANAGEMENT AND USE: The Godwin II tract within Jordan Creek Floodplain Natural Area will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed fire is essential to maintaining and restoring natural ecological conditions.

SANDHILLS GAME LAND DEDICATED NATURE PRESERVE

SOUTHERN SECTION

DESCRIPTION

Crawford Lake and Sandhills

Breeden Tract (106 acres): This section of the dedicated nature preserve lies near the southern end of the Sandhills Game Land in Scotland County on the north side of McFarland Road and west of Crawford Lake Road. Upper Beaverdam Creek forms the eastern boundary of the tract. It includes limited areas of flat sandy uplands and more extensive areas of moderate side slopes, along with mucky wetlands along Upper Beaverdam Creek. The section supports natural communities typical of the Sandhills Region. Drier uplands in the southwestern part of the tract contain a Xeric Sandhill Scrub community dominated by Longleaf Pine (*Pinus palustris*) and Turkey Oak (*Quercus laevis*). Most of the remainder of the uplands consists of slightly more mesic sandhills vegetation – a Pine/Scrub Oak Sandhill community. Here, Longleaf Pine is mixed with some Loblolly Pine (*P. taeda*) in the canopy, and the understory contains much more Blackjack Oak (*Q. marilandica*) and Sand Post Oak (*Q. margaretiae*) than found in the Xeric Sandhill Scrub. Long-term fire suppression and pine straw raking have reduced plant and animal diversity in these communities, but substantial natural character remains.

The wetlands on the tract consist mainly of Coastal Plain Semipermanent Impoundment communities in beaver ponds along Upper Beaverdam Creek along the eastern boundary of the tract. There is some open water and a considerable number of dead trees in the ponds. Various wildlife, including wood ducks, turtles, and woodpeckers, use the open water and dead trees for foraging and nesting. The other wetlands on the tract are Streamhead Pocosins, some of which line the upper margin of the beaver pond and others of which line the several creeks on the tract. Dense evergreen shrub thickets are typical of these pocosins, and a scattering of moderate to large Atlantic White Cedars (*Chamaecyparis thyoides*) stand tall over the pocosin shrubs.

A man-made pond, about 5 acres in size lies, in the center of the tract.

No rare species known from the tract, though no surveys have been conducted during the growing season. There are several clusters of Red-cockaded Woodpeckers (*Dryobates borealis*), at least one of which is active, within a mile of the site. The stands of Longleaf Pine on the Breeden tract likely provide foraging habitat for this Federally Endangered bird, though there is no evidence of nesting trees on the property. Nonetheless, with prescribed burning and some timber thinning (pines and/or scrub oaks), the habitat can be improved for the woodpeckers and perhaps other rare species as well. Special Concern Pinewoods Darter (*Etheostoma mariae*) has been reported from Upper Beaverdam creek as recently as 1999, but has not been confirmed in recent years.

BOUNDARY JUSTIFICATIONS: The entire tract is included in the Primary Area, except for the man-made pond and a narrow buffer around the pond. This includes the upland sandhill communities and the Streamhead Pocosins and beaver pond. The pond and a 25-foot influence zone around it are dedicated as a Buffer Area.

MANAGEMENT AND USE: Management plans are detailed in the Breeden Tract Management Plan. In general, the site will be managed for protection of natural features, for Red-cockaded Woodpecker habitat enhancement, and for public hunting and passive recreation. Prescribed burning is essential to maintaining and restoring natural ecological conditions. Hand-cutting of midstory oaks and canopy thinning may be needed to improve natural conditions in some of these areas and may be done to meet guidelines for Red-cockaded Woodpecker management. Other Red-cockaded Woodpecker management, such as creation of artificial cavities, may also occur.

Poplin tract (142 acres): This property is located approximately 3 miles south of US 177, and on the west side of Marks Creek Church Road. A small pond on the Crawford Branch borders the Poplin tract to the south. The dedicated area contains the riparian corridor of Crawford Branch and much of the uplands on the tract.

About half of the uplands in the dedicated area support good quality Pine/Scrub Oak Sandhill (Blackjack Subtype). The canopy is dominated by relatively young Longleaf Pine (*Pinus palustris*) with an average diameter of 9". The understory is sparse in this example, but it contains a mixture of Blackjack Oak (*Quercus marilandica*), with Sand Post Oak (*Quercus margaretiae*), Turkey Oak (*Quercus laevis*), and Bluejack Oak (*Quercus incana*). The herb layer is dominated by dense Wiregrass (*Aristida stricta*), and bluestem (*Andropogon* sp.) and patches of Southern Blueberry (*Vaccinium tenellum*) are also present. The other half of the uplands in the dedicated area support restoration quality Xeric Sandhill Scrub (Typic Subtype). This example lacks a canopy but young Longleaf Pine (*Pinus palustris*) are regenerating and the understory has scattered oaks including Blackjack Oak (*Quercus marilandica*), Sand Post Oak (*Quercus margaretiae*), and Bluejack Oak (*Quercus incana*), with Turkey Oak (*Quercus laevis*) dominant in the shrub layer. The herb layer is diverse but sparse and includes Wiregrass (*Aristida stricta*), Split Beard Grass (*Andropogon ternarius*), Sandhills Chaffhead (*Carphephorus bellidifolius*), Sandhills Lupine (*Lupinus diffusus*), Prickly-pear Cactus (*Opuntia* sp.) and Coastal Plain Wireplant (*Stipulicida setacea*). This area includes habitat for Red-cockaded Woodpecker (*Dryobates borealis*) and Bachman's Sparrow (*Peucaea aestivalis*).

The riparian corridor of Crawford Branch supports a Coastal Plain Semipermanent Impoundment (Open Water Subtype) natural community which consists of open water along shallow flooded embankments. Swamp Black Gum (*Nyssa biflora*) is present in inundated areas near the edge of this community. A shrub layer is nearly absent except for patches of Shining Fetterbush (*Lyonia lucida*) which occur along margins of this community. The herb layer along the water's edge is diverse, and Bladderworts (*Utricularia* sp.) and Three-way Sedge (*Dulichium arundinaceum*) are the most abundant. Other species include Eastern Bracken (*Pteridium latiusculum*), meadow-beauty (*Rhexia* sp.), beaksedge (*Rhynchospora* sp.), and Giant Yellow-eyed Grass (*Xyris fimbriata*). Additionally, small patches of Water-shield (*Brasenia schreberi*) and White Waterlily (*Nymphaea odorata*) are present in the open water.

Within the area between the Coastal Plain Semipermanent Impoundment (Open Water Subtype) and the uplands is a restoration quality Streamhead Pocosin along Crawford Branch. Portions of this community were caused by beaver activity; however, the flooded creek is also influenced by an impoundment where the dam is located at the junction of Crawford Branch and Marks Creek Church Road. This example varies in quality but through much of this community Pond Pine (*Pinus serotina*) is dominant in the canopy with Red Maple (*Acer rubrum*) also present. The shrub layer is diverse with Shining Fetterbush (*Lyonia lucida*) being dominant and Titi (*Cyrilla racemiflora*) being sub-dominant. Other species in the shrub layer include American Holly (*Ilex opaca*), blackberry (*Rubus* sp.), Southern Sweet Bay (*Magnolia virginiana*) and Sassafras (*Sassafras albidum*), with abundant Sweet Gallberry (*Ilex coriacea*) and Little Gallberry (*Ilex glabra*). One area of this community that continues upslope is completely forested by Red Maple (*Acer rubrum*) and Sweet Gum (*Liquidambar styraciflua*), with some Water Oak (*Quercus nigra*) also present in the shrub and understory layers.

BOUNDARY JUSTIFICATIONS: The portions of the tract with good quality natural communities are designated as Primary Areas, along with the riparian zones of creeks following NC Land and Water Fund standards for dedication. A moderate sized area between the Pine/Scrub

Oak Sandhill (Blackjack Subtype) and the Streamhead Pocosin and Coastal Plain Semipermanent Impoundment (Open Water Subtype) natural communities is designated as a Buffer Area. This area lacks Longleaf Pine and has a heavily impacted herbaceous layer. A natural seep was not included in any of the above-described natural communities but is included within the Primary (Restoration) Area due to an occurrence of Pine Barrens Treefrog (*Hyla andersonii*) at the site, and the location between patches of restoration quality uplands.

MANAGEMENT AND USE: The tract will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Regular prescribed burning is essential to maintaining the natural communities in the uplands of the Primary Areas. No exotic species were noted during our site visit; however, some could be present within the natural seep area and nearby low spots as they are heavily altered.

Womble tract (136 acres): This tract is located along Marston Road, near the Cliff Gibson junction and south of Currie Road. Gum Swamp Creek runs through the northern portion of this tract and crosses Marston Road. A small borrow pit is located at the southern end of the tract and harbors the watch-list Horsetail Spikerush (*Eleocharis equisetoides*).

The uplands are best classified as Xeric Sandhills Scrub (Typic Subtype) with young Longleaf Pine (*Pinus palustris*) present in the canopy. However, in one section, no trees are present, but the shrub and herb layers are intact. Turkey Oak (*Quercus laevis*) is dominant in the shrub layer, with Bluejack Oak (*Quercus incana*), Blackjack Oak (*Quercus marilandica*), and Sand Post Oak (*Quercus margaretiae*), Persimmon (*Diospyros virginiana*) present. The herb layer is intact throughout the entire uplands and varies from moderate to sparse coverage. Wiregrass (*Aristida stricta*), Southern Dwarf Blueberry (*Vaccinium tenellum*), Goat's Rue (*Tephrosia virginiana*), Sandywoods Chaffhead (*Carphephorus bellidifolius*), Shining Sumac (*Rhus copallinum*), and Curtis's Spurge (*Euphorbia curtisii*) are present.

The bottomland along Gum Swamp Creek is classified as a Streamhead Atlantic White Cedar Forest with large Atlantic White Cedar (*Chamaecyparis thyoides*) dominant in the canopy. Additionally, large Pond Pine (*Pinus serotina*), Loblolly Pine (*Pinus taeda*), Tulip-poplar (*Liriodendron tulipifera*), and some Black Gum (*Nyssa biflora*) are present. The shrub layer is dense with the usual sandhill pocosin species: Swamp Titi (*Cyrilla racemiflora*), Swamp Bay (*Persea palustris*), Large Gallberry (*Ilex coriacea*), and Shining Fetterbush (*Lyonia lucida*). Sweet Pepperbush (*Clethra alnifolia*) is abundant in areas between this community and the upland sandhills.

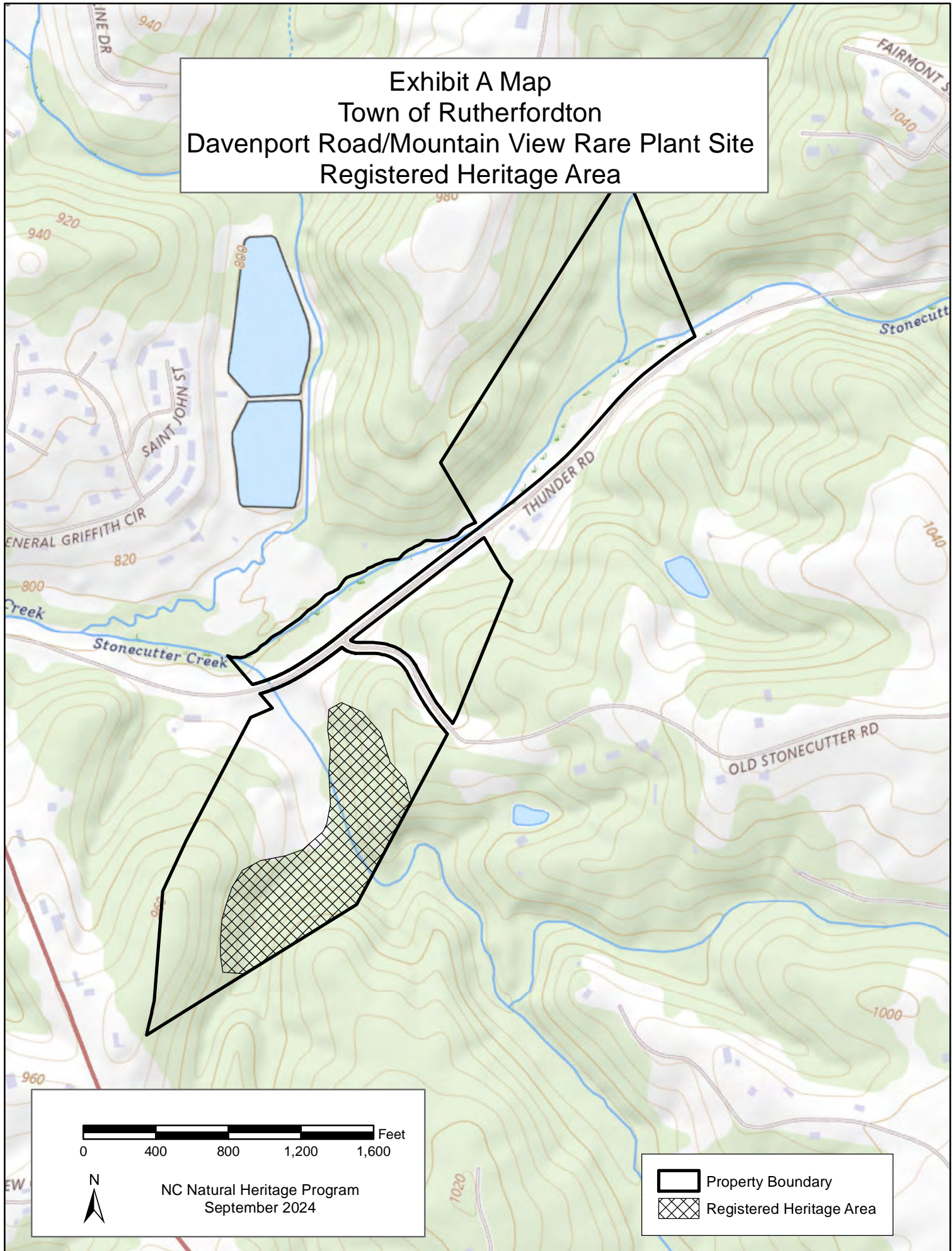
Two rare animals inhabit the Womble tract or adjacent streams: the rare Pinewoods Darter (*Etheostoma mariae*) and the Federally Endangered Red-cockaded Woodpecker (*Dryobates borealis*). The last known record of an Eastern Coral Snake (*Micrurus fulvius fulvius*) from the sandhills area is located just off this property on the other side of Gum Swamp Creek.

BOUNDARY JUSTIFICATIONS: The Primary Area boundary is drawn to include natural communities that remain in good condition along Gum Swamp Creek and areas within 100-foot riparian zone of Gum Swamp Creek. Primary (Restoration) Areas include the uplands throughout the entire tract.

MANAGEMENT AND USE: The Womble tract will be managed to provide habitat for wildlife species, for passive recreation, and to be used by hunters as a game land. Prescribed fire is essential to maintaining and restoring natural ecological conditions. Hand cutting of midstory oaks thinning may be needed as minor treatments to improve natural conditions in some of these areas and may be done to meet guidelines for Red-cockaded Woodpecker management. Other Red-cockaded

Woodpecker management, such as creation of artificial cavities, may also occur. In the portion of the Primary (Restoration) Area without trees, it is recommended to plant Longleaf Pine.



Exhibit A Map
Town of Rutherfordton
Davenport Road/Mountain View Rare Plant Site
Registered Heritage Area



0 400 800 1,200 1,600 Feet



NC Natural Heritage Program
September 2024

-  Property Boundary
-  Registered Heritage Area

NORTH CAROLINA REGISTRY OF NATURAL HERITAGE AREAS

Letter of Intent and Agreement to Register and Protect Natural Areas

WHEREAS, a portion of the natural area known as the Davenport Road/Mountain View Rare Plant Site, consisting of approximately 13.7 acres, is owned by the Town of Rutherfordton [Exhibit A]

WHEREAS, this area possesses the following natural values, justifying its recognition by the State as an outstanding part of the natural heritage of North Carolina:

A population of Dwarf-flower heartleaf (*Hexastylis naniflora*) occurs in a narrow band along Stonecutter Creek, within successional Acidic Cove Forest.

AGREEMENT

The Registry Agreement is a mutual understanding between the Town of Rutherfordton and the North Carolina Department of Natural and Cultural Resources to protect outstanding examples of the natural diversity occurring in North Carolina and preserve unique and unusual natural features. In addition to an approach by landowners and managers that follows these principles and strives to maintain natural character and integrity, the North Carolina Natural Heritage Program submits the following site-specific management recommendations:

This site is significant as a haven for a Federally Threatened species, dwarf-flower heartleaf (*Hexastylis naniflora*). The surrounding landscape has been highly developed, leaving little remaining intact habitat. The forested communities at this site should be allowed to continue maturing towards old growth condition and to undergo natural dynamics. Prescribed fire would be beneficial for the upland communities, to maintain their natural structure and composition, and to increase the diversity of the native herb layer. Monitoring and control of non-native invasive species, which are prevalent throughout the area, is recommended.

THEREFORE, it is agreed between the parties whose names are affixed below that the portions of the Davenport Road/Mountain View Rare Plant Site natural area owned by the Town of Rutherfordton be entered on the official North Carolina Registry of Natural Heritage Areas on the _____ day of _____, 2024.

It is understood that this agreement involves no change of title or loss of ownership rights, but simply expresses the sincere intentions of the landowner to refrain from making or permitting changes that alter the natural values for which this area was registered within the boundaries outlined on the attached maps and/or survey descriptions.

It is further understood that neither the Department nor Rutherfordton offers any assurances as to the conditions on the tracts involved or for the safety of persons thereon. Neither party shall incur any liability for any injury to persons or property on the land as a result of this agreement.

These areas are hereby registered for an indefinite period until terminated in writing by either party to the other upon thirty (30) days' notice.

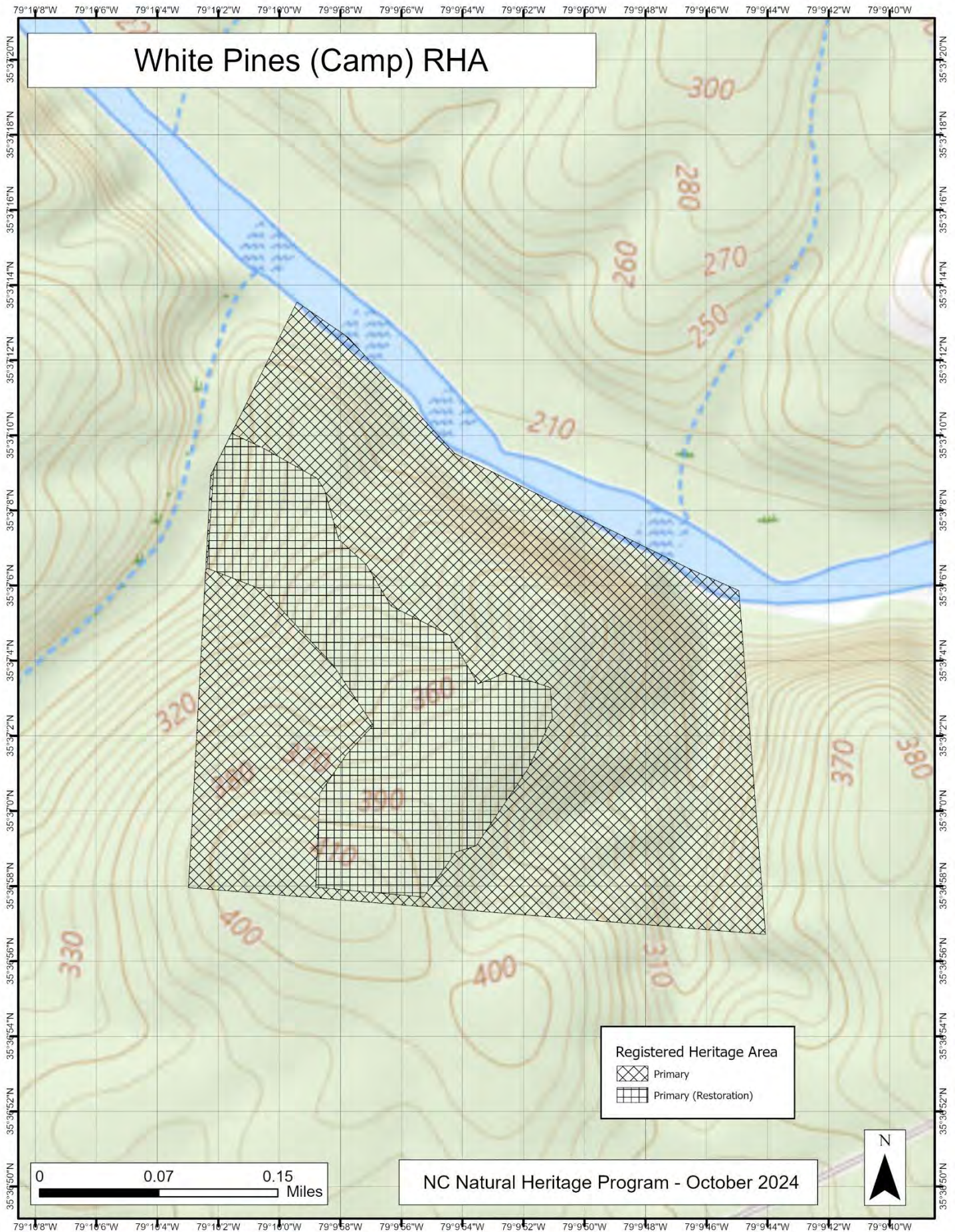
By _____
Jimmy Dancy, Mayor
Town of Rutherfordton
129 North Main Street
Rutherfordton, NC 28139

By _____
D. Reid Wilson, Secretary
NC Department of Natural and Cultural Resources
4601 Mail Service Center
Raleigh, North Carolina 27699-1601

Date: _____

Date: _____

White Pines (Camp) RHA



NORTH CAROLINA REGISTRY OF NATURAL HERITAGE AREAS

Letter of Intent and Agreement to Register and Protect Natural Areas

WHEREAS, a portion of the natural area known as White Pines Natural Area, consisting of approximately 42 acres, is owned by Mr. James Camp [Exhibit A]

WHEREAS, this area possesses the following natural values, justifying its recognition by the State as an outstanding part of the natural heritage of North Carolina:

The White Pines Natural Area supports the easternmost natural population of white pines (*Pinus strobus*) in the southeastern United States, 75 miles east of the characteristic mountain and piedmont range and just 10 miles west of the coastal plain region of North Carolina. Within the natural area, the white pines grow and reproduce in several habitats and range in age from seedlings to mature trees estimated to be over 150 years old. Associated with the white pines are numerous other plants that have mountain affinities such as Catawba Rhododendron (*Rhododendron catawbiense*) and Large Witch-alder (*Fothergilla major*). Of note are two species of mycorrhizal mushrooms, *Suillus spraguei* and *S. americanus*, which are specifically associated with white pine roots. These species, as are the vascular plants, are disjunct or isolated from their normal mountain and western piedmont ranges. The unique botanical features of the natural area have and continue to attract botany and forestry students and researchers.

The Camp portion of the White Pines Natural Area contains good quality examples of Mesic Mixed Hardwood Forest, Dry-Mesic Oak—Hickory Forest, and Piedmont/Coastal Plain Heath Bluff natural communities, as well as part of the white pine population. Also present is a population of significantly rare Large Witch-alder and watch list Southern Barren-strawberry (*Waldsteinia doniana*). The Camp property also contains significant frontage along the Rocky River, which provides habitat for several rare aquatic species, including fishes: endangered Cape Fear Shiner (*Notropis mekistocholas*) and threatened Carolina Redhorse (*Moxostoma* sp 3), and freshwater mussels: threatened Creeper (*Strophitus undulatus*), and rare Eastern Creekshell (*Villosa delumbis*) and Chameleon Lampmussel (*Lampsilis* sp 2).

AGREEMENT

The Registry Agreement is a mutual understanding between the landowner and the North Carolina Department of Natural and Cultural Resources to protect outstanding examples of the natural diversity occurring in North Carolina and preserve unique and unusual natural features. In addition to an approach by landowners and managers that follows these principles and strives to maintain natural character and integrity, the North Carolina Natural Heritage Program submits the following site-specific management recommendations:

The Registered Heritage Area should be managed for protection of intact natural communities, wildlife habitat, and natural conditions. Preservation and careful land management of the natural area is also important to the rare aquatic species.

The intact forest communities of the Primary Area should generally be allowed to mature and become old-growth with uneven-aged structure. Alterations to the white pine population would be particularly detrimental to the White Pines natural area. Prescribed burning at low intensity and moderate frequency would be beneficial to the oak forests in this area, though its effects on the white pine population should be monitored. The approximately 10-acre Primary (Restoration) area should continue to mature to more natural forest, perhaps with some careful removal of loblolly pine, sweetgum, and red maple to promote white pine, oaks, and hickories. Monitoring for and control of non-native plant species is recommended, especially near rare plant populations, utilizing control methods that will not harm associated native vegetation, nor harm the river. Invasive non-native Autumn olive (*Elaeagnus umbellata*) is a particular problem in this area of Chatham County, and was noted on the property

THEREFORE, it is agreed between the parties whose names are affixed below that the portions of White Pines natural area owned by James Camp be entered on the official North Carolina Registry of Natural Heritage Areas on the ___ day of _____, 2024.

It is understood that this agreement involves no change of title or loss of ownership rights, but simply expresses the sincere intentions of the landowner to refrain from making or permitting changes that alter the natural values for which this area was registered within the boundaries outlined on the attached maps and/or survey descriptions.

It is further understood that neither the Department nor the landowner offers any assurances as to the conditions on the tracts involved or for the safety of persons thereon. Neither party shall incur any liability for any injury to persons or property on the land as a result of this agreement.

These areas are hereby registered for an indefinite period until terminated in writing by either party to the other upon thirty (30) days notice.

By _____
James Camp
3013 Glenridge Dr
Raleigh, NC 27604

By _____
D. Reid Wilson, Secretary
NC Department of Natural and Cultural Resources
4601 Mail Service Center
Raleigh, North Carolina 27699-4601

Date: _____

Date: _____

Natural Heritage Advisory Committee

North Carolina Natural Heritage Program

November 7, 2024

North Carolina Natural Heritage Program

Recommendations for Dedication and Registry

Submitted to the Natural Heritage Advisory Committee

November 7, 2024

Dedication

- Agreement is attached to the land
- Agreement cannot be rescinded by the owner
- Requires approval of Council of State and Governor
- Specific management rules



Dedication zones

Primary Area: contains rare species populations, rare communities, and/or high-quality examples of common communities.

Primary (Restoration) Area: contains elements as above, but requires some form of active management to restore. If timber management is allowed within these areas, it is with a specific time-limited objective (e.g., removal of off-site canopy species). Part of the Primary Area.

Special Management Area: a zone which retains some natural features (e.g., rare species population(s)), but is maintained for other purposes (e.g., transmission line right-of-way).

Buffer Area: areas within a tract which contribute to the ecological function of the Primary Area, but which do not qualify as Primary.

Municipal and Private land dedications

- State versus non-state dedications: Non-state dedications more closely resemble conservation easements – recorded with deed
- Work with State Property Office. Property interest is transferred to the state.
- Require legal description – metes and bounds
- Mecklenburg County pioneered dedication of local government lands with McDowell Nature Preserve dedication in 2008.
 - Currently ten dedicated nature preserves on 3,790 acres of local government lands

Black River Preserve Dedicated Nature Preserve



Black River Cypress Swamp

Black River Preserve DNP

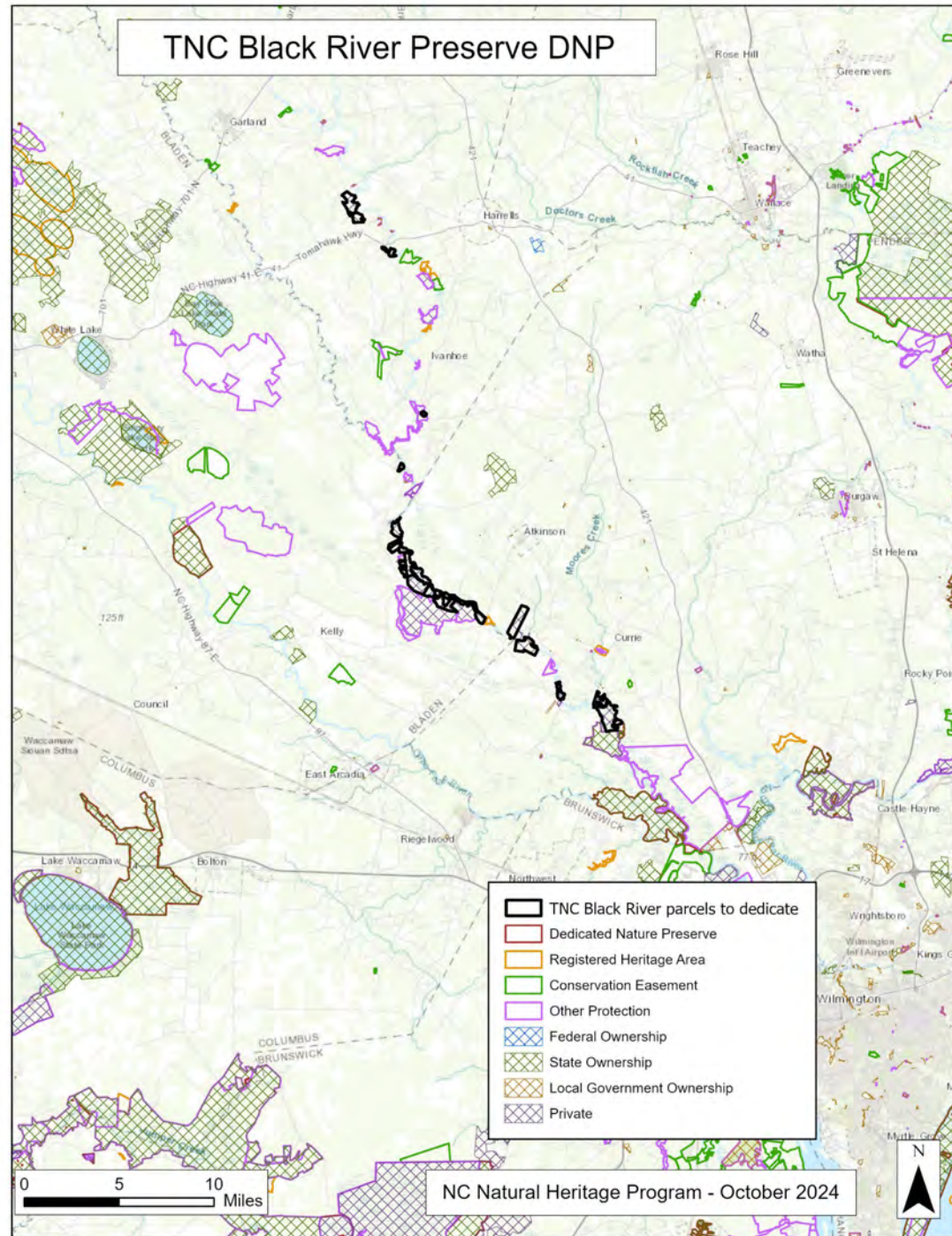


Black River
Preserve

Bladen, Pender, Sampson Counties

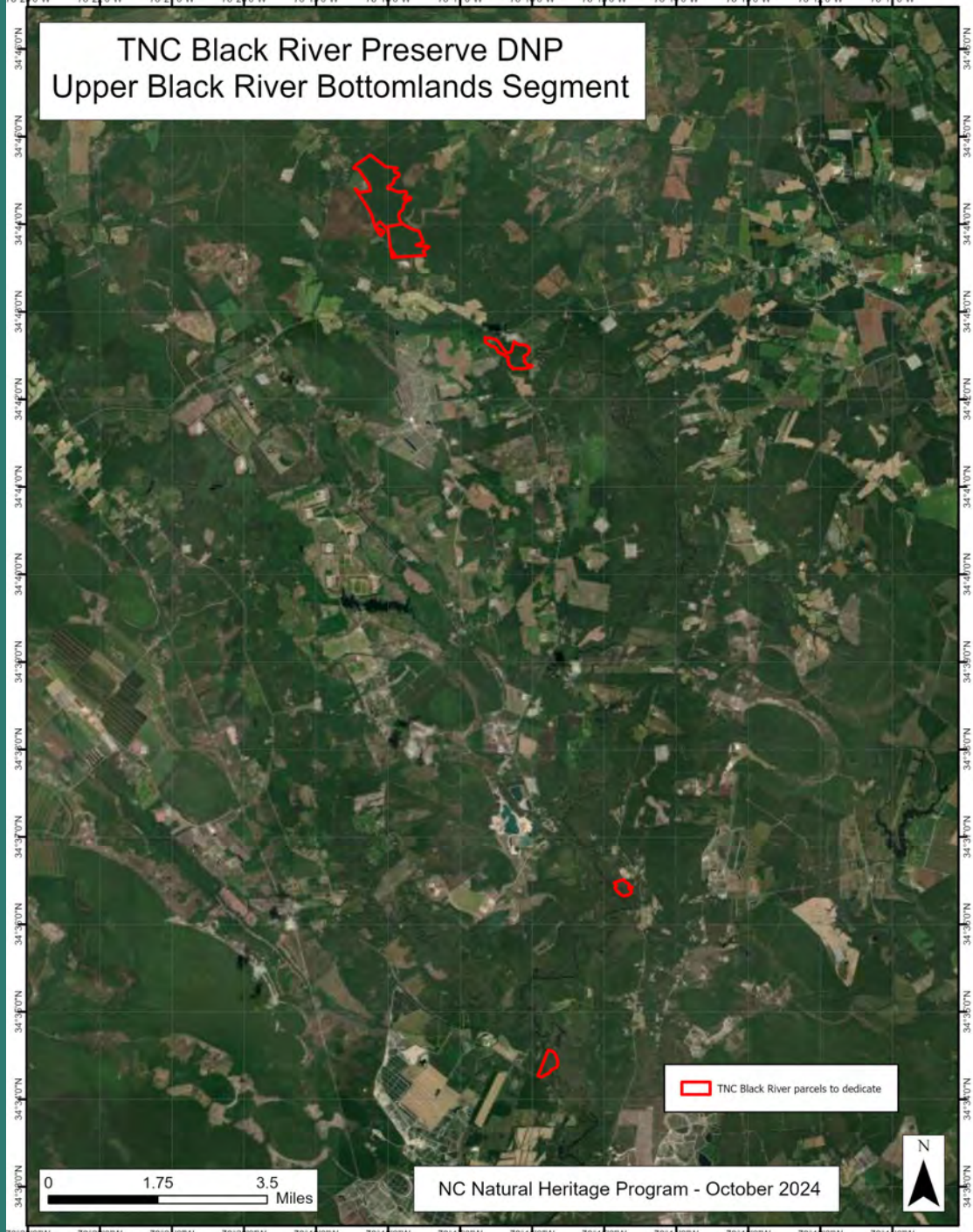
Lumbee, Waccamaw, Catawba

TNC Black River Preserve DNP



NC Natural Heritage Program - October 2024

TNC Black River Preserve DNP Upper Black River Bottomlands Segment



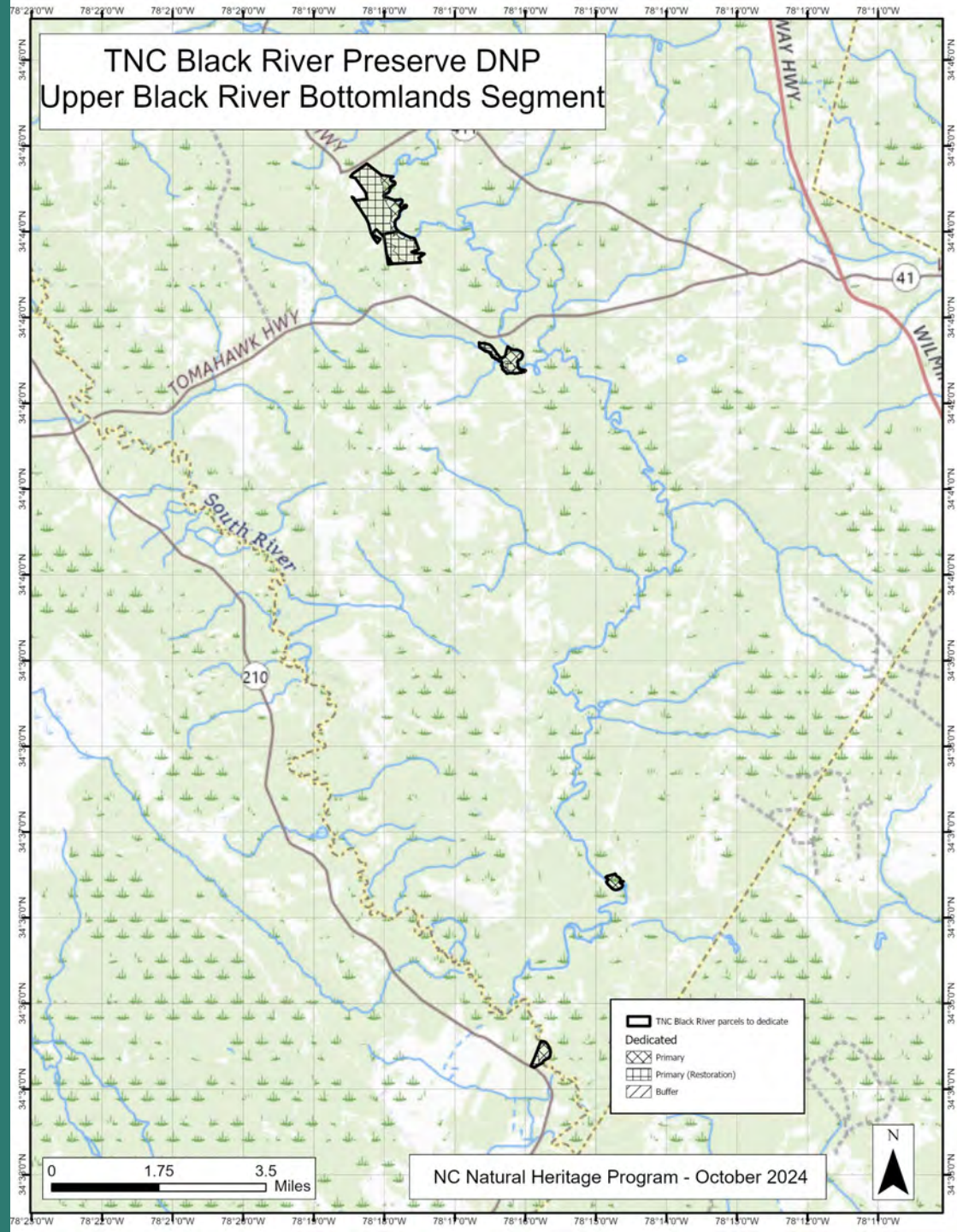
 TNC Black River parcels to dedicate

0 1.75 3.5
Miles

NC Natural Heritage Program - October 2024



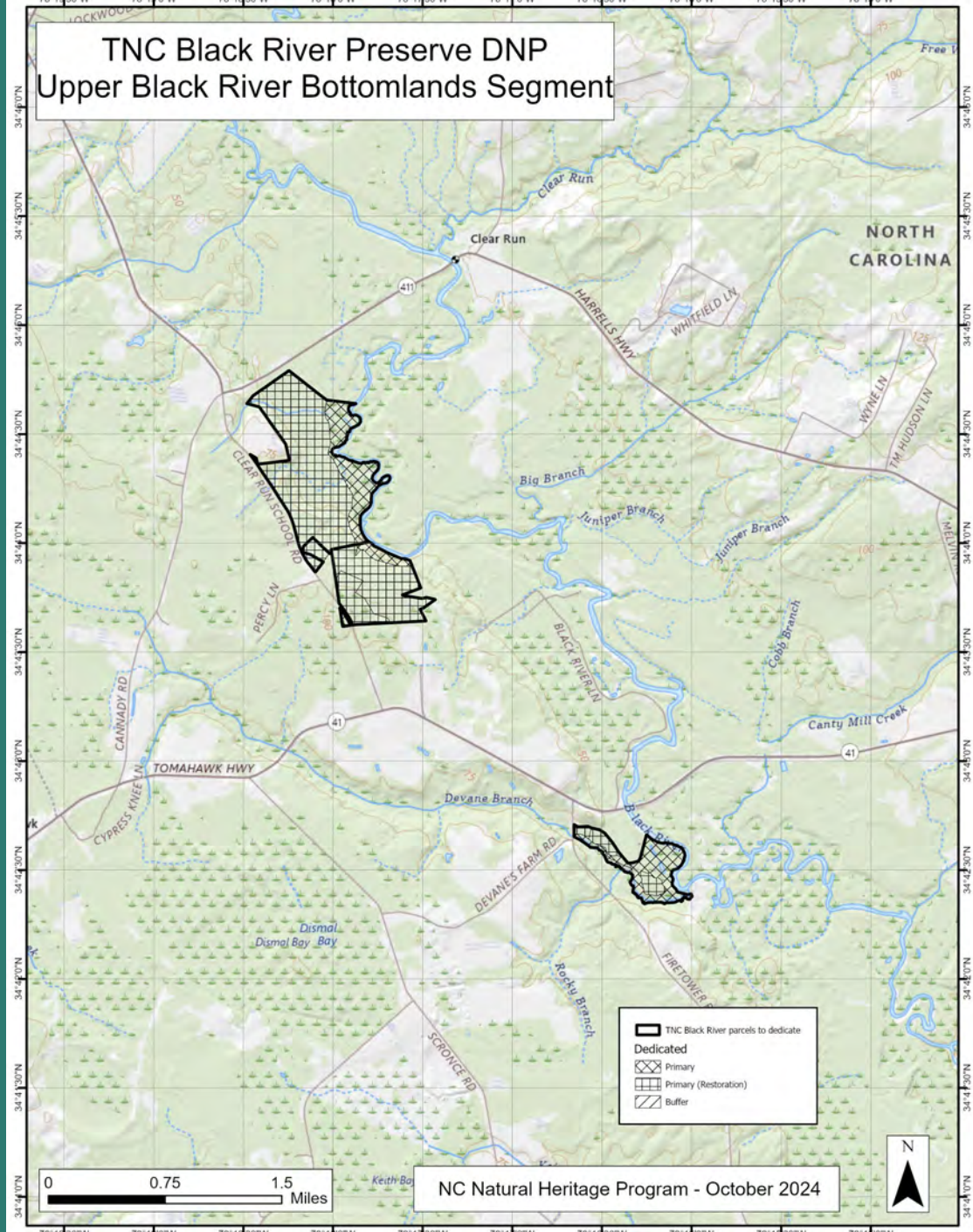
TNC Black River Preserve DNP Upper Black River Bottomlands Segment



0 1.75 3.5 Miles

NC Natural Heritage Program - October 2024

TNC Black River Preserve DNP Upper Black River Bottomlands Segment



NORTH
CAROLINA

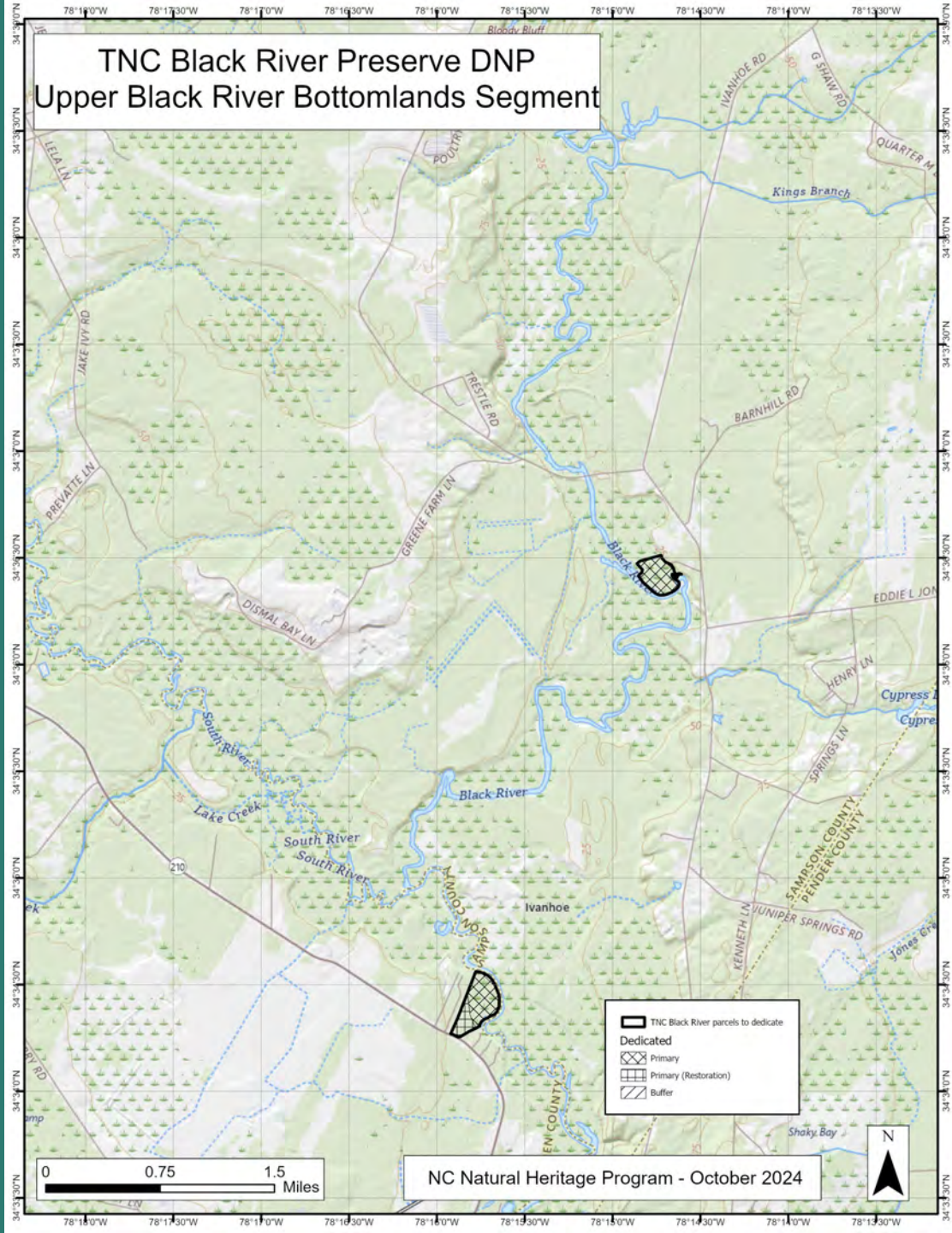
- TNC Black River parcels to dedicate
- Dedicated
 - Primary
 - Primary (Restoration)
 - Buffer

0 0.75 1.5
Miles

NC Natural Heritage Program - October 2024

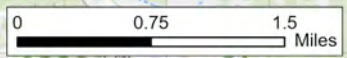


TNC Black River Preserve DNP Upper Black River Bottomlands Segment



Legend:

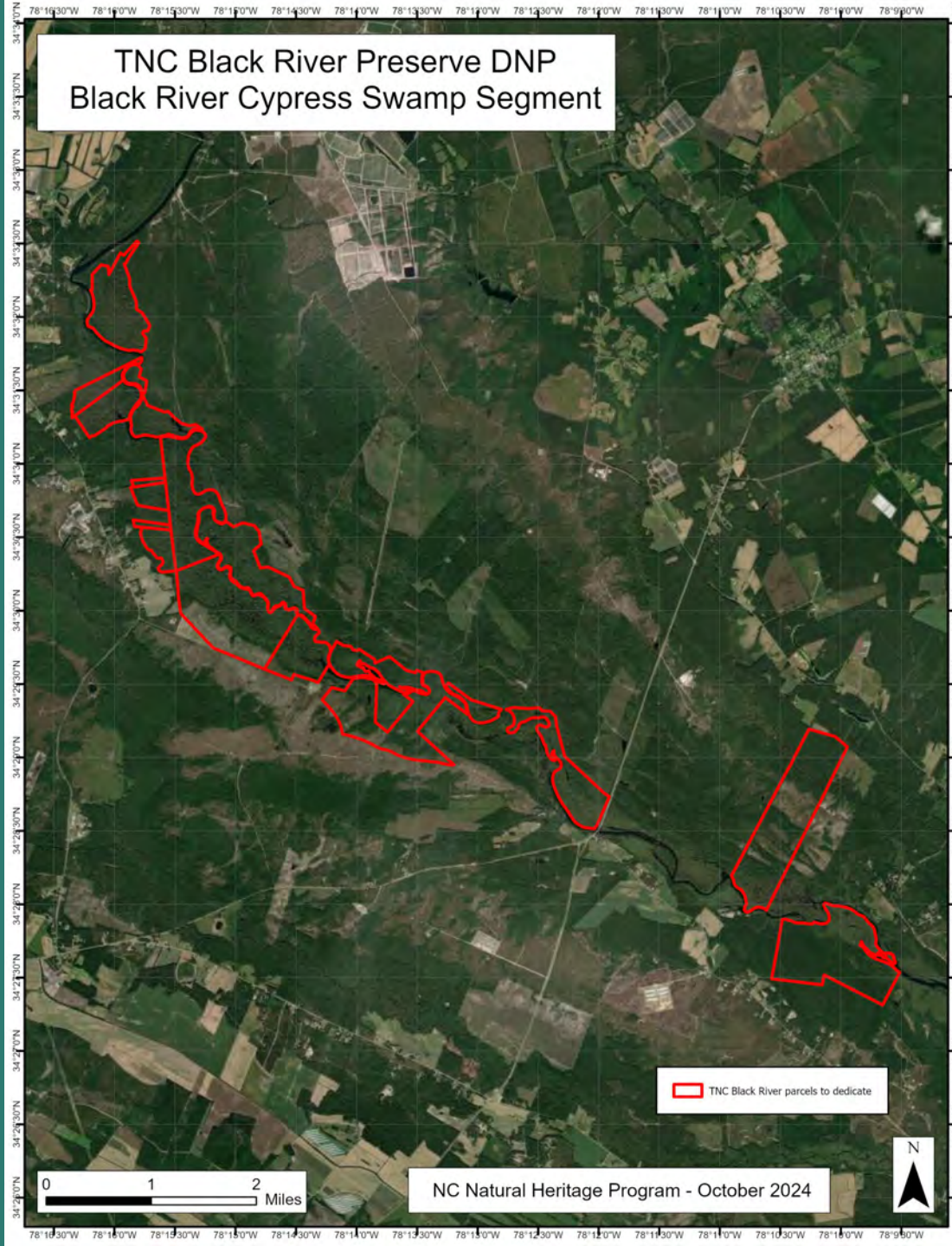
- TNC Black River parcels to dedicate
- Dedicated
 - Primary
 - Primary (Restoration)
 - Buffer



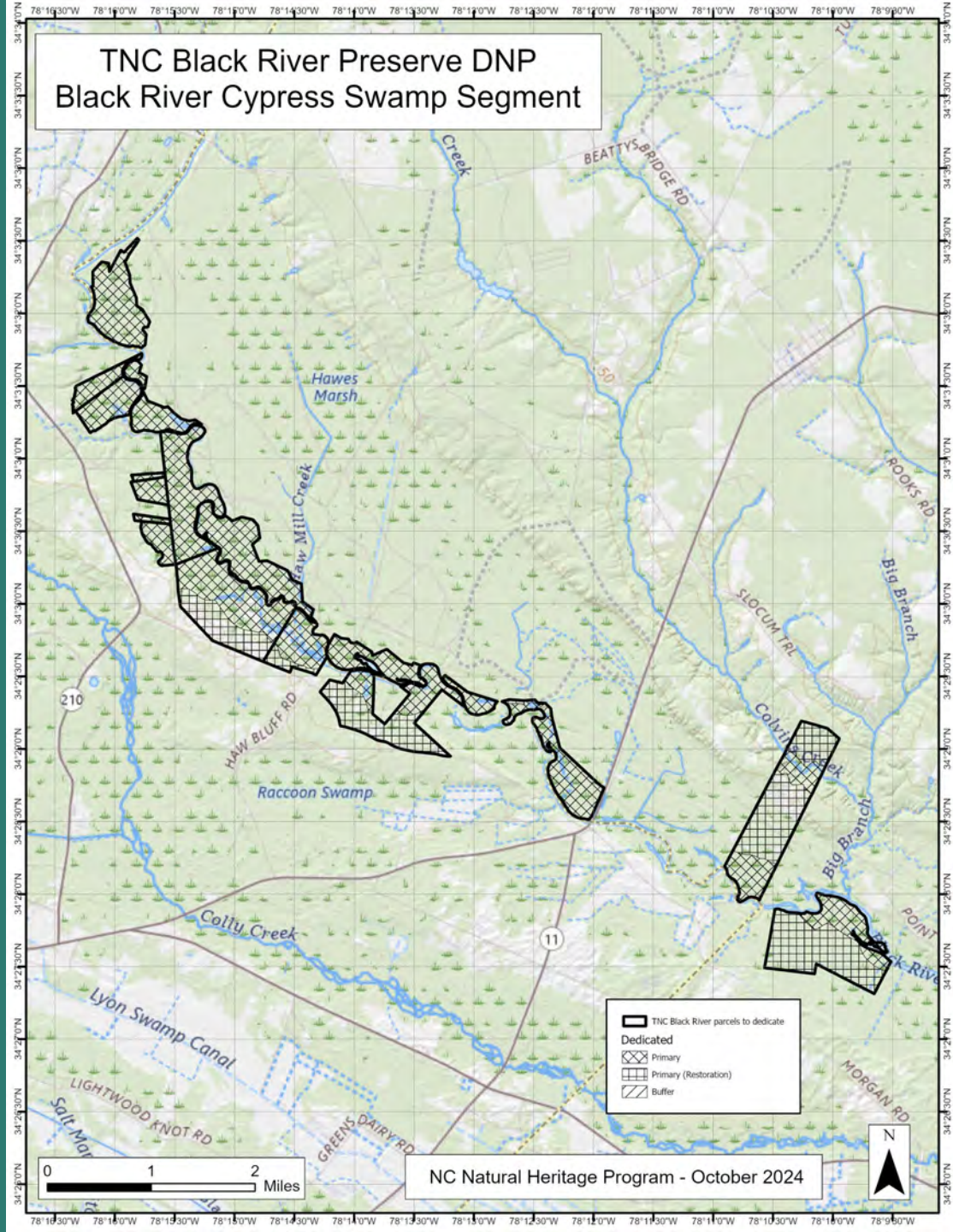
NC Natural Heritage Program - October 2024



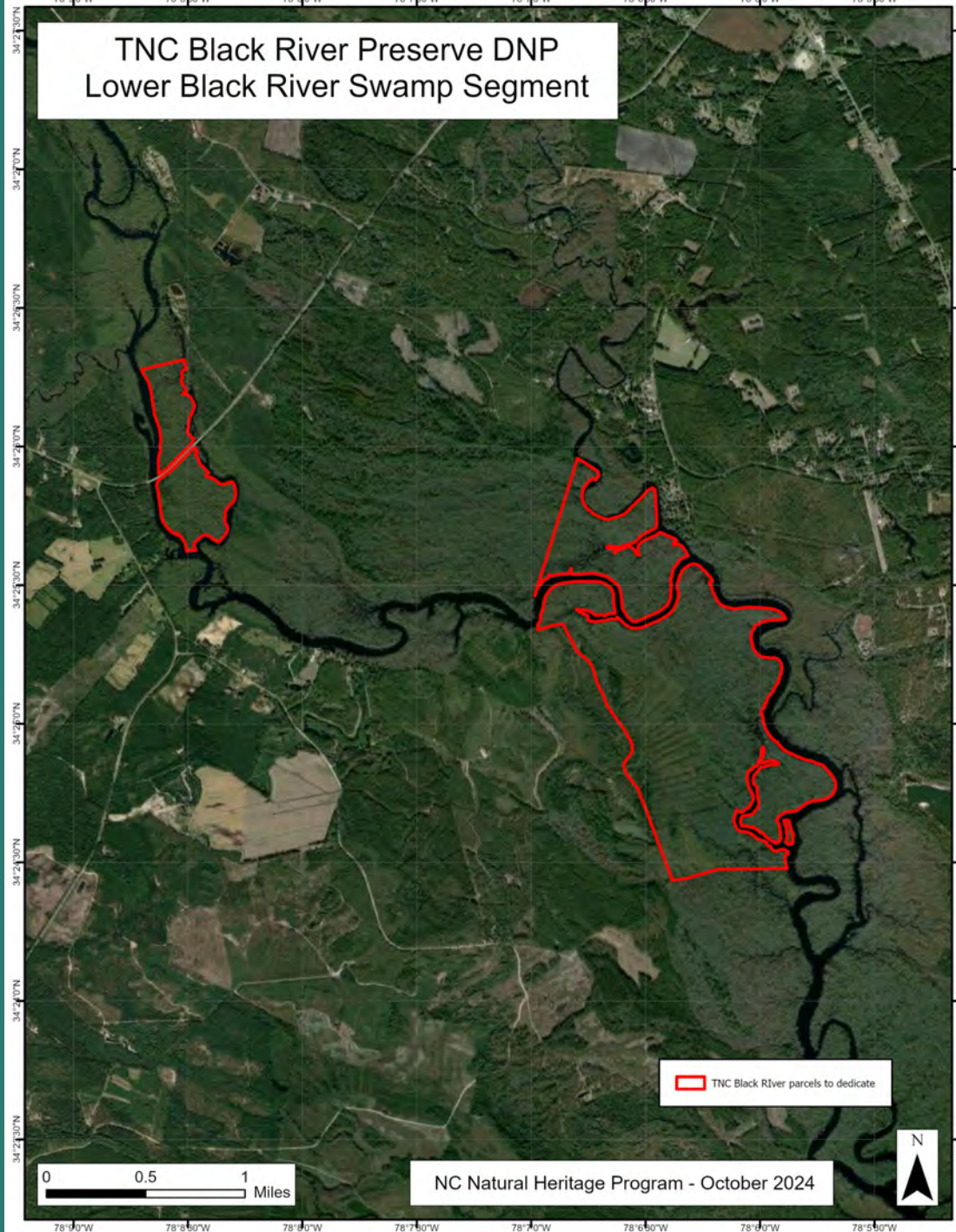
TNC Black River Preserve DNP Black River Cypress Swamp Segment



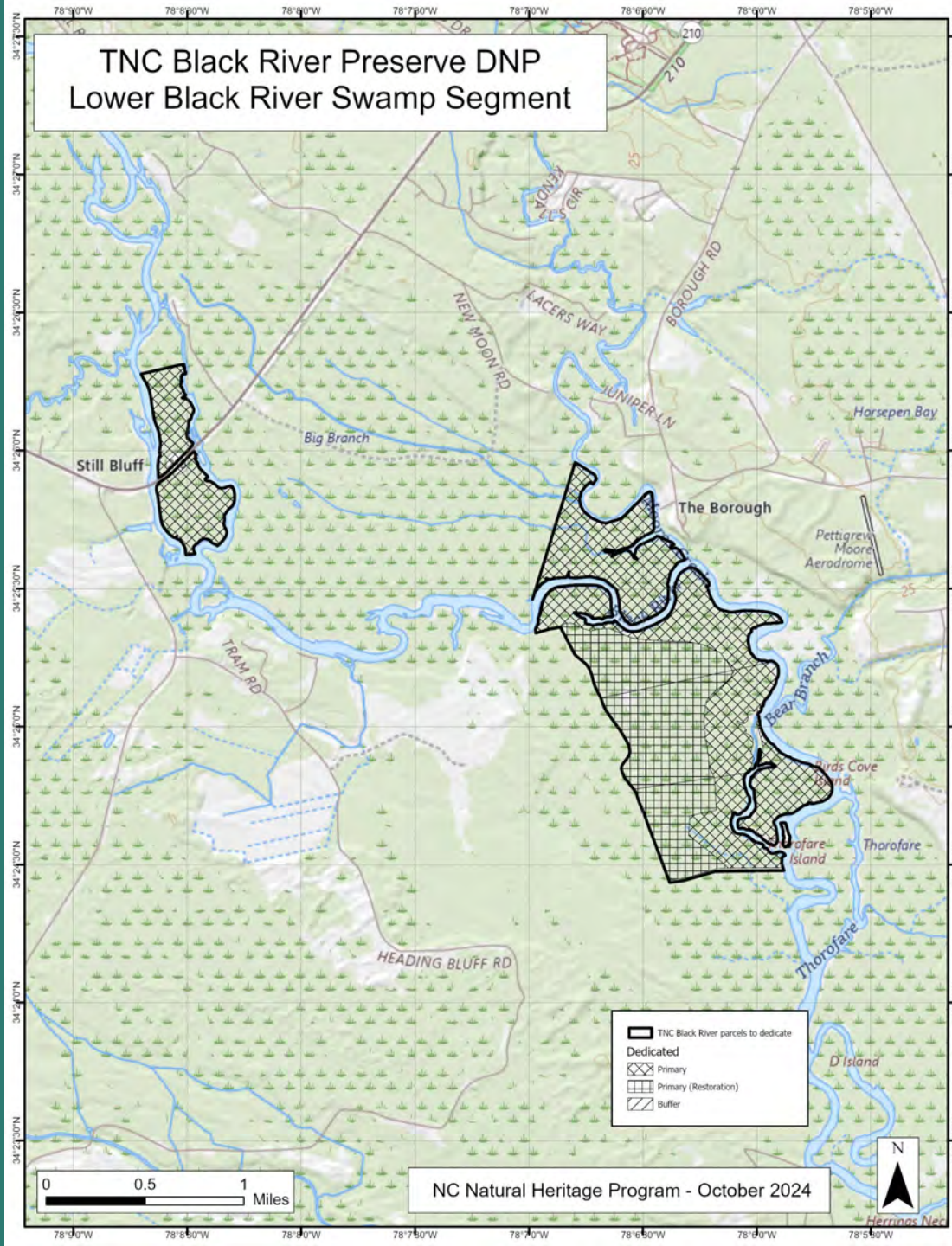
TNC Black River Preserve DNP Black River Cypress Swamp Segment



TNC Black River Preserve DNP Lower Black River Swamp Segment



TNC Black River Preserve DNP Lower Black River Swamp Segment



TNC Black River Preserve

Dedicated Nature Preserve

New voluntary dedication

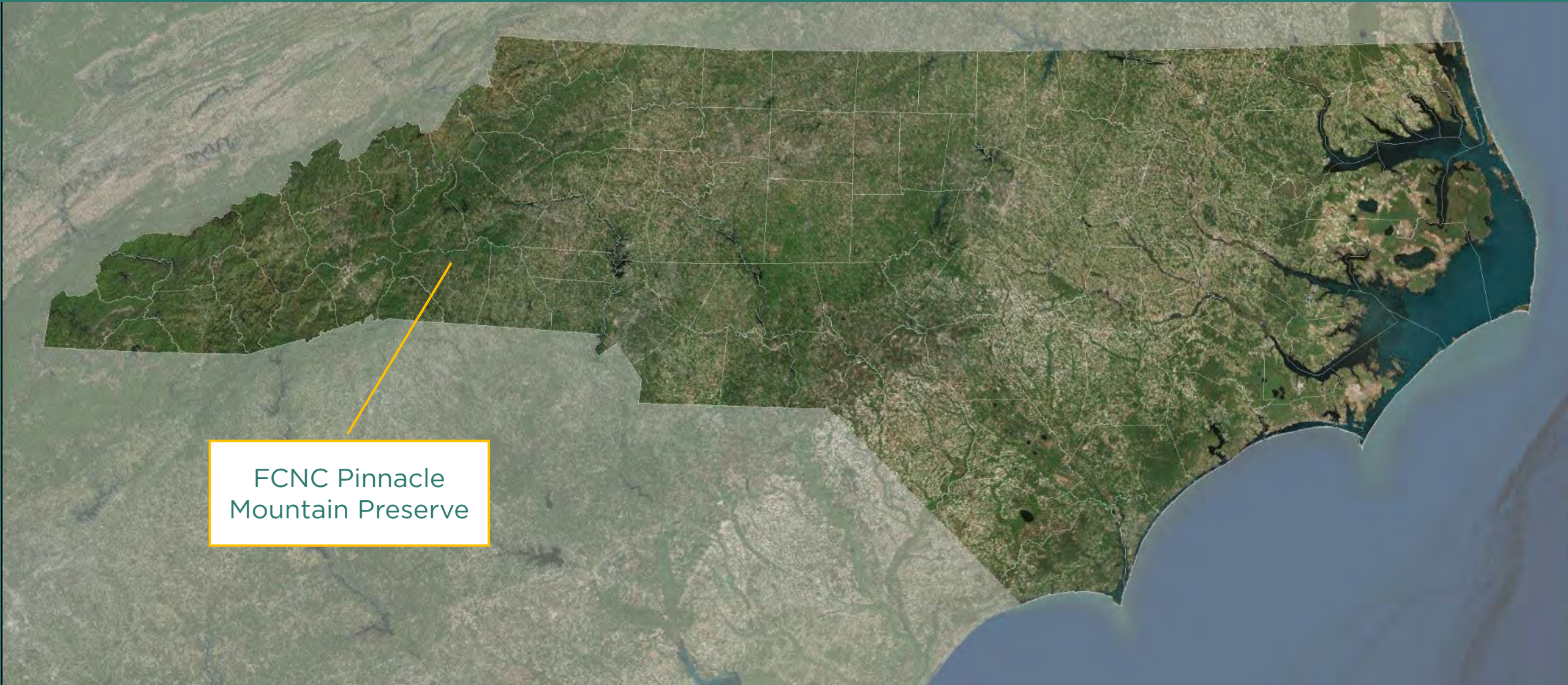
- 3,393 acres
 - 3,393 acres Primary, including 1,233 acres restoration
 - 0.3 acres Buffer
- Element occurrences include:
 - Tidal Freshwater Marsh (Narrowleaf Pondlily Subtype) S1G1
 - Northern Long-eared Bat (*Myotis septentrionalis*) S2G2 (NC and US Endangered)
 - Piedmont/Coastal Plain Heath Bluff S3G3
 - Riverbank Evening-primrose (*Oenothera riparia*) S3G3
 - Tidal Swamp (Cypress--Gum Subtype) S4G3
 - Oxbow Lake (Blackwater Subtype) S2G3
 - Tri-colored Bat (*Perimyotis subflavus*) S3G3
 - Blackwater Bottomland Hardwoods (High Subtype) S2G3
 - Southeastern Bat (*Myotis austroriparius*) S2G4
 - Blackwater Bottomland Hardwoods (Low Subtype) S3G4
 - Cypress--Gum Swamp (Blackwater Subtype) S4G4....and many more, including aquatic species
- Portions of Upper Black River Bottomlands R1C2, Black River Cypress Swamp R1C3, CPF Black River Aquatic Habitat R1C3, and Lower Black River Swamp natural areas R1C3

Pinnacle Mountain Cameron-Messick Dedicated Nature Preserve



White Irisette (*Sisyrinchium dichotomum*) at Pinnacle Mountain Preserve
Photo courtesy Mike Schafale

FCNC Pinnacle Mountain Preserve DNP

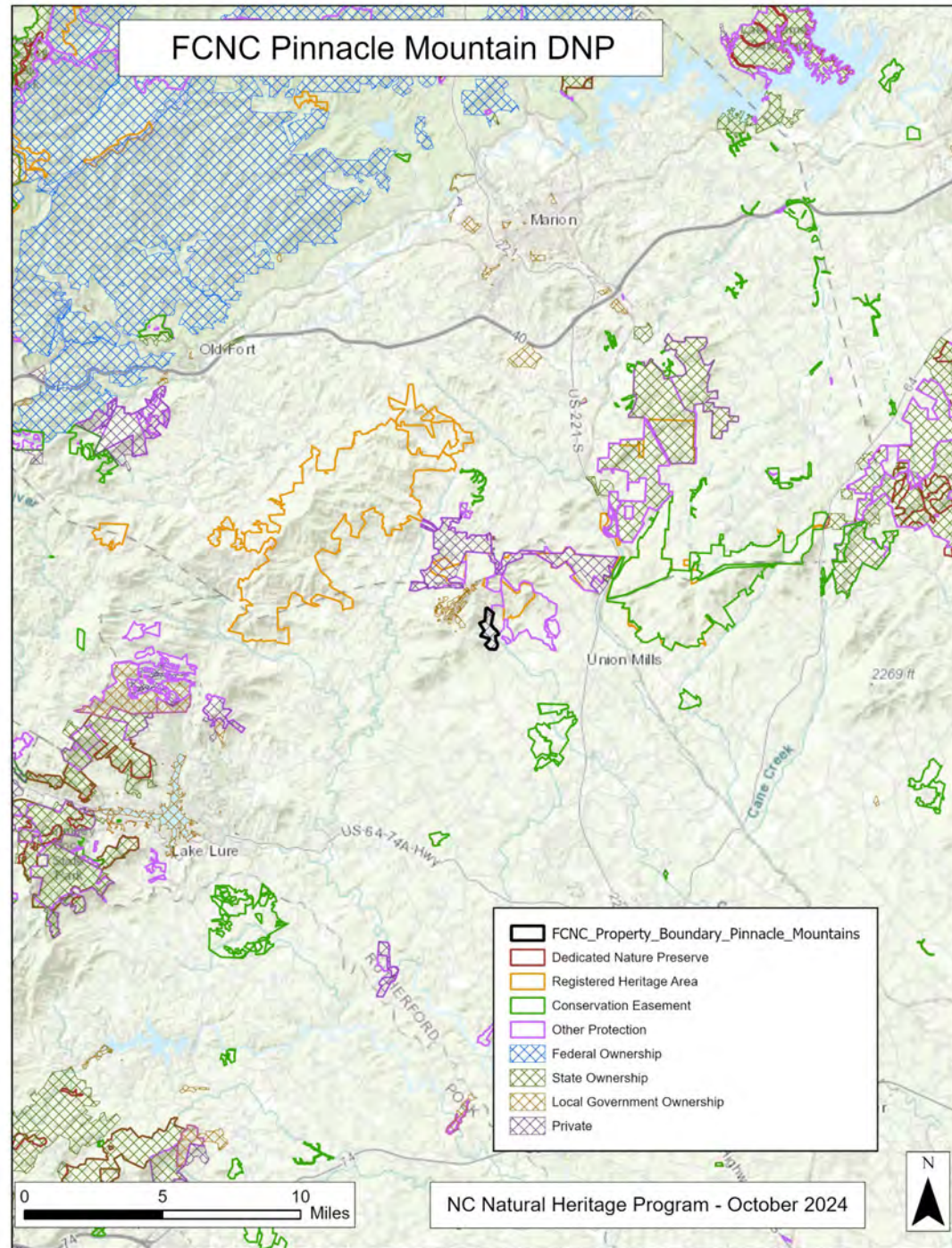


FCNC Pinnacle
Mountain Preserve

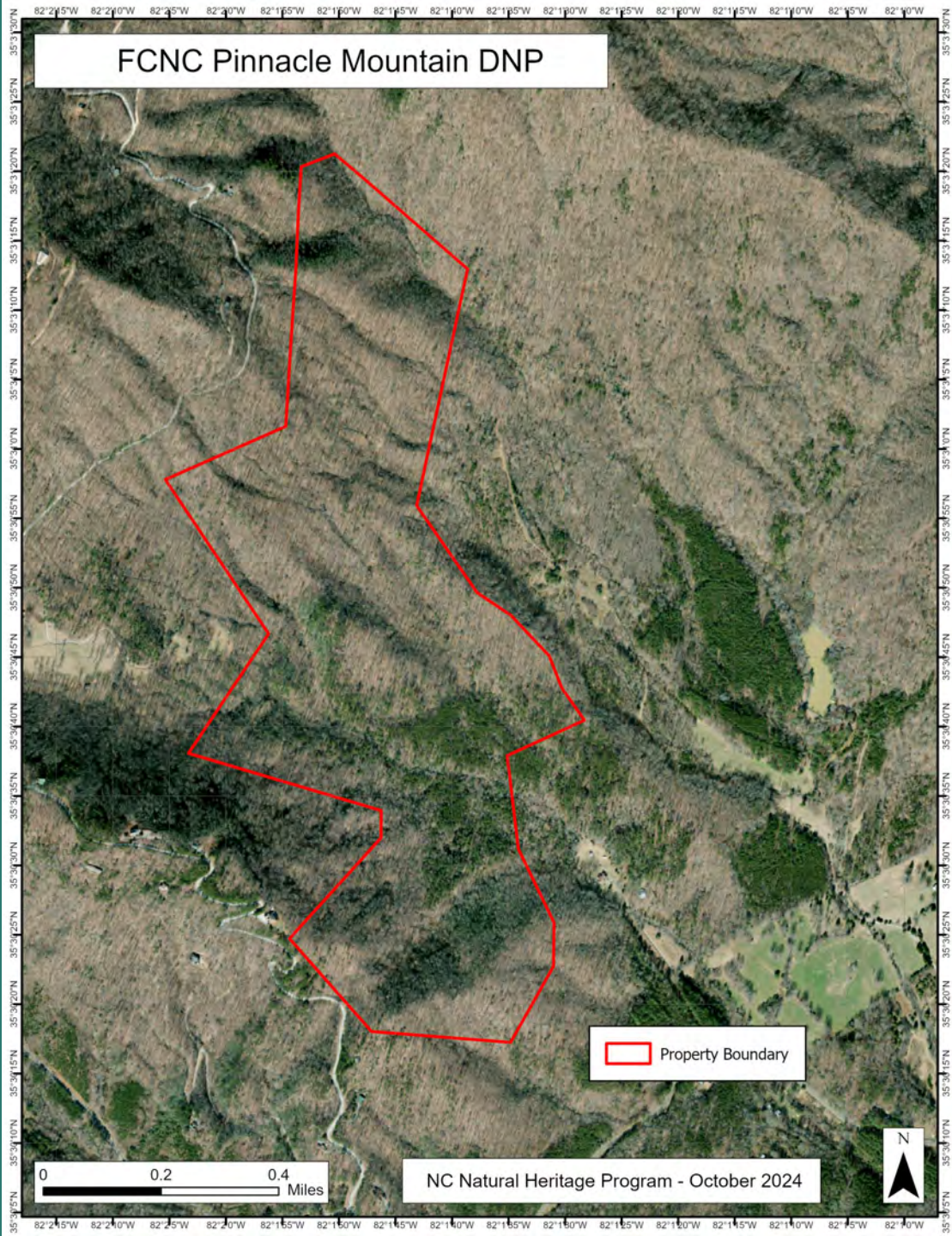
Rutherford County

Cherokee, Catawba, Yuchi

FCNC Pinnacle Mountain DNP



FCNC Pinnacle Mountain DNP



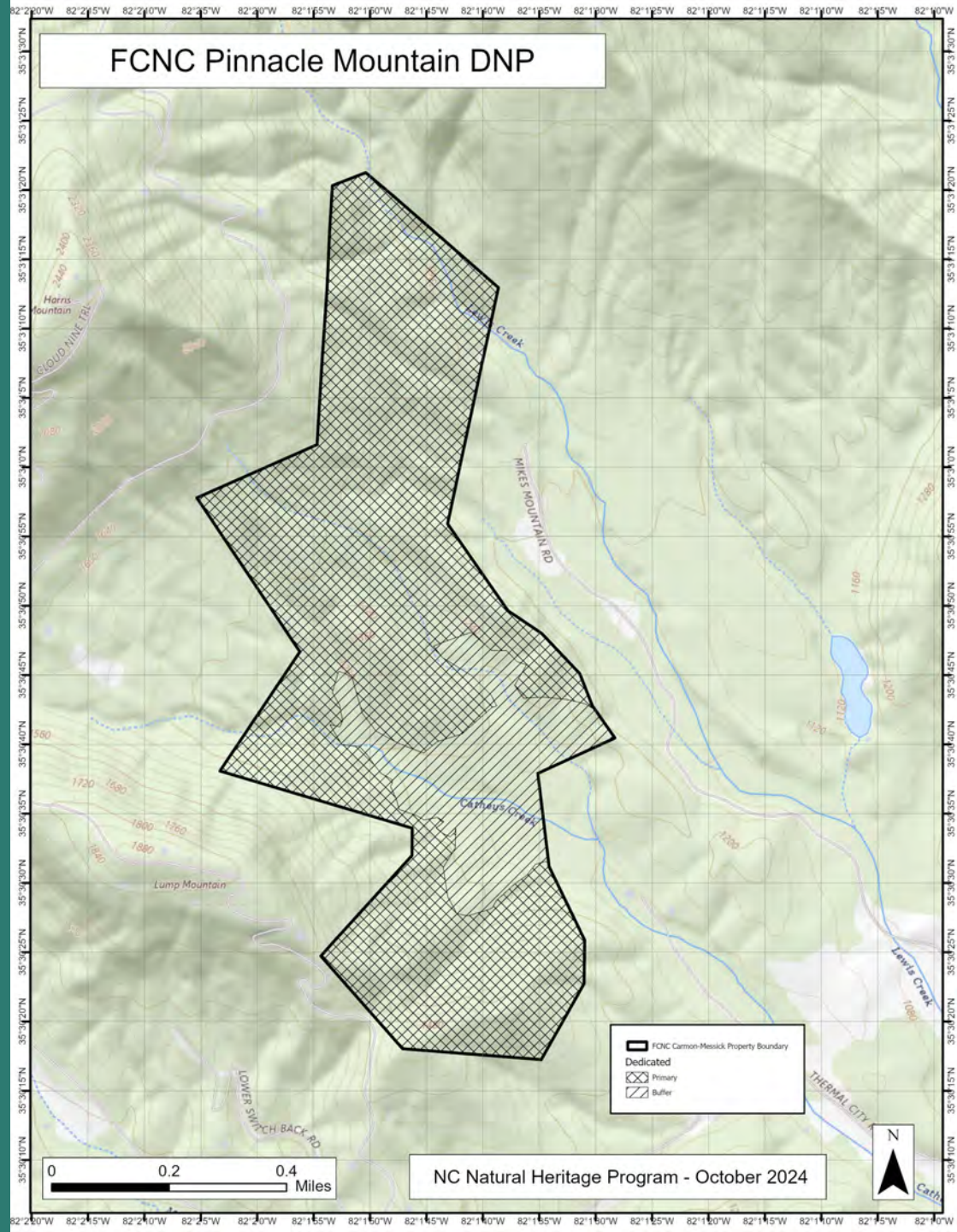
Property Boundary

0 0.2 0.4 Miles

NC Natural Heritage Program - October 2024



FCNC Pinnacle Mountain DNP



0 0.2 0.4 Miles

NC Natural Heritage Program - October 2024



Foothills Conservancy of North Carolina

Pinnacle Mountain (Cameron-Messick Tract) Nature Preserve

Dedicated Nature Preserve

- New voluntary dedication
- 221 acres
 - 184 acres Primary; 37 acres Buffer
- Element occurrences include:
 - Montane Oak—Hickory Forest (Acidic Subtype) S4G4
 - Acidic Cove Forest (Typic Subtype) S4G5
 - Rich Cove Forest (Foothills Intermediate Subtype) S3G4
 - Montane Oak--Hickory Forest (Basic Subtype) S3G3
 - White Irisette (*Sisyrinchium dichotomum*) S2G2
- Part of Mike Mountain – Pinnacle Mountain natural area (R2C1)

State land dedications

- Dedication of qualifying portions required when lands were acquired with NC Land and Water Fund grants.
- Dedication is done by Letter of Allocation



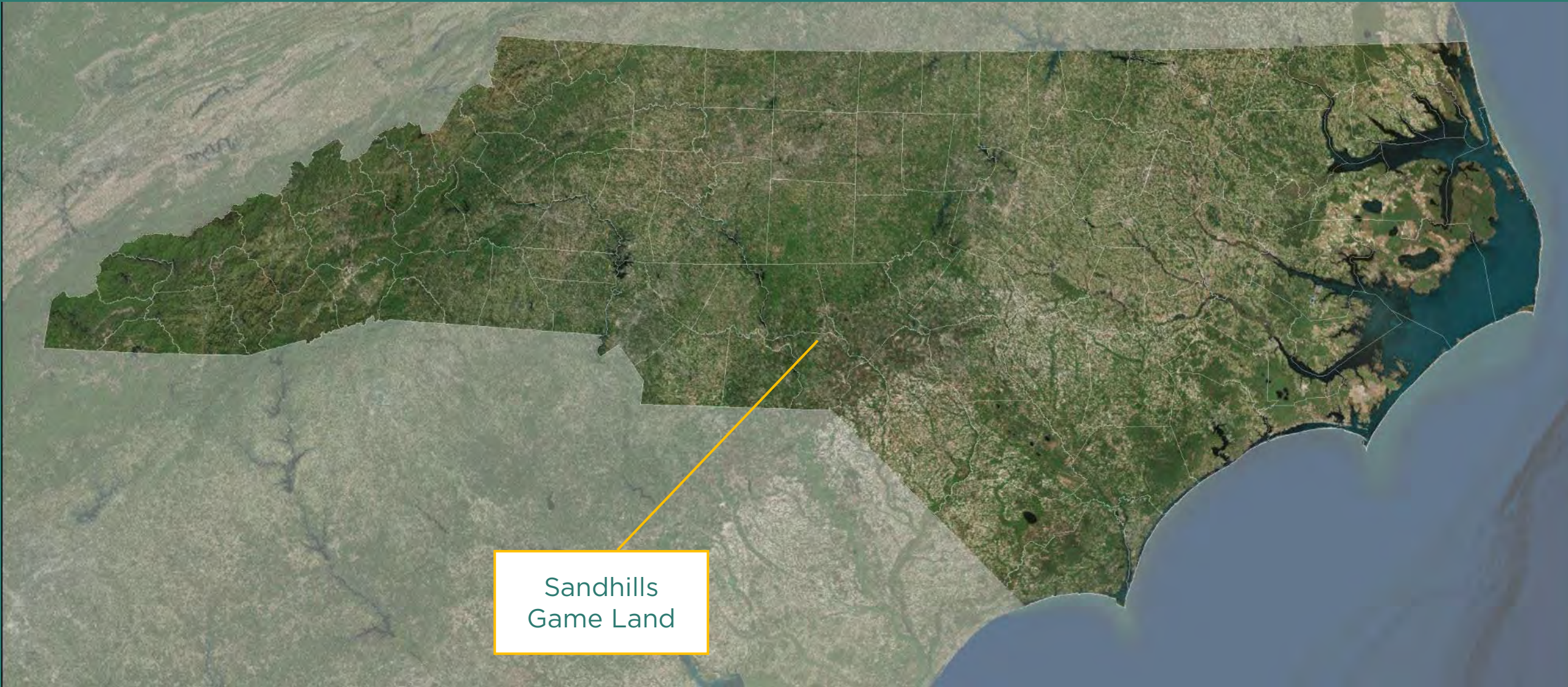
Aquatic Standards for State Land Dedication

- 100 ft riparian zone on all perennial streams
 - Minimum standard
- 300 ft riparian zones along perennial streams with NHP Aquatic Habitat
 - If Aquatic Habitat has federally listed species, add 200 ft riparian zone on all perennial tributary streams to the Aquatic Habitat
 - If Aquatic Habitat does not have federally listed species, add 100 ft riparian zones on all perennial tributary streams
- NHP maintains a dataset with these parameters
 - Updated annually
 - Based on National Hydrography Dataset (NHD) maintained by USGS and NC Stream Mapping Project

Sandhills Game Land Dedicated Nature Preserve



Sandhills Game Land DNP

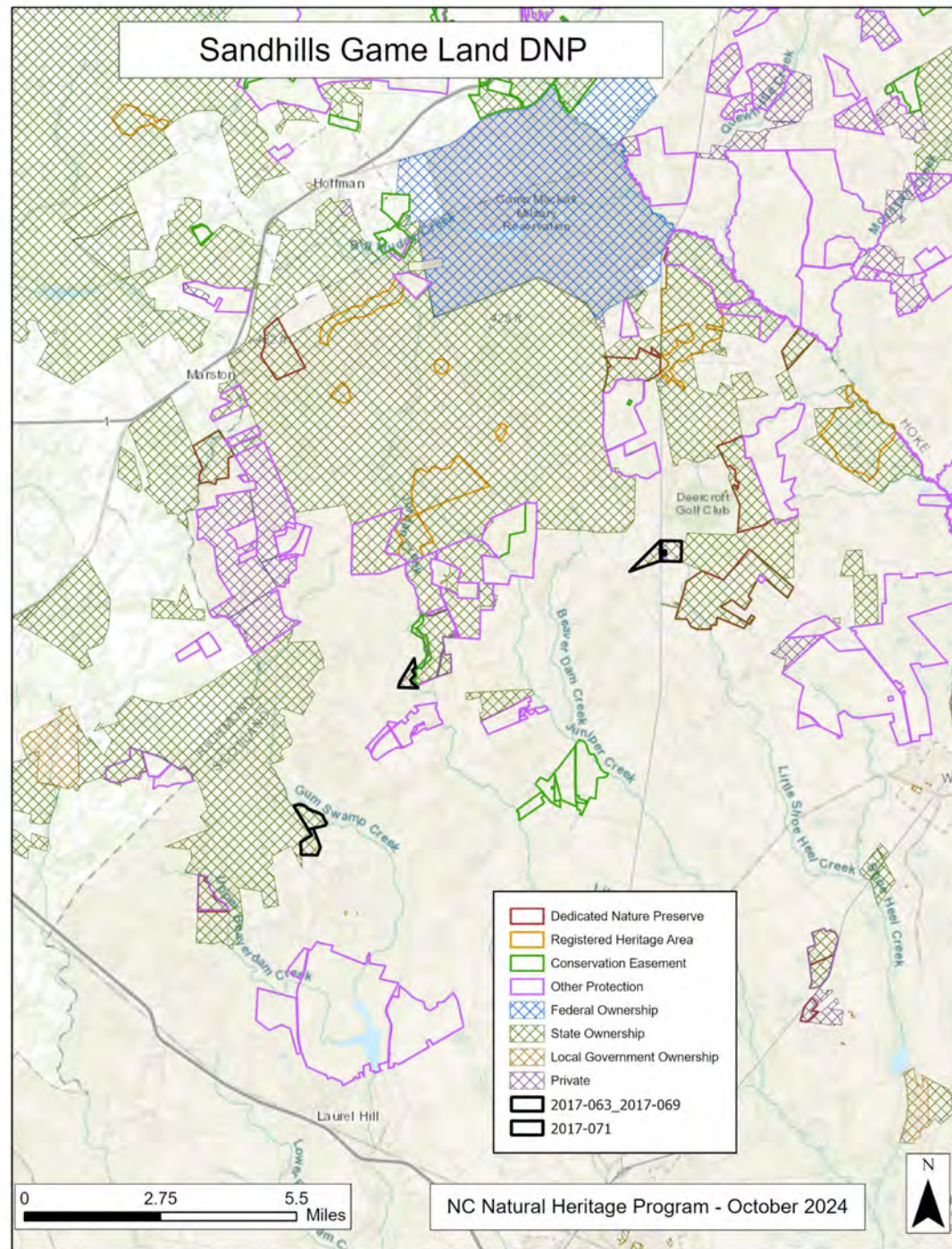


Sandhills
Game Land

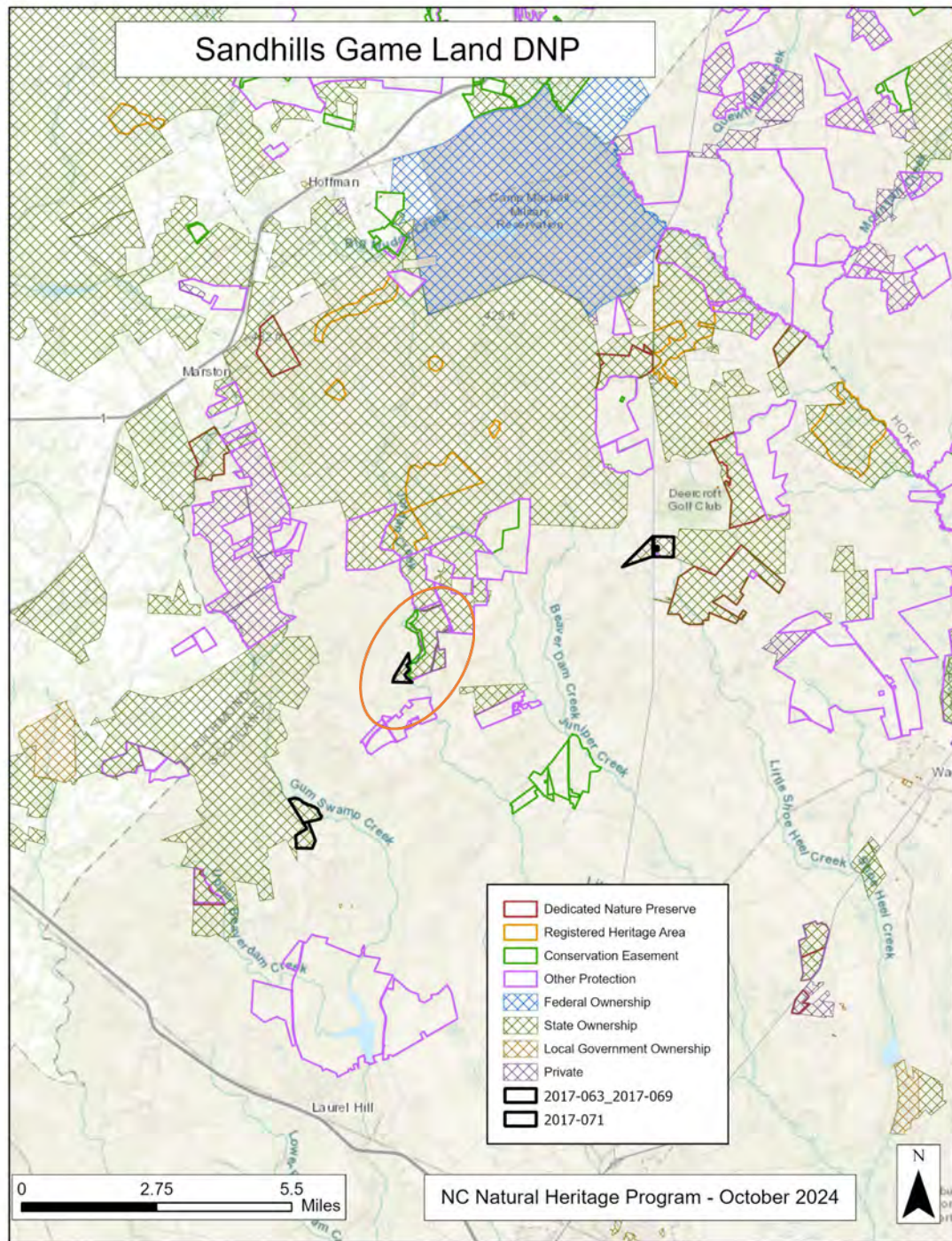
Moore, Richmond, Scotland Counties

Catawba, Tuscarora, Lumbee

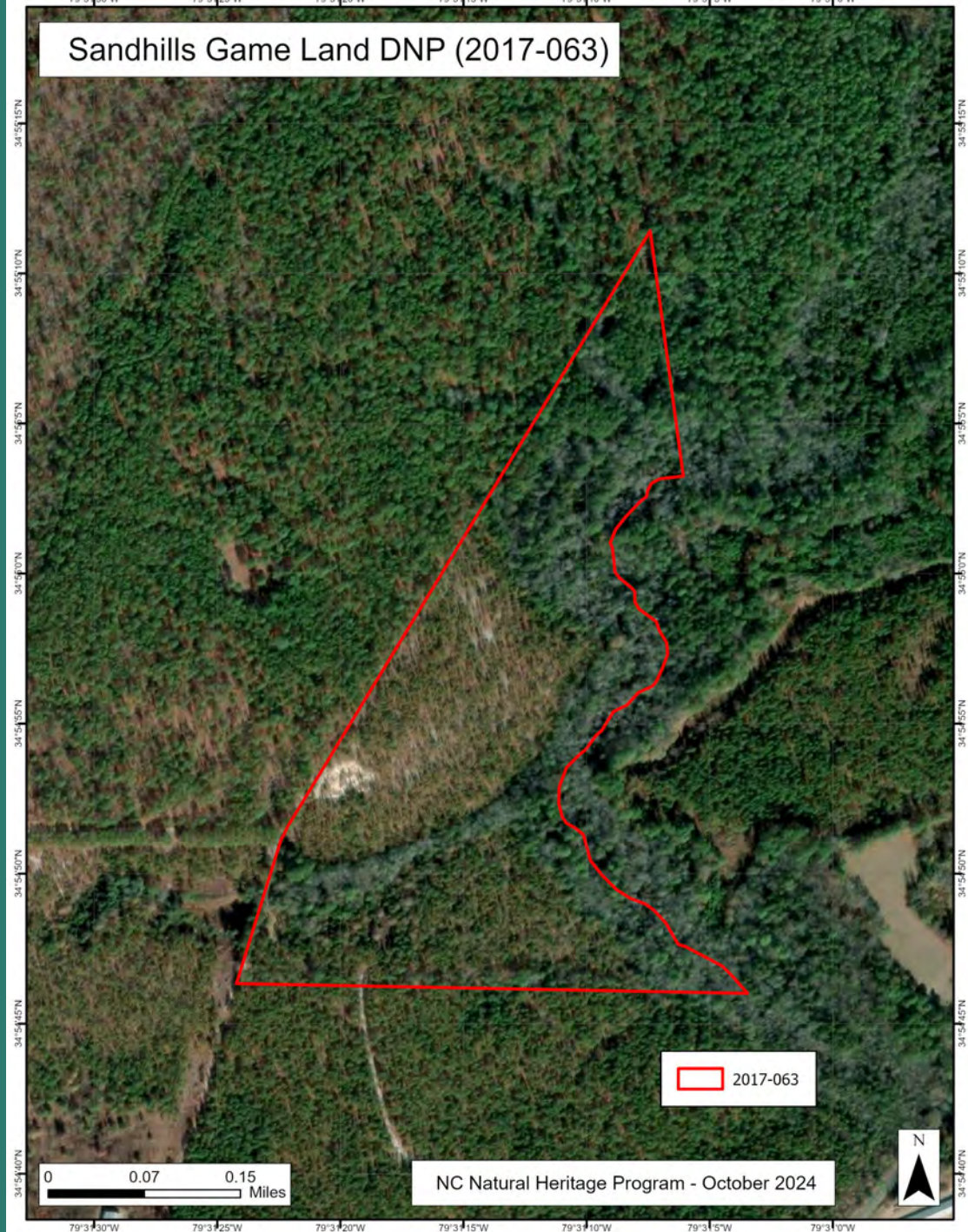
Sandhills Game Land DNP



Sandhills Game Land DNP



Sandhills Game Land DNP (2017-063)

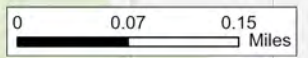
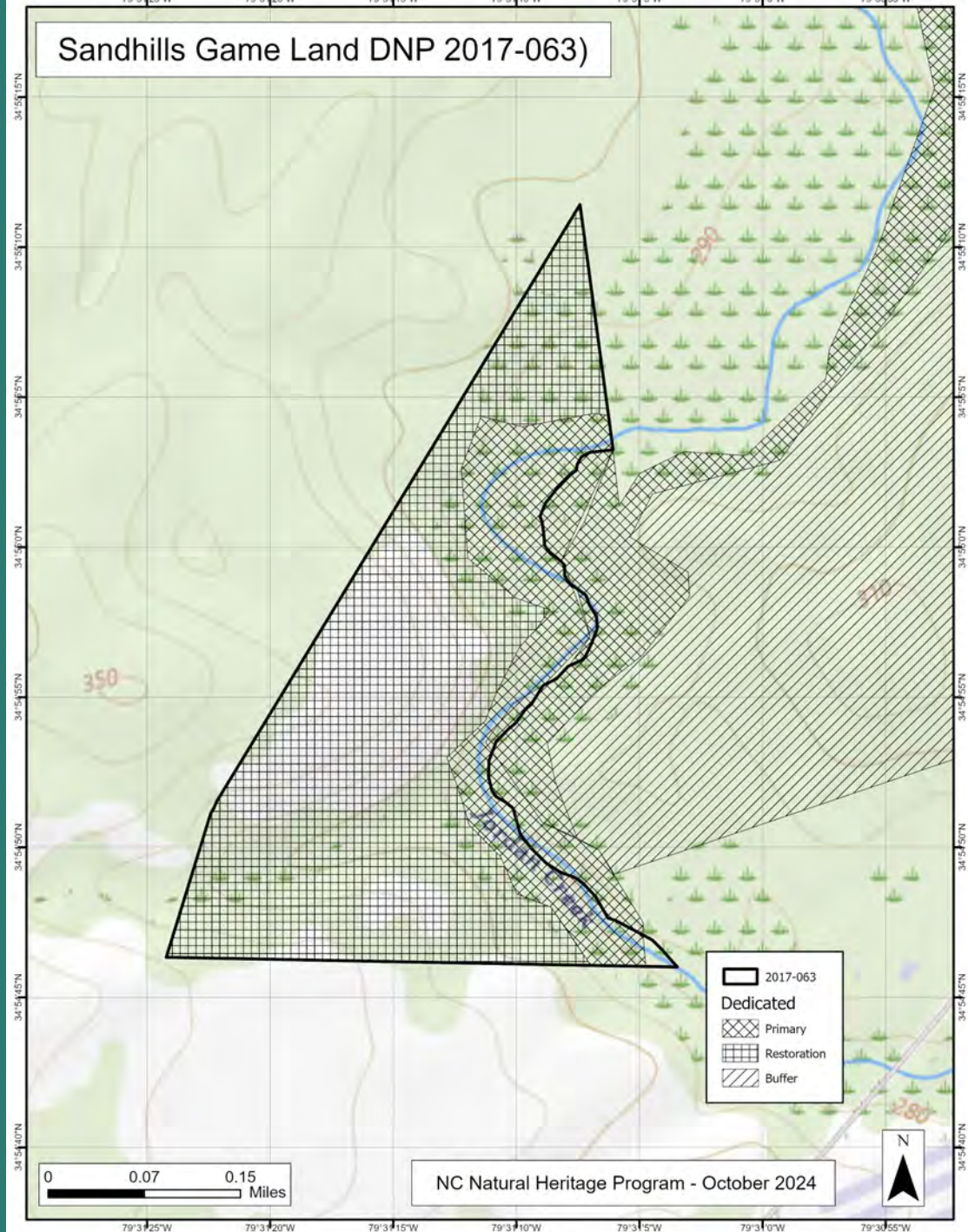


0 0.07 0.15
Miles

NC Natural Heritage Program - October 2024

2017-063

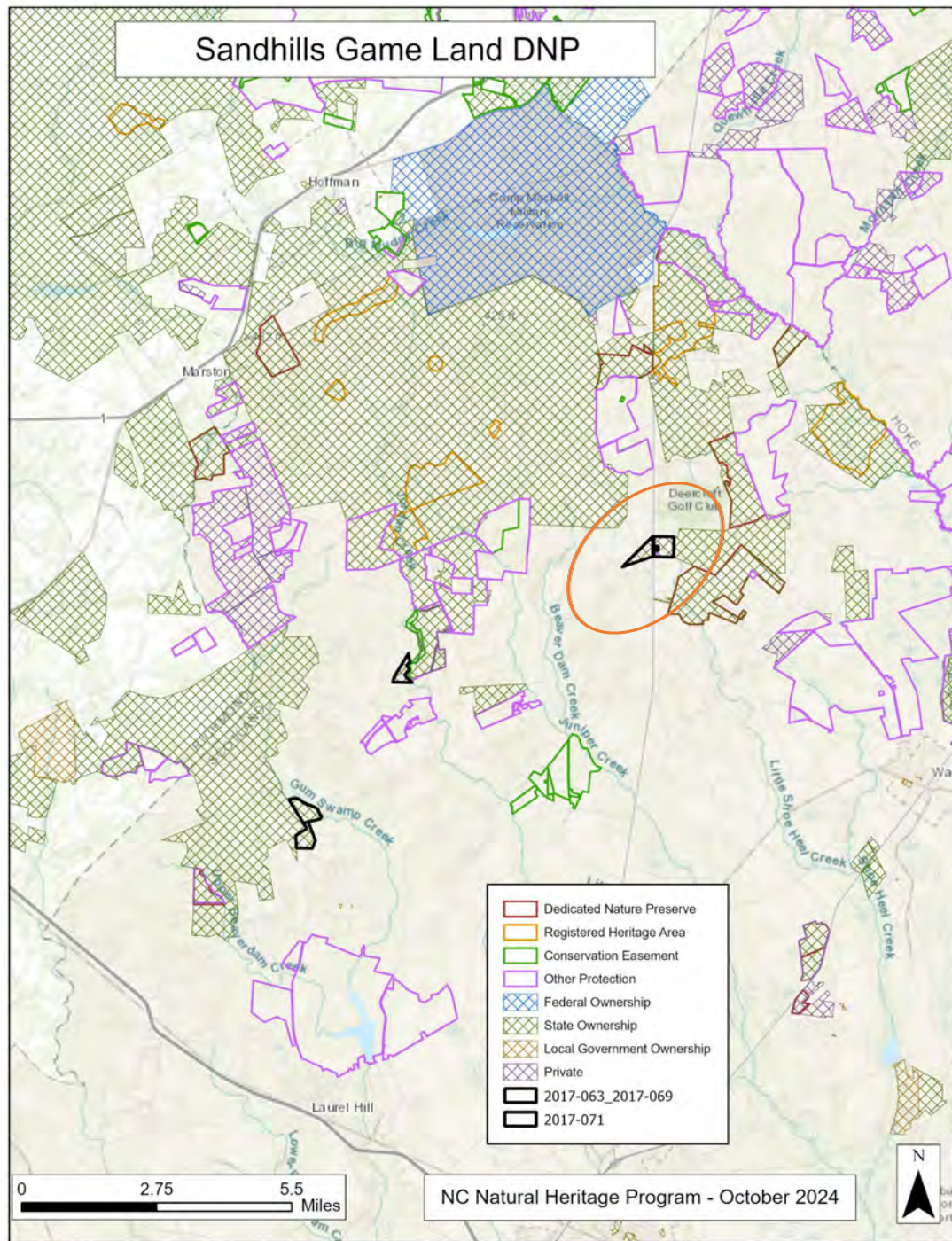
Sandhills Game Land DNP 2017-063)



NC Natural Heritage Program - October 2024



Sandhills Game Land DNP



Sandhills Game Land DNP (2017-069)



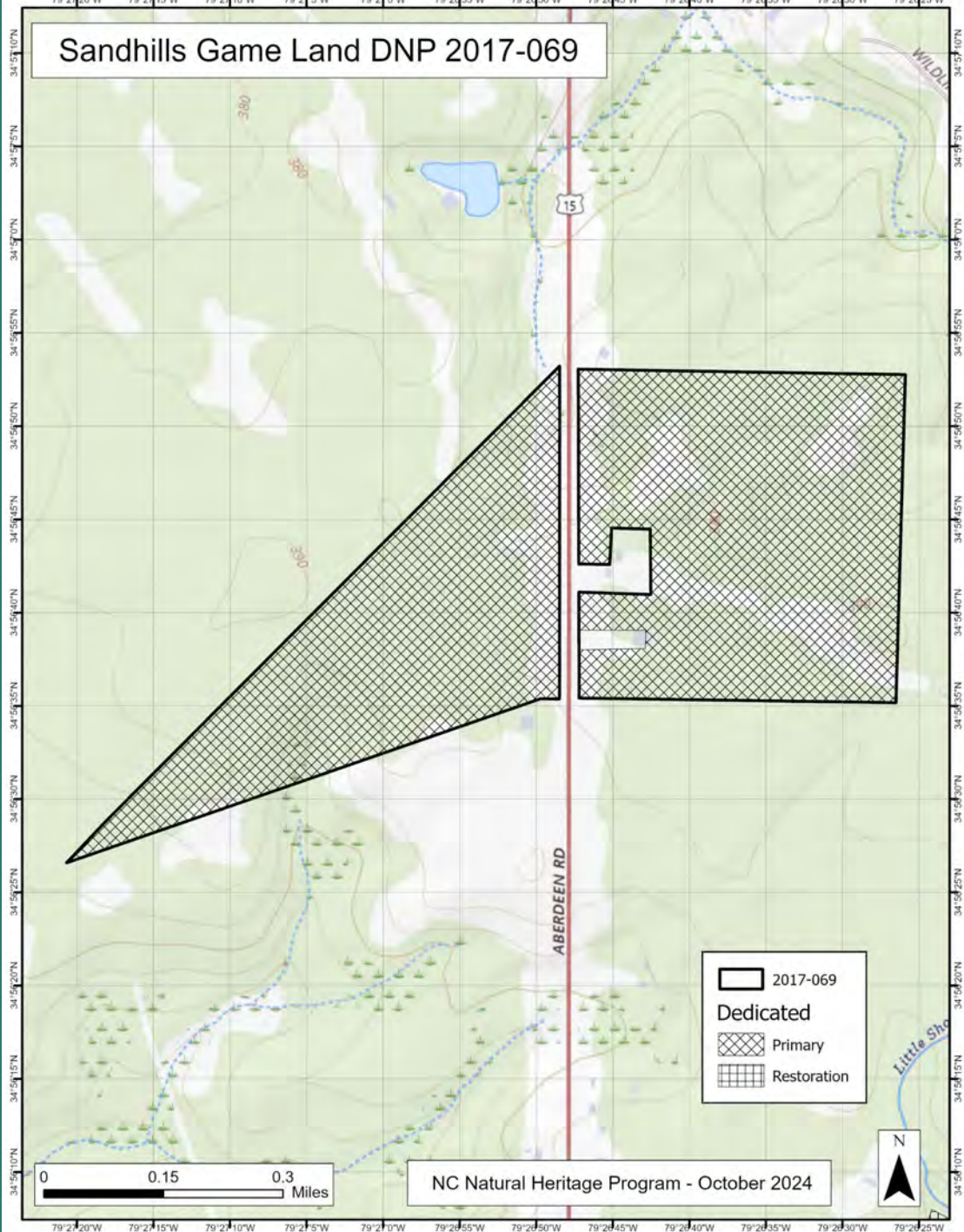
2017-069

0 0.15 0.3 Miles

NC Natural Heritage Program - October 2024



Sandhills Game Land DNP 2017-069

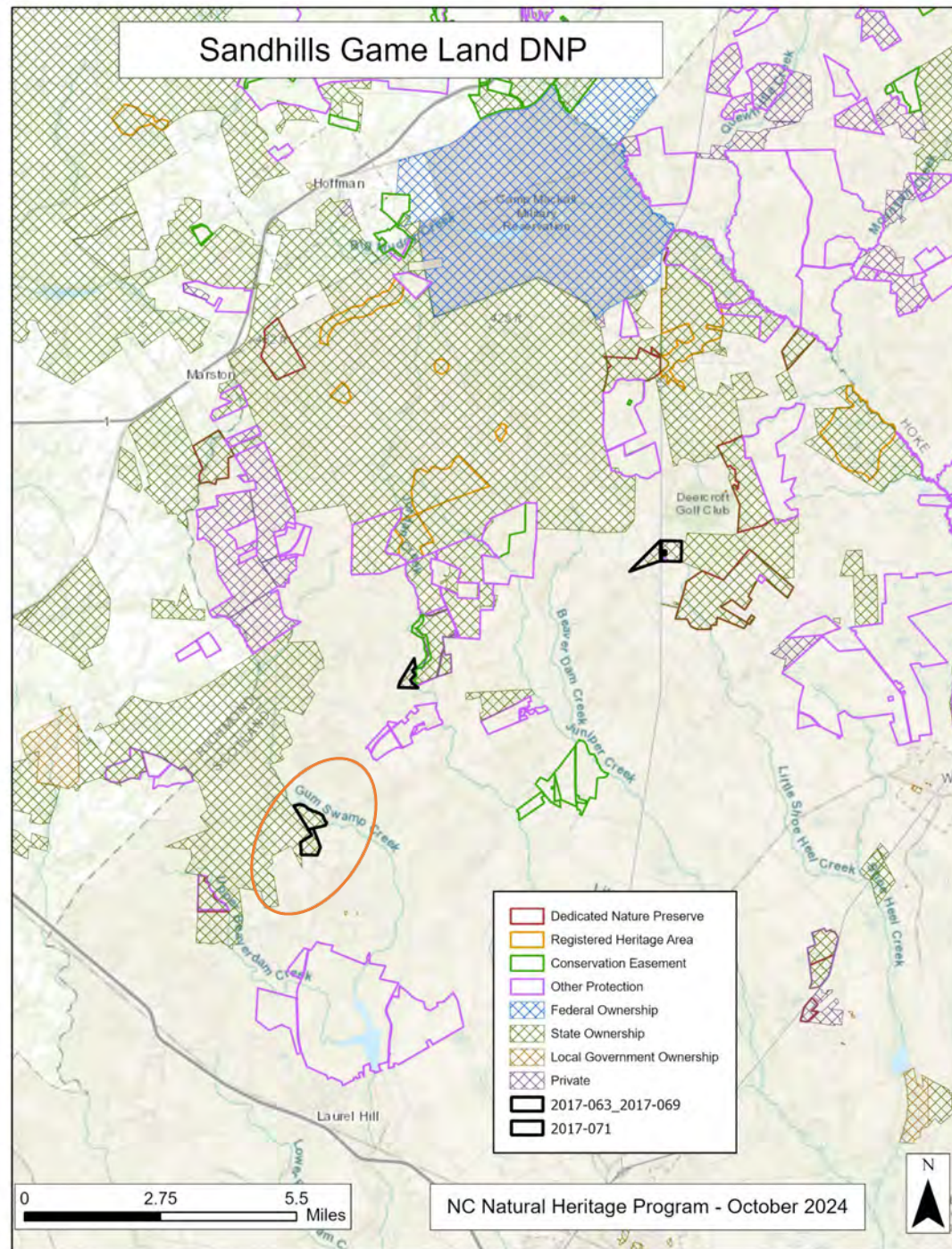


- 2017-069
- Dedicated
- Primary
- Restoration

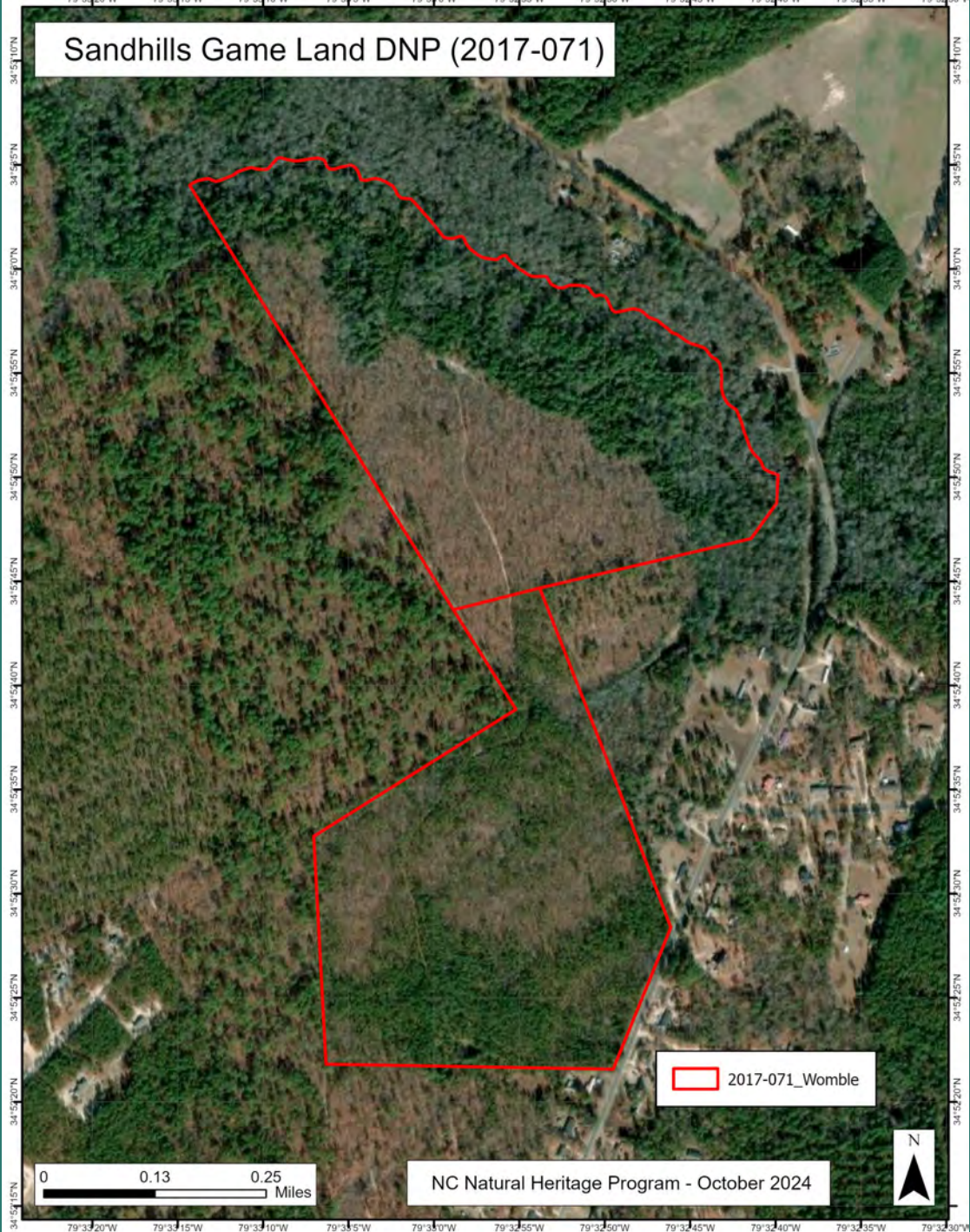
0 0.15 0.3 Miles

NC Natural Heritage Program - October 2024

Sandhills Game Land DNP



Sandhills Game Land DNP (2017-071)



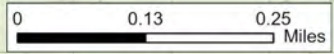
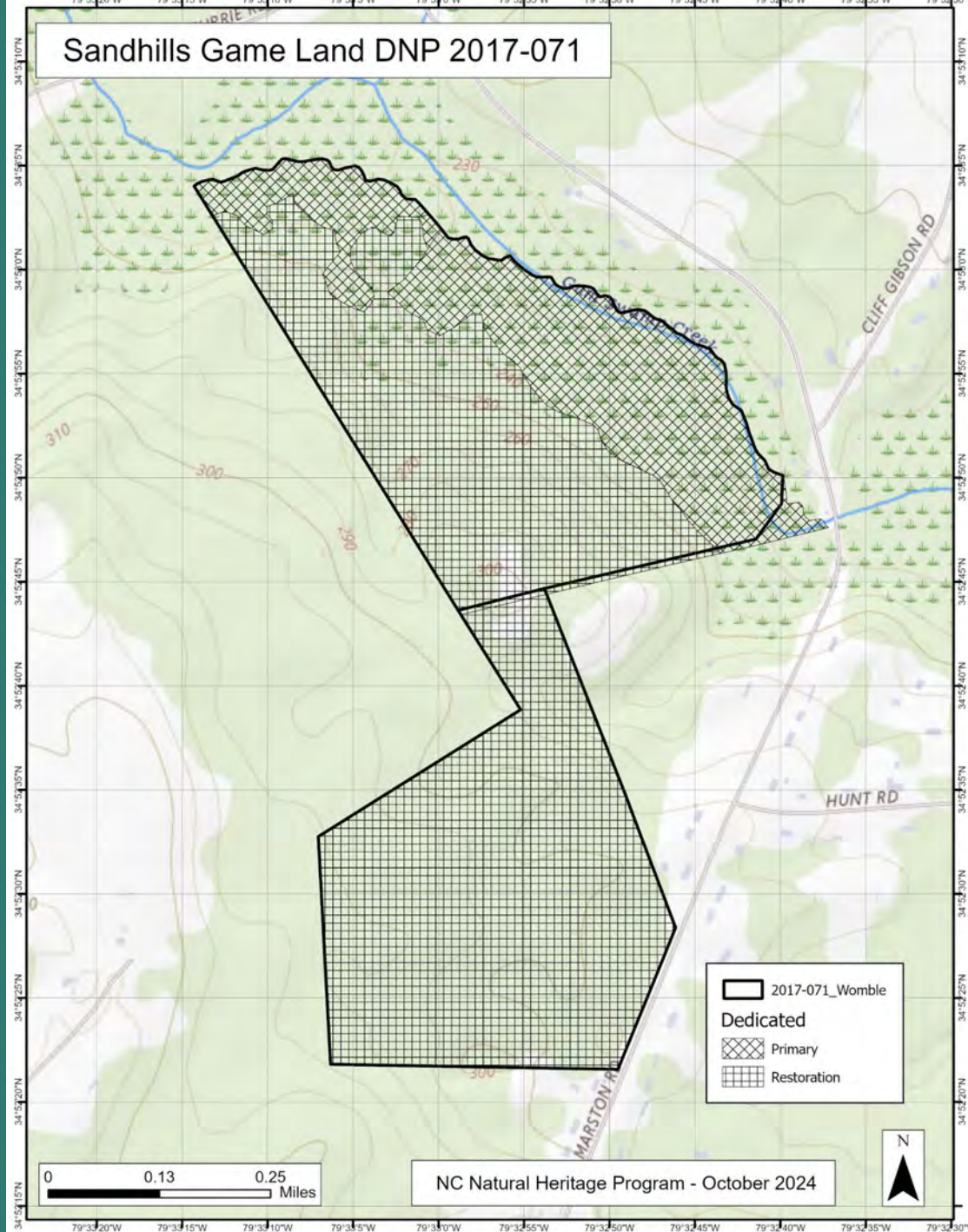
2017-071_Womble

0 0.13 0.25 Miles

NC Natural Heritage Program - October 2024



Sandhills Game Land DNP 2017-071



NC Natural Heritage Program - October 2024



Sandhills Game Land Dedicated Nature Preserve

Amendment to add Godwin II, Usher, Womble tracts (NCLWF #2017-063, and #2017-069, 2017-071)

- Adds 281 acres to DNP:
 - 290 acres Primary, including 132 acres restoration
 - (9) acres Buffer (reduction in acres)*
- Total DNP 6,215 acres:
 - Primary Area 4,742 acres, including 2,349 acres restoration
 - Buffer Area 1,198 acres
 - Special management area 275 acres
- Element Occurrences include:
 - Xeric Sandhills Scrub (Typic Subtype) S3G3
 - Streamhead Atlantic White Cedar Forest S2G2
 - Sandhill Streamhead Swamp S4G4
 - Pinewoods Darter (*Etheostoma mariae*) S2G3
 - Federally Endangered Red-cockaded Woodpecker (*Dryobates borealis*) S2G3

*Boundary Corrections result in changes to overall acres

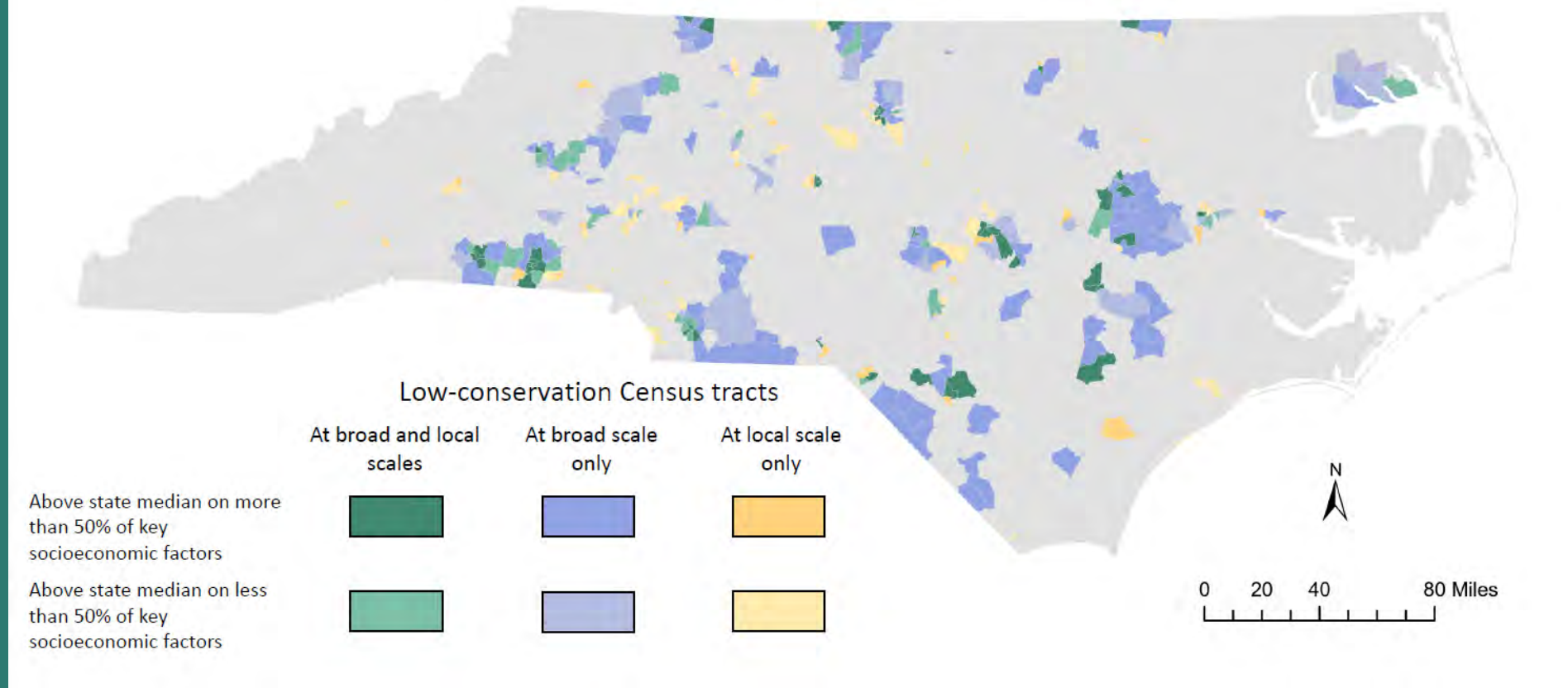
Registry

- Recognizes a natural area for its natural heritage resource values
- Voluntary agreement to protect and manage the natural area
- Agreement between Secretary and landowner
 - Can be rescinded by either party
- Management recommendations provided by NHP



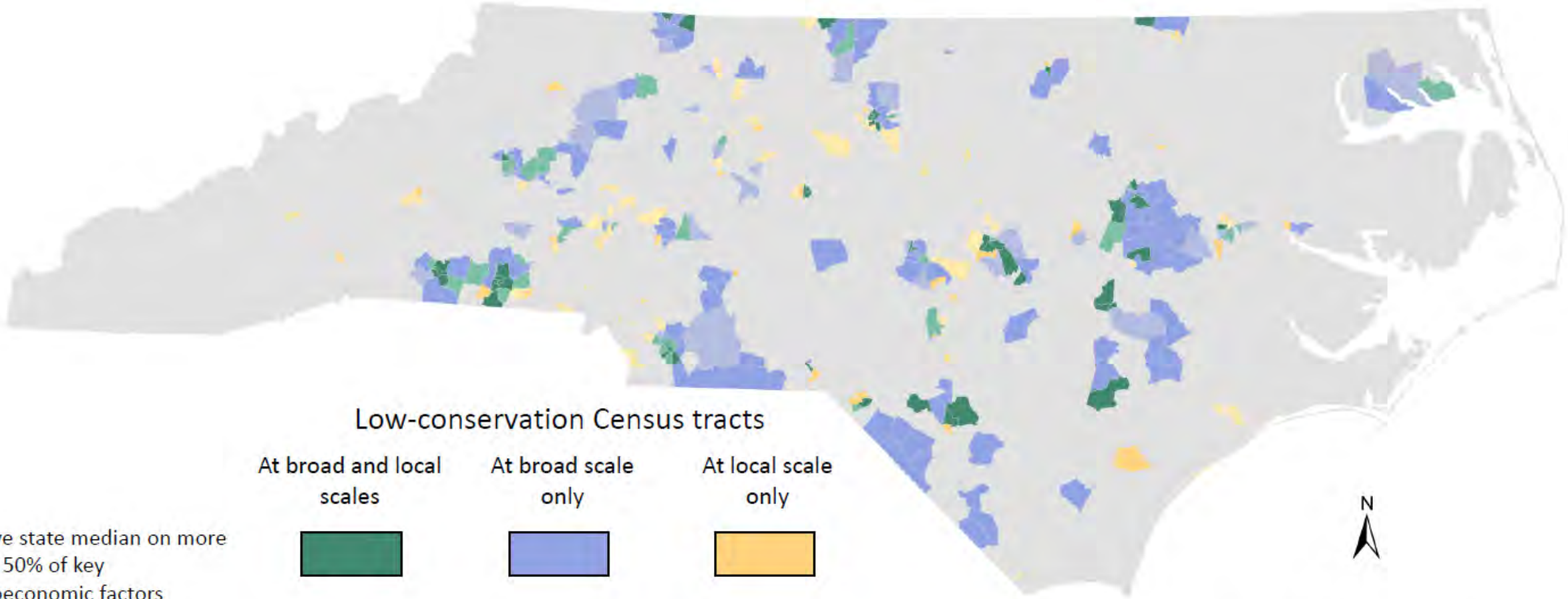
Rutherfordton Mountain View Rare Plant Site RHA

Where could new conservation be focused to reduce these discrepancies?





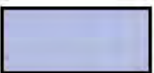



Slide from Duke University presentation about socioeconomic discrepancies in low conservation areas

Where could new conservation be focused to reduce these discrepancies?

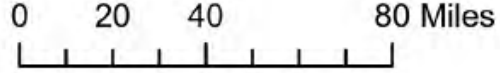


Low-conservation Census tracts

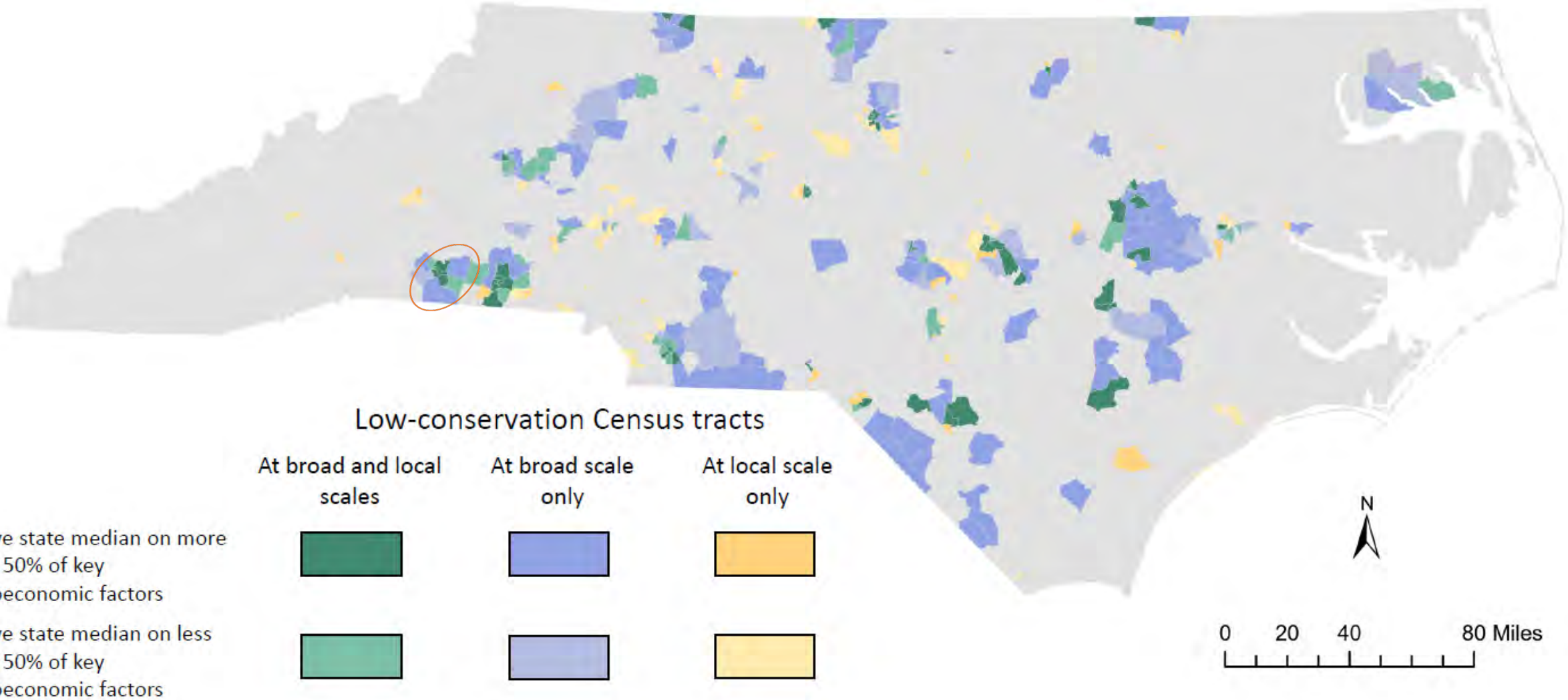
	At broad and local scales	At broad scale only	At local scale only
Above state median on more than 50% of key socioeconomic factors			
Above state median on less than 50% of key socioeconomic factors			

Above state median on more than 50% of key socioeconomic factors

Above state median on less than 50% of key socioeconomic factors



Where could new conservation be focused to reduce these discrepancies?




Rutherfordton Mountain View Rare Plant Site RHA

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Rutherfordton protects rare plant; Designates Natural Heritage Area

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By SCOTT CARPENTER scarpenter@thedigitalcourier.com Sep 6, 2024 Updated Sep 6, 2024



The rare Dwarf-flowered heartleaf is a low-growing evergreen perennial plant, that has been discovered on town-owned property in Rutherfordton.

Contribute Photo

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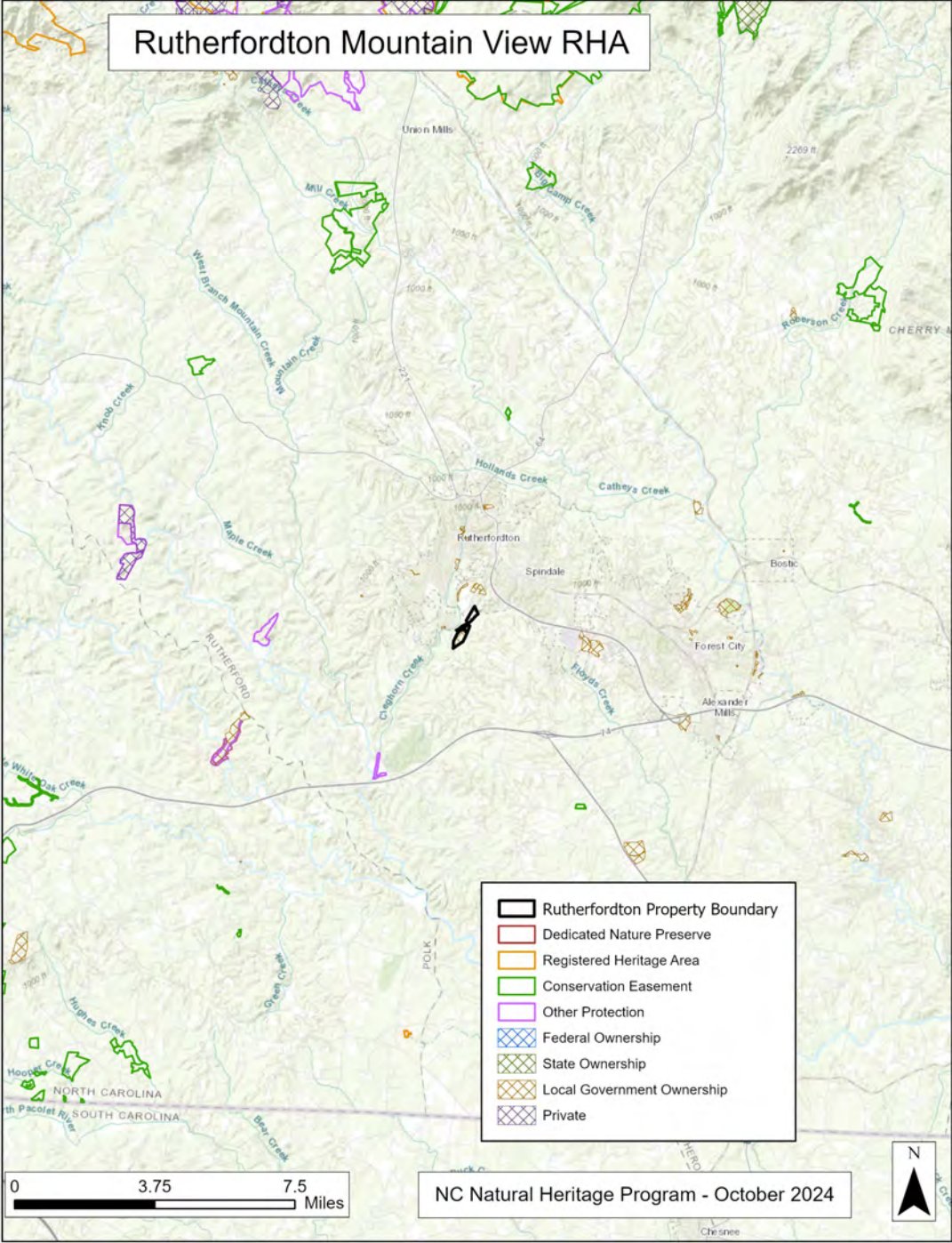
Rutherfordton Mountain View RHA



Rutherford County

Cheraw, Catawba, Miccosukee

Rutherfordton Mountain View RHA



0 3.75 7.5 Miles

NC Natural Heritage Program - October 2024



Rutherfordton Mountain View RHA



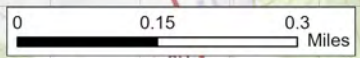
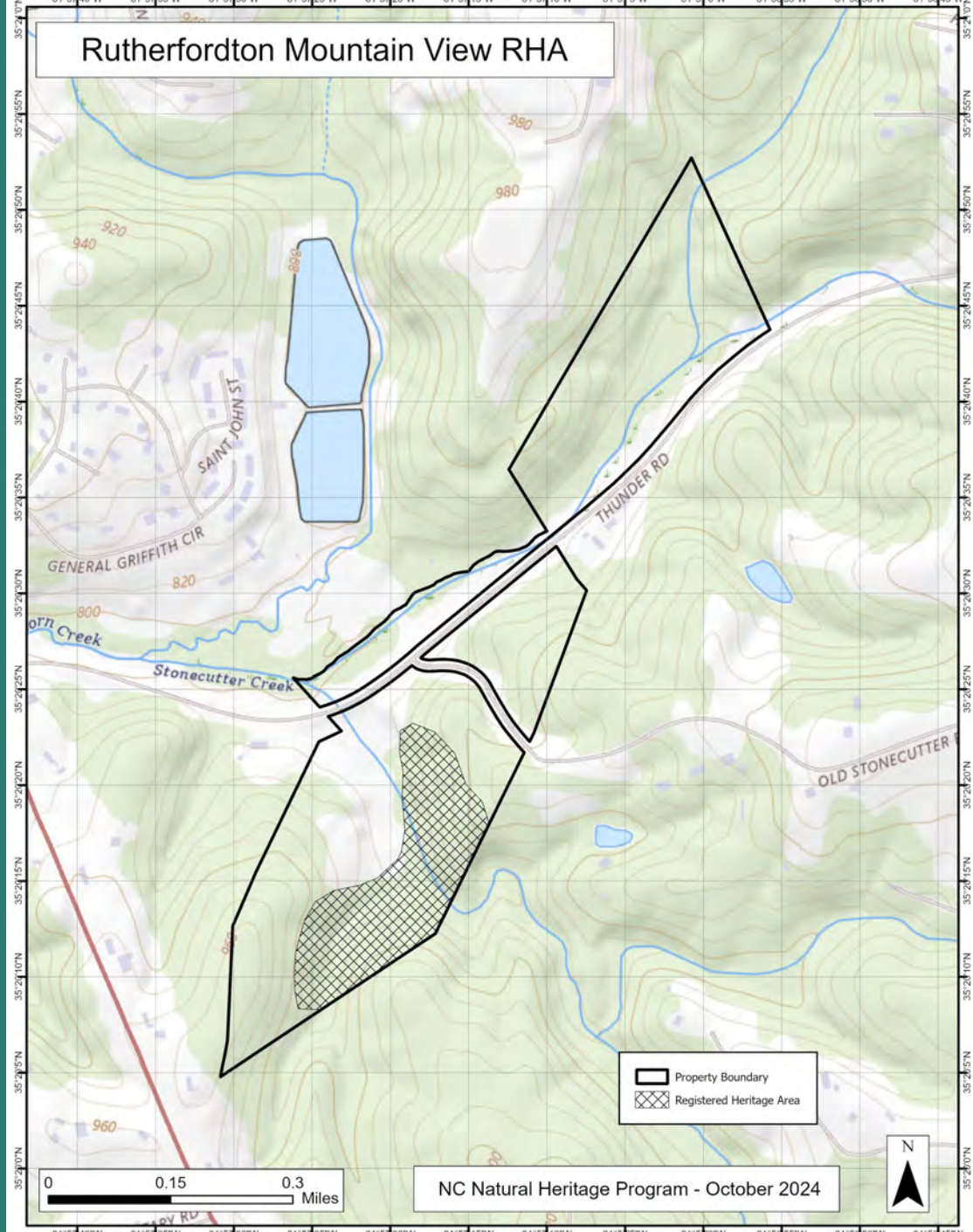
 Rutherfordton Property Boundary

0 0.15 0.3
Miles

NC Natural Heritage Program - October 2024



Rutherfordton Mountain View RHA



NC Natural Heritage Program - October 2024



Rutherfordton Mountain View Rare Plant Site Registered Heritage Area

- New voluntary registry
 - 13.7 acres, all Primary
- Element occurrences include:
 - Dwarf-flowered Heartleaf (*Hexastylis naniflora*) S3G3
- Part of Davenport Road/Mountain View natural area (R4C5)



Dwarf-flowered Heartleaf (*Hexastylis naniflora*) photo courtesy Samantha Tessel

White Pines (Camp) RHA

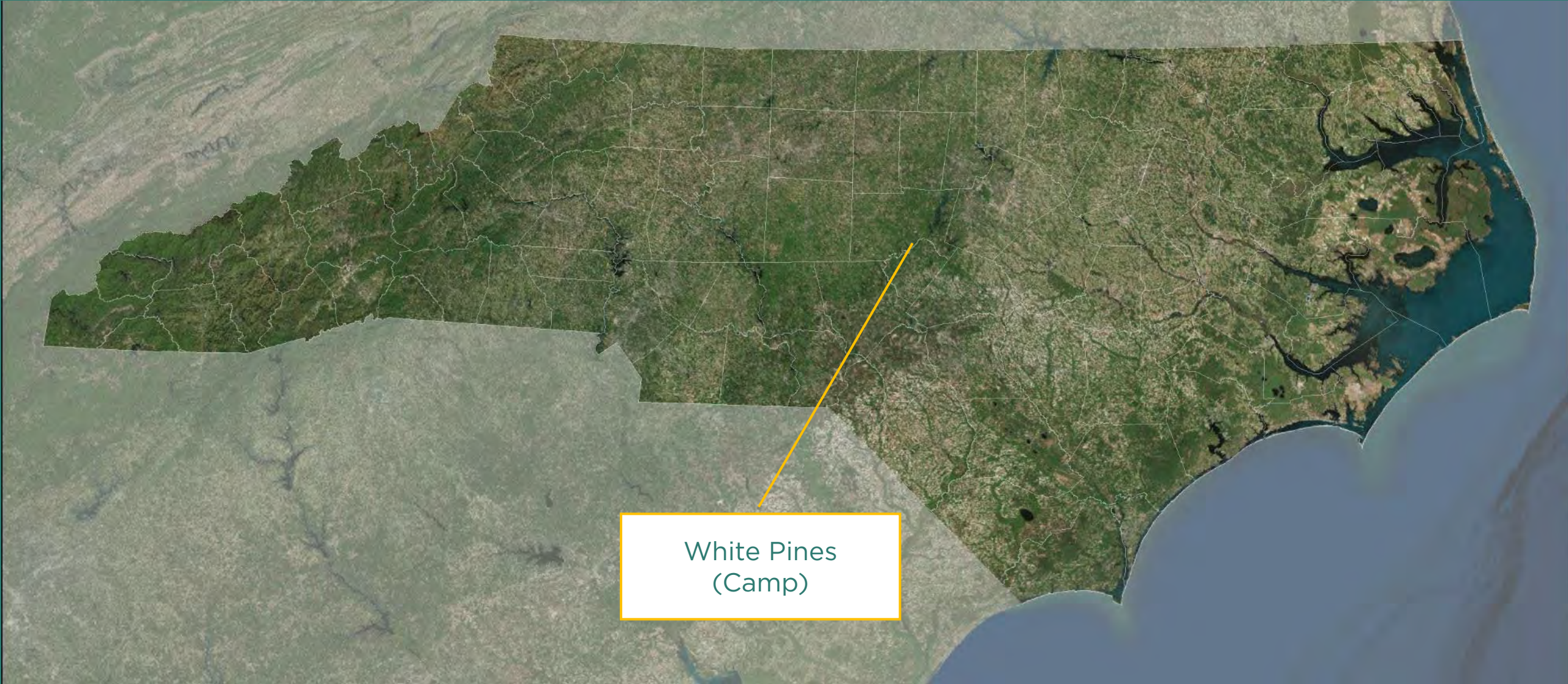


30.5 inch DBH White Pine, Camp Property



Rocky River riparian zone, Camp Property,
Photo courtesy of Steve Hall

White Pines (Camp) RHA

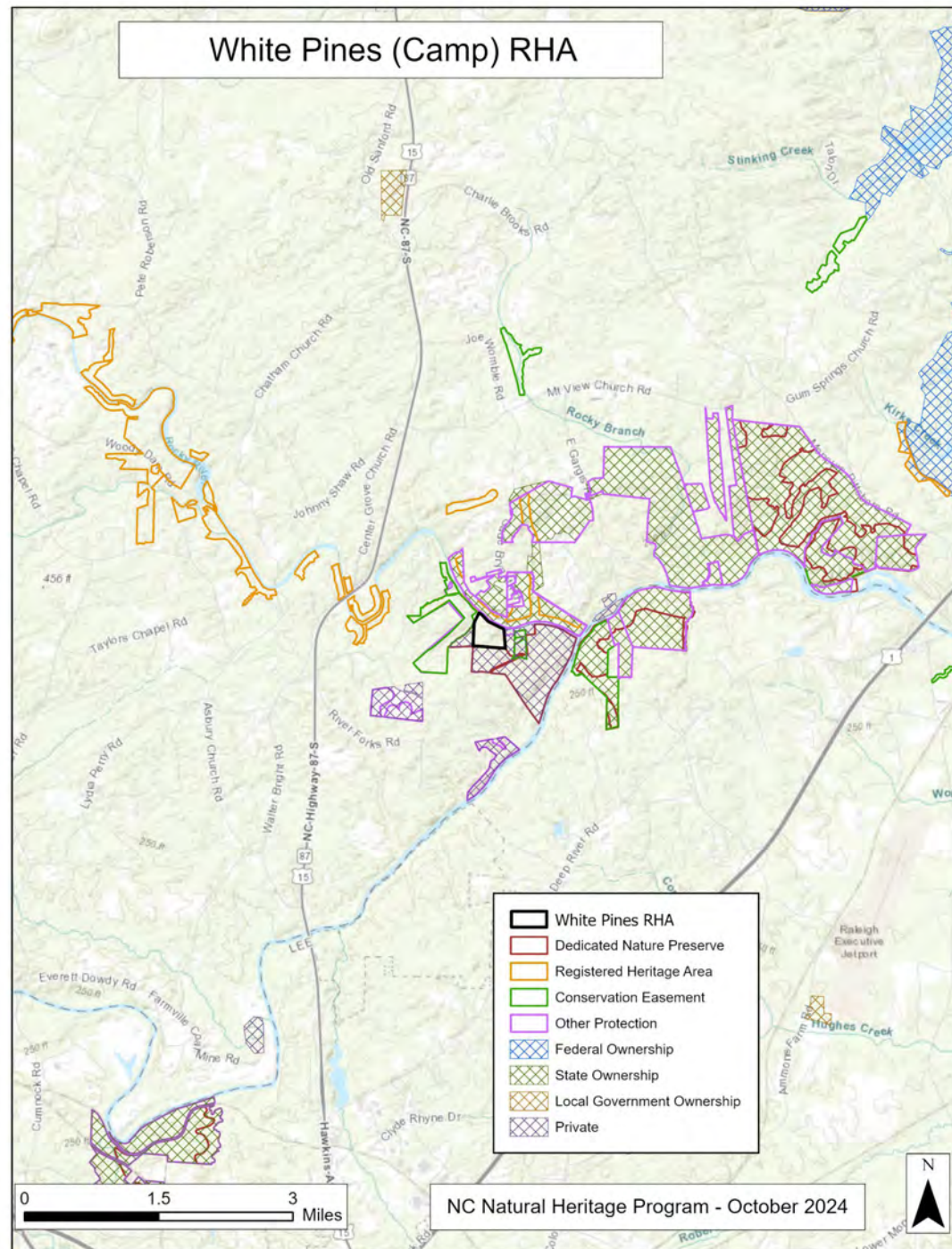


Chatham County

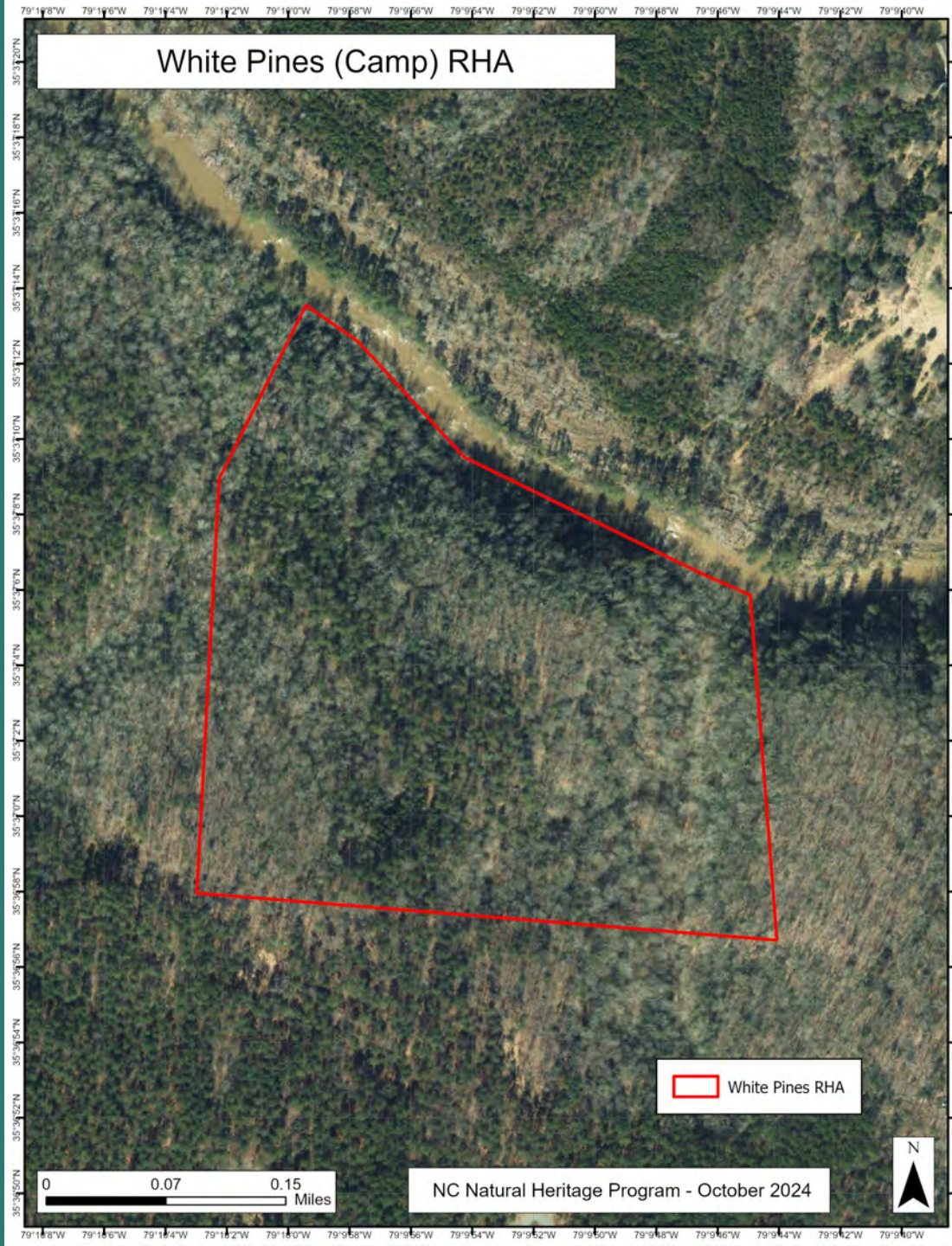
Tuscarora, Lumbee, Catawba



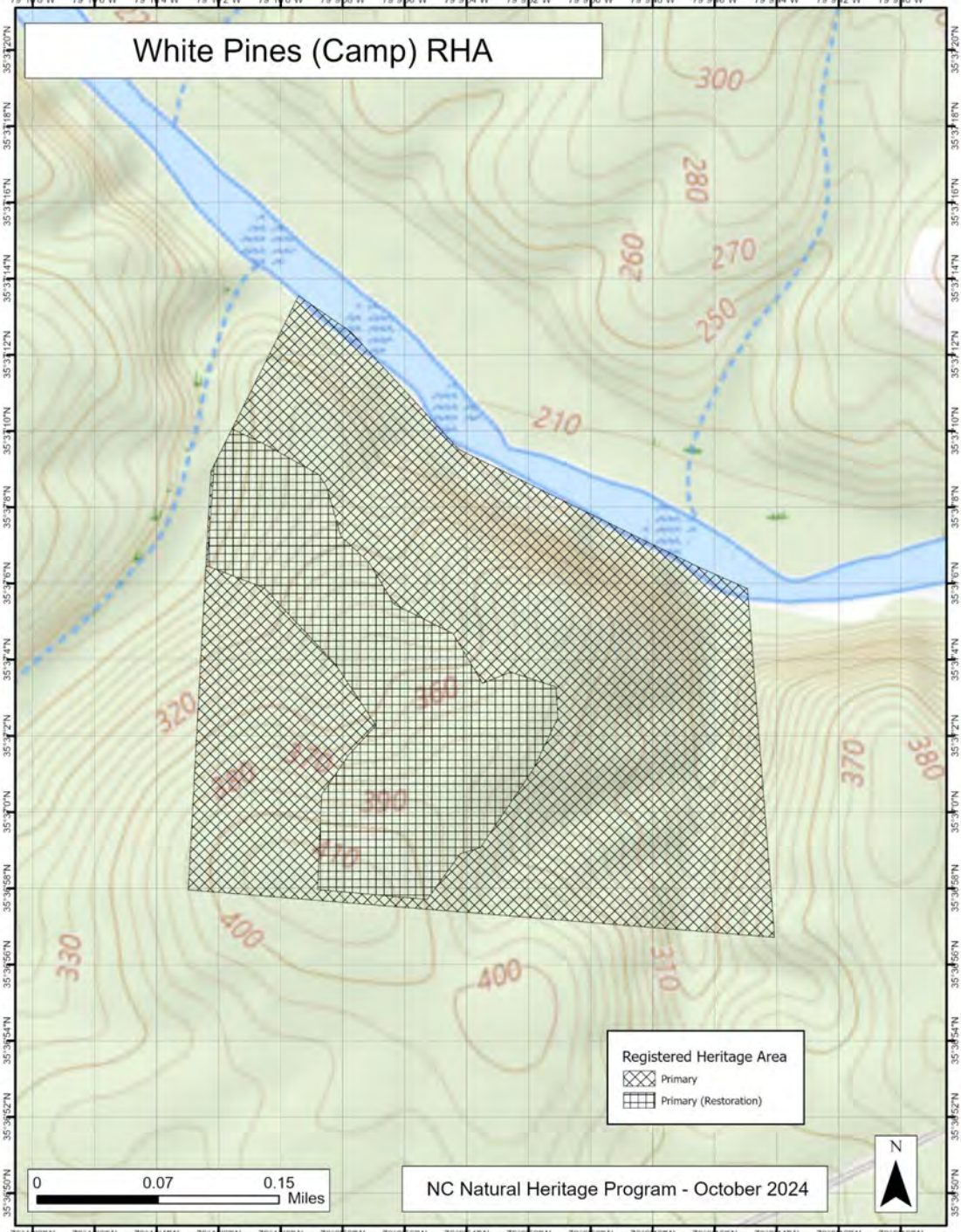
Rocky River adjacent to Camp property,
Photo courtesy of Steve Hall



White Pines (Camp) RHA



White Pines (Camp) RHA



Registered Heritage Area
Primary
Primary (Restoration)

0 0.07 0.15
Miles

NC Natural Heritage Program - October 2024



White Pines (Camp) Registered Heritage Area

- New voluntary registry
 - 41.7 acres, all Primary
- Element occurrences include:
 - Mesic Mixed Hardwood Forest (Piedmont Subtype) S4G3
 - Dry-Mesic Oak--Hickory Forest (Piedmont Subtype) S4G4
 - Piedmont/Coastal Plain Heath Bluff S3G3
 - Large Witch-alder (*Fothergilla major*) S3G3
- Adjacent aquatic habitat includes:
 - Cape Fear Shiner (*Notropis mekistocholes*) S1G1
 - Carolina Redhorse (*Moxostoma* sp. 3) S2G1
 - Chameleon Lampmussel (*Lampsilis* sp. 2) S2G2...and more
- Part of White Pines natural area (R2C3); adjacent to CPF Rocky River Subbasin Aquatic Habitat (R1C2)



Fothergilla major, 17 October 2024, White Pines Camp property,
Photo courtesy of Steve Hall

Questions:

Misty Franklin

Division of Land and Water Stewardship

Natural Heritage Program

Misty.Franklin@dncr.nc.gov

