

Identifying and Prioritizing Important Natural Resources: The NC Conservation Planning Tool



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NC Natural Heritage Program

North Carolina Department of Environment and Natural Resources

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The mission of the NC Natural Heritage Program

To inventory, catalogue, and support the conservation of the rarest and the most outstanding elements of the natural diversity of our state.



www.ncnhp.org

NC Natural Heritage Program

- Founded in 1976
- Guided by the Nature Preserves Act § 113A-164.1
- Part of an international network of Natural Heritage programs (NatureServe) that follow a standardized methodology



www.ncnhp.org

We track Rare Species

Natural Heritage Element Occurrences (NHEOs)

Plants

Vascular & non-vascular,
terrestrial & aquatic

(898 taxa)

Animals

Vertebrate & invertebrate,
terrestrial & aquatic

(665 taxa)



We track Natural Communities

Natural Heritage Element Occurrences (NHEOs)



Based on the North Carolina Classification of Natural Communities, 4th approximation (Schafale 2012)

Ca. 340 community types and subtypes are currently tracked

Special animal assemblages and habitats are also tracked

We delineate conservation sites and evaluate their significance

Significant Natural Heritage Areas (SNHAs)



An SNHA = an area of land or water identified as being important for the conservation of the state's biodiversity

SNHAs contain one or more Natural Heritage elements: high-quality or rare natural communities, rare species, and special animal habitats

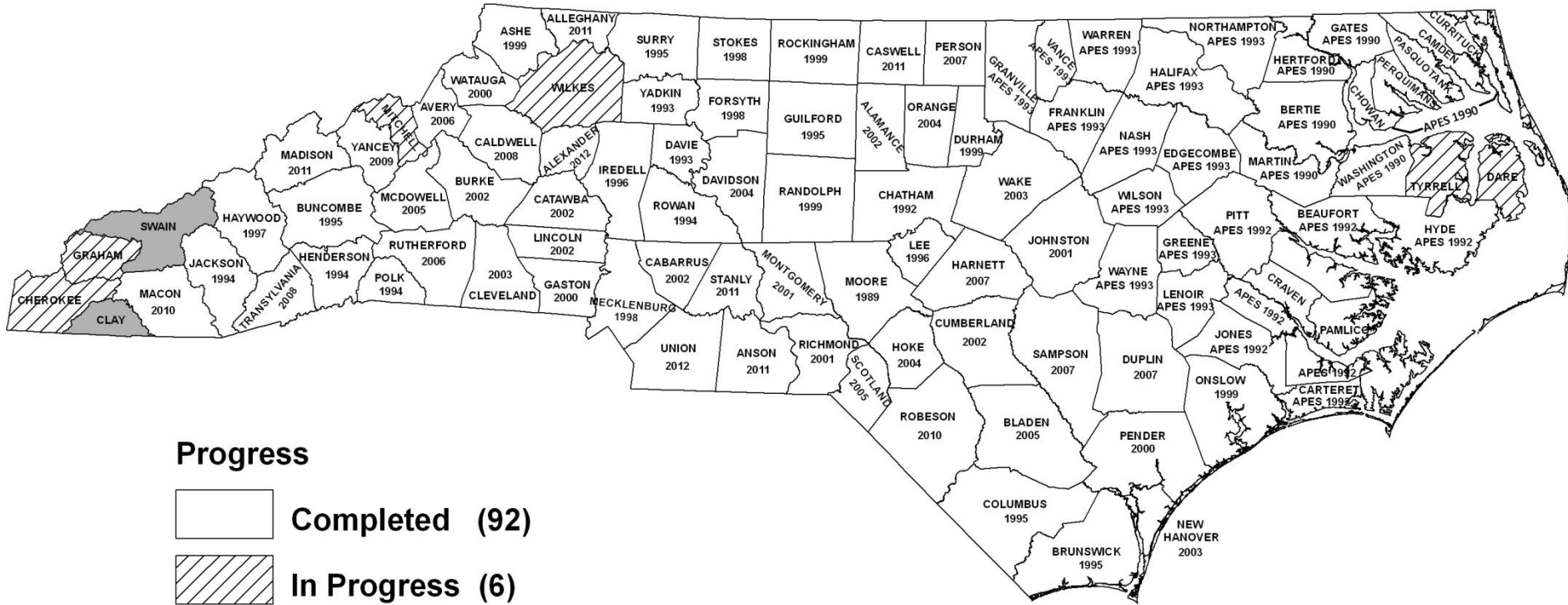
We conduct and publish Natural Area Inventories

- A systematic survey effort to identify Significant Natural Heritage Areas (SNHAs) based on high-quality natural communities and rare species
- The scope of an inventory is typically limited to a county, but we also conduct regional inventories (e.g., APES Phase I and II, Roanoke River).



Status of County Natural Area Inventories in North Carolina

November 2012

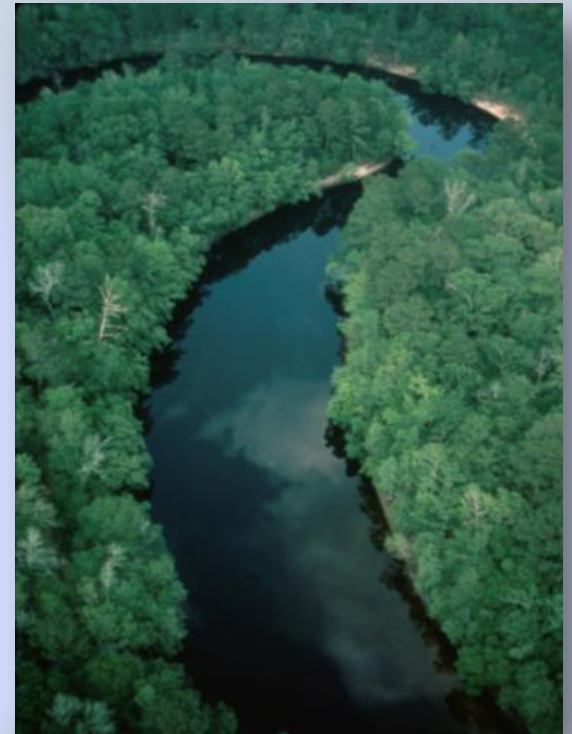


Note: APES = Albemarle-Pamlico Estuarine Study. APES Regional Inventories cover multiple counties and were completed in three phases: Phase I in 1990, Phase II in 1992, and Phase III in 1993.

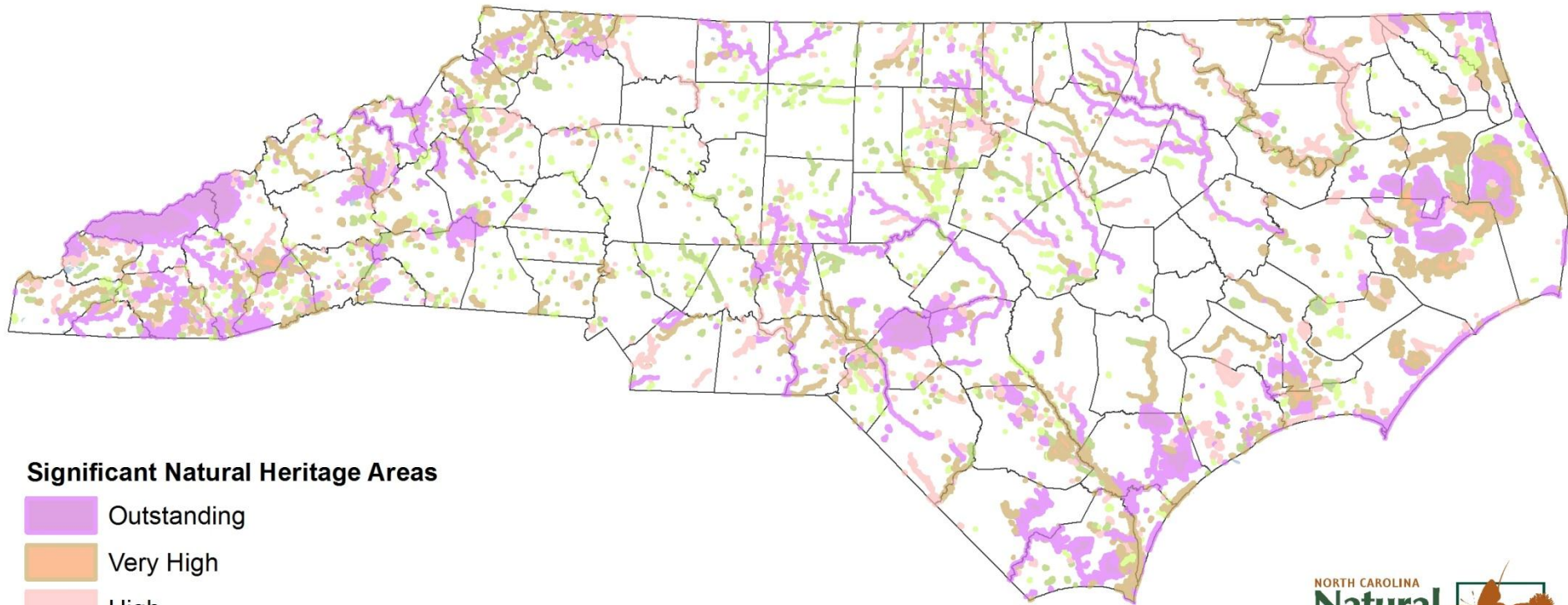


Significant Natural Heritage Areas (SNHAs)

- Identified by on-the-ground surveys
- Can range in size from one to hundreds of acres – includes both terrestrial and aquatic sites
- Significant Natural Heritage Areas (SNHAs) are identified by the NCNHP, but protection is up to the landowner
- Site protection is the primary objective of defining SNHAs



Significant Natural Heritage Areas (SNHAs)



Significant Natural Heritage Areas

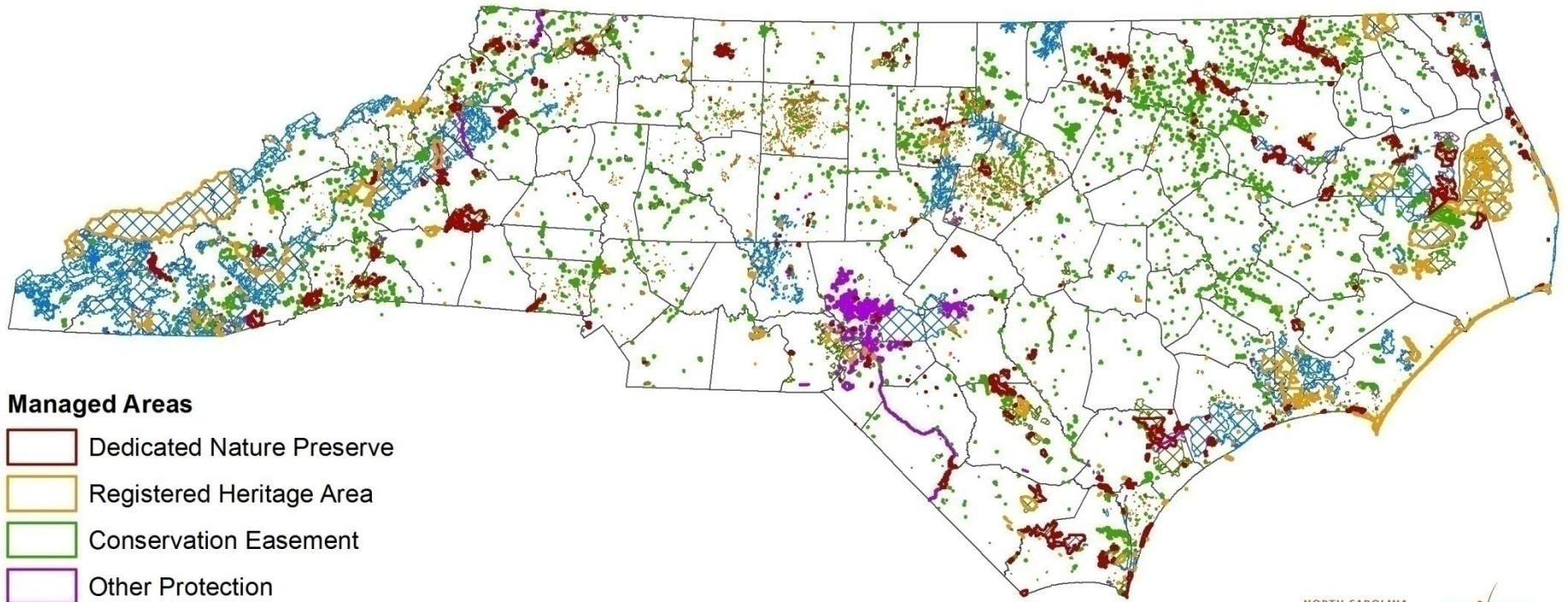
- Outstanding
- Very High
- High
- Moderate
- General
- Unranked



June 2013

Significance based on rarity and quality of Elements, and number of Elements within an SNHA

Lands Managed for Conservation (MAREAs)



Managed Areas

-  Dedicated Nature Preserve
-  Registered Heritage Area
-  Conservation Easement
-  Other Protection
-  Federal Ownership
-  State Ownership
-  Local Government Ownership
-  Private
-  Unknown

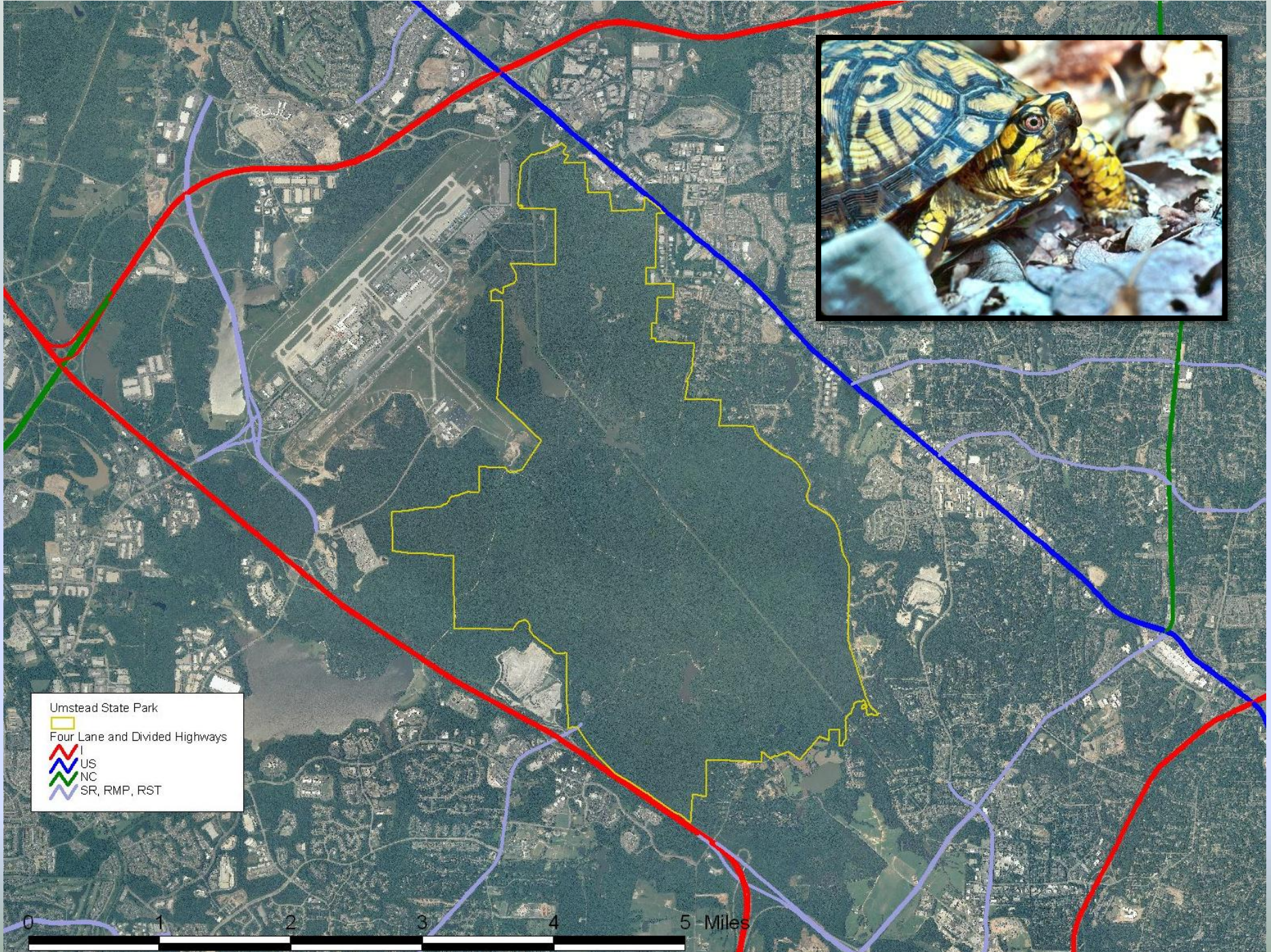


June 2013

High Priority Natural Landscapes in North Carolina



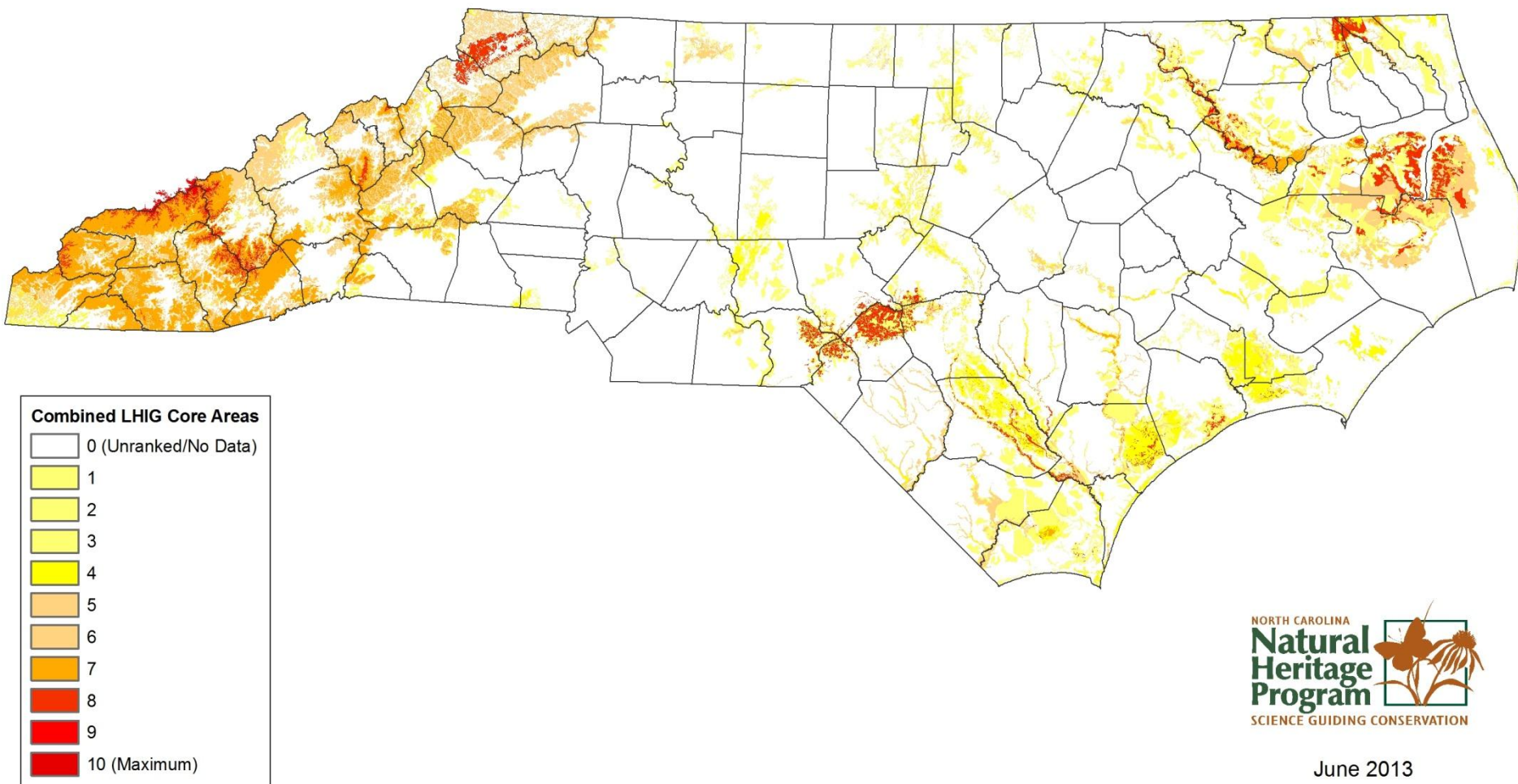
Landscape Habitat Indicator Guilds (LHIGs) are mapped and ranked based on empirical data and spatially show core wildlife habitat areas and connectivity.



Umstead State Park
Four Lane and Divided Highways
US
NC
SR, RMP, RST

0 1 2 3 4 5 Miles

Landscape Habitat Indicator Guilds (LHIGs)



Scores for core habitat areas shown here are based on the combination of Guilds present within a 30m x 30m pixel, and consider the rarity and quality of the Guilds within those areas

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Natural Heritage Program - Home - Mozilla Firefox

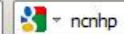


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Natural Heritage Program

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Data Services

The [Map Viewer](#) provides information on Natural Heritage Program data within 2 miles of user-selected locations.

The [Database Search](#) provides Natural Heritage Program data summarized by county, topo map, or statewide.

Contribute Data ▼

Publications ▼

Legislation ▼

Mission

To provide science and incentives to inform conservation decisions and support conservation of significant natural areas in our state.

The North Carolina Natural Heritage Program is part of the Office of Conservation, Planning, and Community Affairs within the N.C. Department of Environment and Natural Resources. The program serves as an information clearinghouse in support of conservation of the rarest and most outstanding elements of natural diversity in the state. These elements of natural diversity include plants and animals which are so rare or the natural communities which are so significant that they merit special consideration as land-use decisions are made.

[Learn More...](#)



NC Conservation Planning Tool (CPT)

*Providing a framework for decisions about future growth
and important natural resources*



- ***Identify, evaluate, and prioritize***
an interconnected network of essential ecosystem
resources and functions that is important for
conservation statewide
- ***Coordinate*** conservation efforts
- ***Guide*** conservation efforts
- ***Inform*** planning and funding decisions

Biodiversity/Wildlife Habitat Assessment (BWHA)

- Prioritizes aquatic and terrestrial species and habitats
- Considers landscape function and connectivity – core wildlife habitats and connectors
- Includes land and water resources important for ecosystem health and the benefits they provide



Open Space and Conservation Lands

- Includes MAREAs - lands that are
 - in permanent conservation,
 - actively managed for conservation,
 - of conservation interest
- Includes existing and planned open space and conservation lands
 - public and private lands, conservation easements, parks, regional trails, boat access areas, other recreation areas



Forestry Lands Assessment

- Prioritizes high value rural and urban forestry lands important for sustaining the forest products sector of our economy and providing ecosystem services
- Considers threats to forest health and from wildfire risk



Agricultural Lands Assessment

- Prioritizes important and viable farmland
- Includes an overall score, and individual evaluations relative to
 - agriculture infrastructure and agribusiness,
 - soils, and
 - government policy



Conducted by the NC Dept. of Agriculture

Guiding Principles for data used in the CPT Assessments



- Best available, most current data
- Data precision, accuracy, and completeness
- Resource rarity, distinctiveness, and function

Essential Ecosystem Resources & Functions

Biodiversity / Wildlife Habitat

Terrestrial

- SNHAs
- NHEOs
- LHI Guilds
- IBAs

Aquatic

- ASNHAs
- NHEOs
- Riparian buffers
- Wetlands
- ORWs
- HQWs
- Priority watersheds
- Stream bioclass
- Submerged Aquatic Vegetation (SAV)
- Fish nursery areas
- Shellfish production
- Anadromous fish spawning areas

Open Space & Conservation Lands

- Existing Federal Lands
- Existing State Lands
 - Parks
 - Trails
 - Nature Preserves
 - Recreation areas
 - Cultural sites
 - Boat access
 - Game lands
- Planned State Parks
- Regional Trails
- Existing local government parks and other natural areas (incomplete)
- Land trust properties and easements
- NCEEP easements
- CREP easements

Agricultural Lands

- Soils (realistic yield)
- County cash receipts (crops and livestock)
- Processing facilities
- County VADs/EVADs
- County Farmland Protection Plans
- Military bases
- Preserved farms (ADFP and CREP easements)

(other data are also available as part of this dataset)

Forestry Lands

- Forested lands
- Forest patch and forest canopy
- Site productivity
- T&E species
- Biodiversity/wildlife habitat
- Stream bioclass
- Hardwood and softwood market strength
- Development/growth patterns and risk from development
- Wildlife, hurricane, tornado, and freezing rain risk
- Ozone non-attainment
- Existing policies (tree ordinances, management plans)

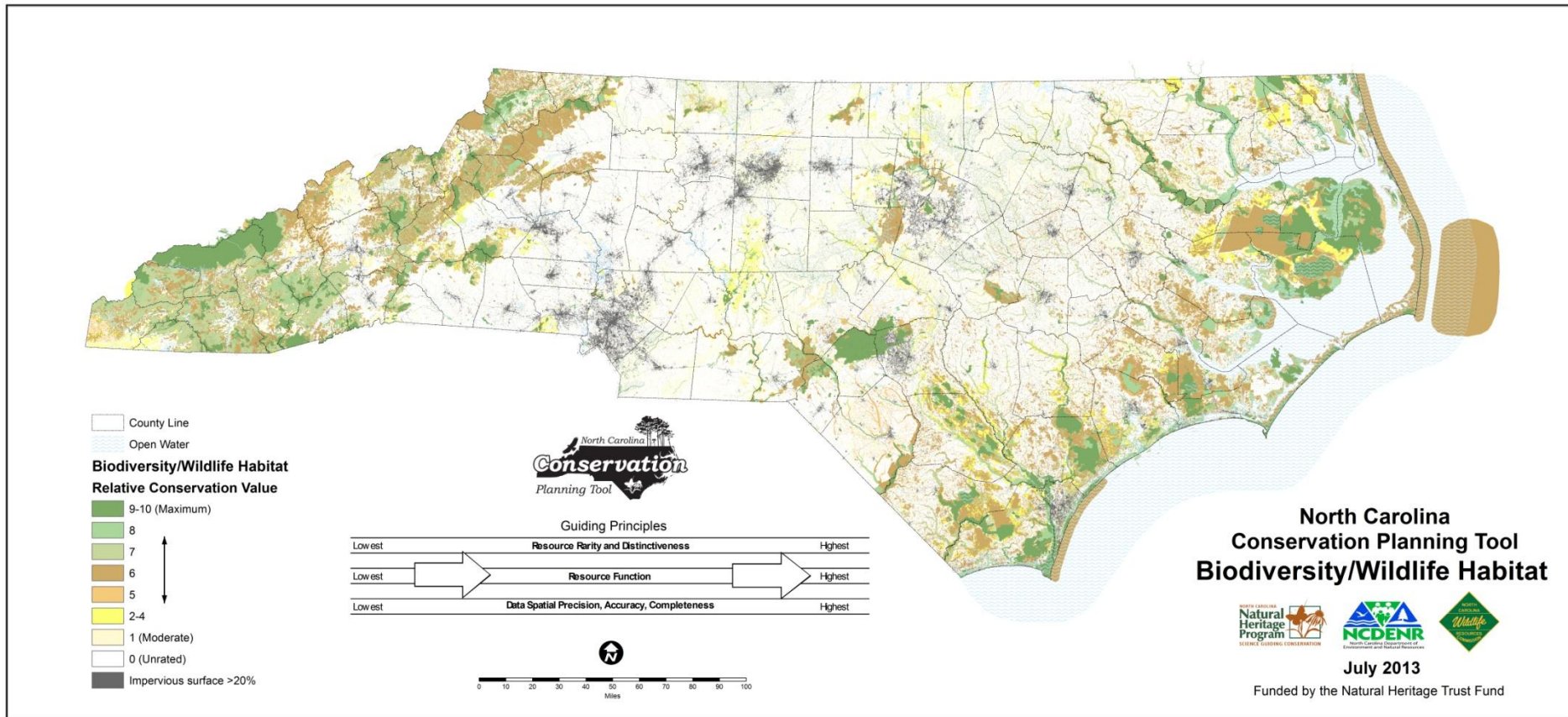
North Carolina Conservation Planning Tool

January 2013

**Identify Tool results for
the Biodiversity/Wildlife Habitat Assessment**

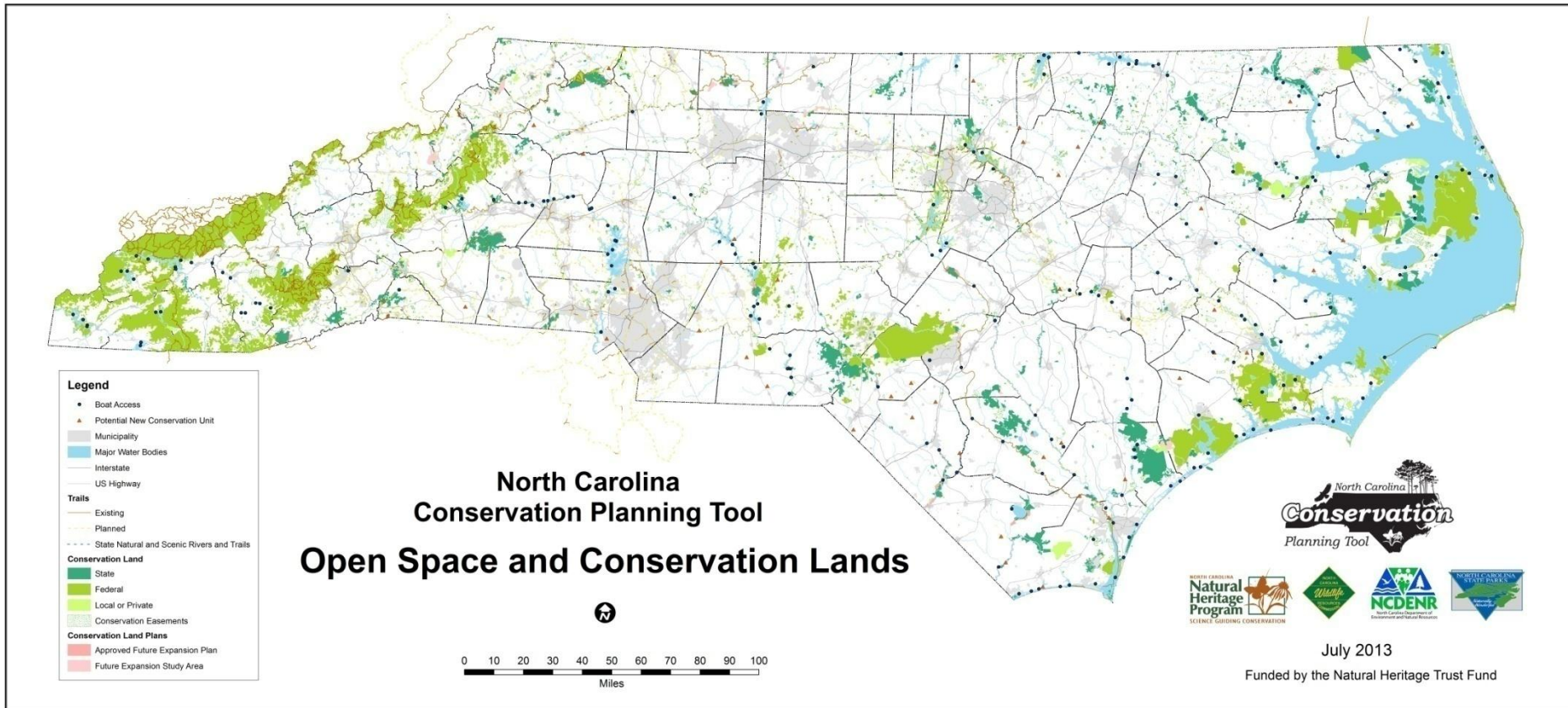
Category Name	Value	Individual Input Layers	Source for Input Layers
NHP	10	Significant Natural Heritage Areas – Outstanding and High Value	<i>NC Natural Heritage Program</i>
NHP	8	Significant Natural Heritage Areas – High and Moderate Value	
NHP	6	Significant Natural Heritage Areas - General Value	
NHP	5	Element Occurrences – High ranking (G1G2, S1, and overlapping EOs)	
NHP	4	Element Occurrences – Other	
Wetlands	7	Coastal Region Evaluation of Wetland Significance (CREWS) – Exceptional	<i>NC Division of Coastal Management</i>
Wetlands	6	Coastal Region Evaluation of Wetland Significance (CREWS) – Substantial	
Wetlands	5	National Wetlands Inventory	<i>US Fish and Wildlife Service</i>
Wetlands	2	Coastal Region Evaluation of Wetland Significance (CREWS) – Beneficial	<i>NC Division of Coastal Management</i>
Guilds	1-10	Landscape Habitat Indicator Guilds	<i>NC Natural Heritage Program</i>
DWQ	10	Outstanding Resource Waters	<i>NC Division of Water Quality</i>
DWQ	9	Stream BioClass - Excellent	
DWQ	8	High Quality Waters	
DWQ	7	Stream BioClass - Good	
DWQ	1	All other streams	
FishHabitat	9	Wild Brook Trout	<i>NC Wildlife Resources Commission</i>
FishHabitat	8	Anadromous Fish Spawning Areas	<i>NC Division of Marine Fisheries</i>
FishNursery	8	Fish Nursery Areas	<i>NC Division of Marine Fisheries</i>
Watersheds	7	Stream buffer tributaries to Threatened & Endangered Species	<i>NC Natural Heritage Program</i>
Watersheds	3	Priority Watersheds	<i>NC Natural Heritage Program, NC Wildlife Resources Commission</i>
Marine	8	Oyster Sanctuaries	<i>NC. Division of Marine Fisheries</i>
Marine	6	Submerged Aquatic Vegetation	
Hardbottom	8	Open Shellfish /Shellbottom	<i>NC Division of Marine Fisheries</i>
Hardbottom	7	Hard Bottom	
Hardbottom	5	Closed Shellfish /Shellbottom	
IBA	6	Important Bird Area	<i>Audubon</i>
Impervious	-1	Impervious Surface above 20%	<i>US Environmental Protection Agency</i>

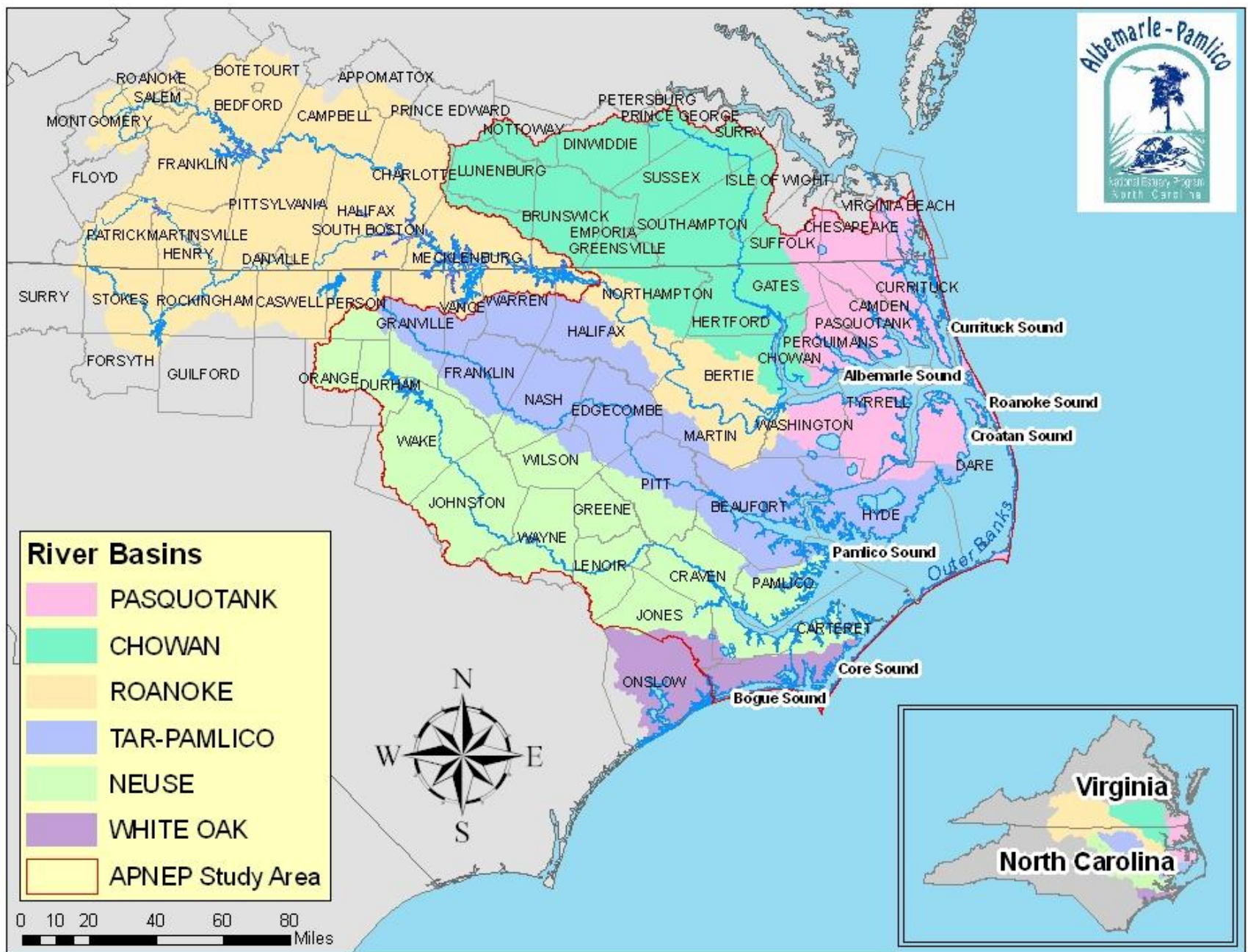
Biodiversity/Wildlife Habitat Assessment



- Raster-based GIS analysis
- Relative ranking of datasets, with a maximum score (10 point scale)
- Uses the best available, most current data

Open Space and Conservation Lands



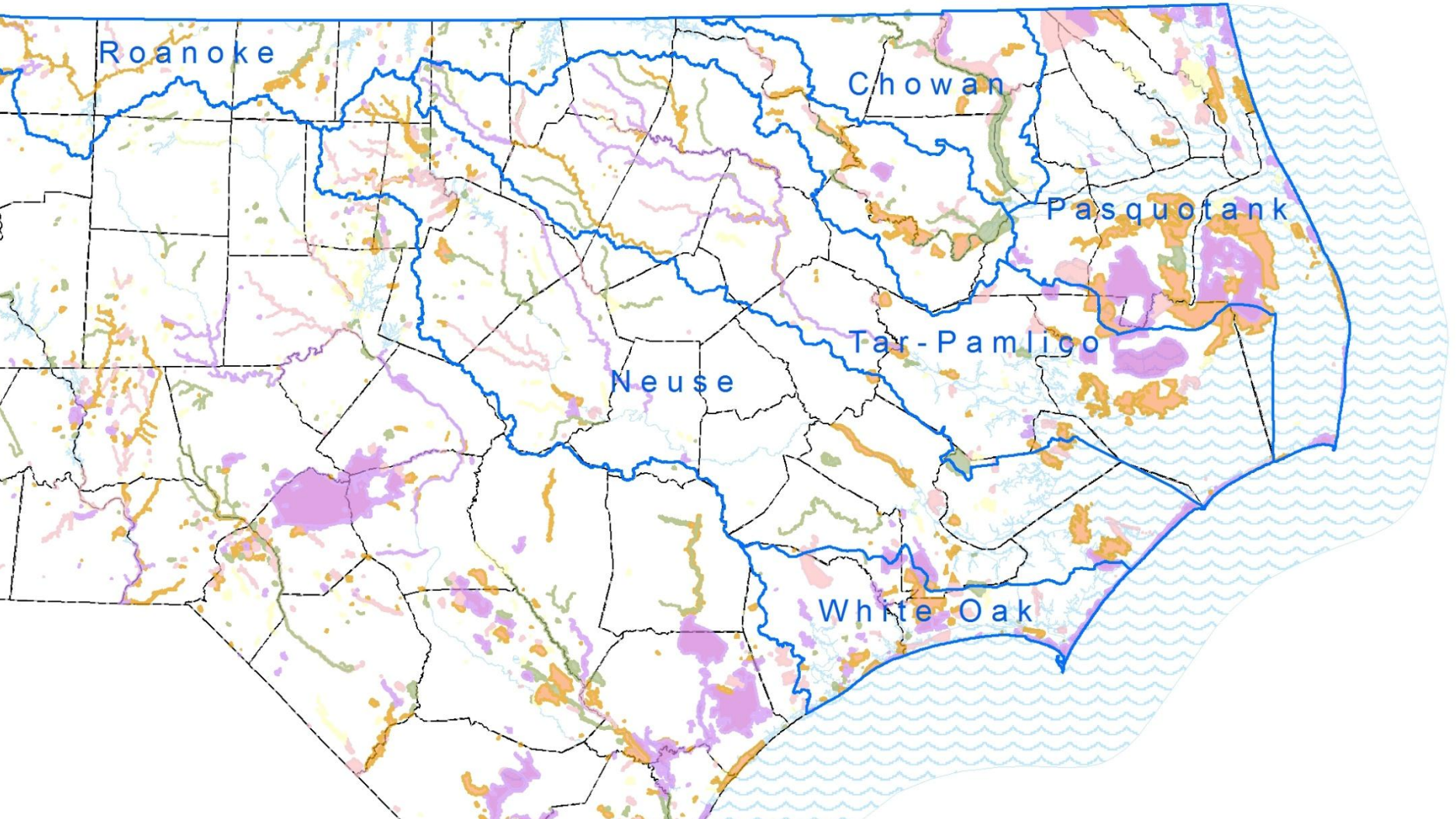


River Basins

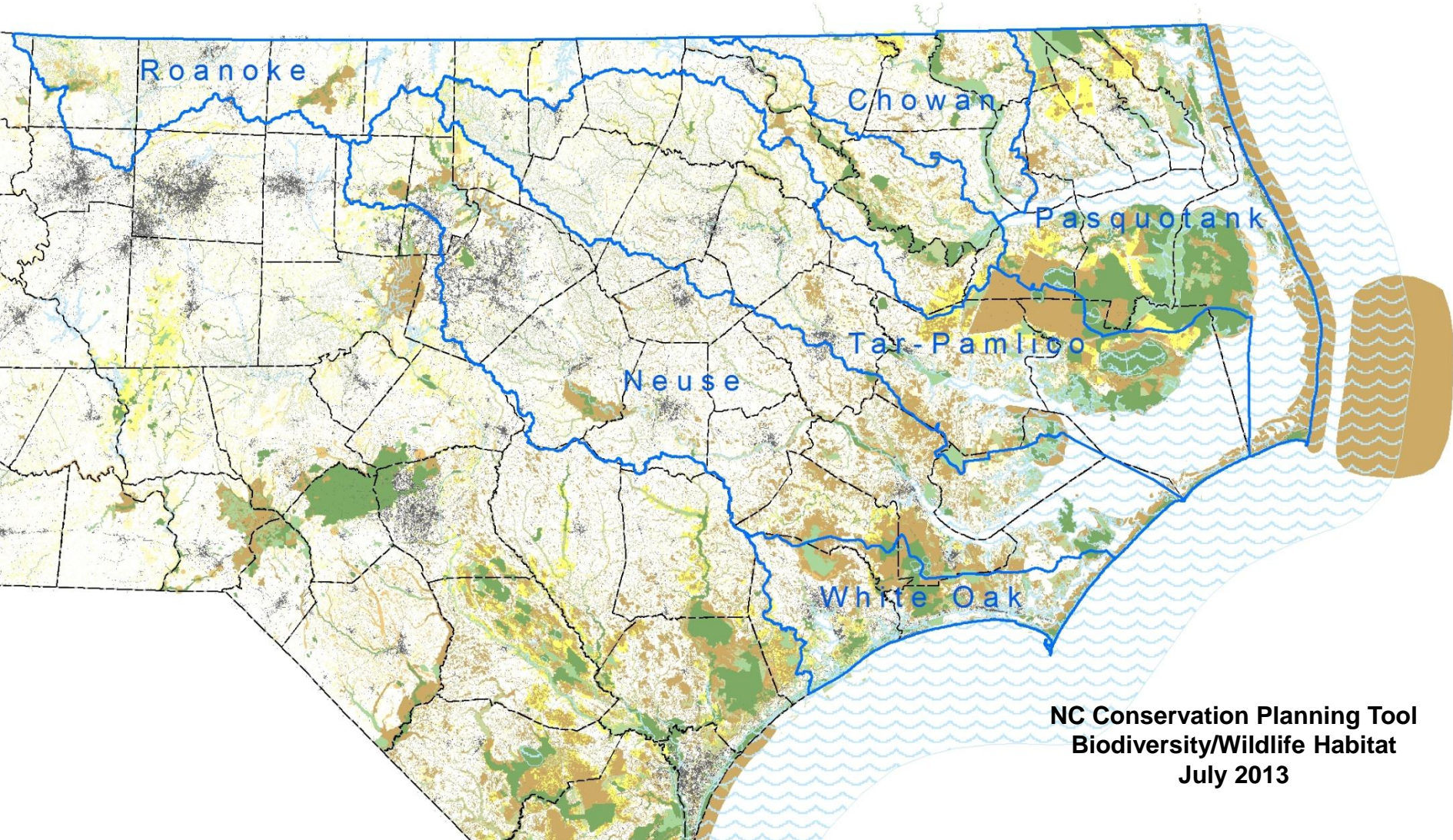
- PASQUOTANK
- CHOWAN
- ROANOKE
- TAR-PAMLICO
- NEUSE
- WHITE OAK
- APNEP Study Area



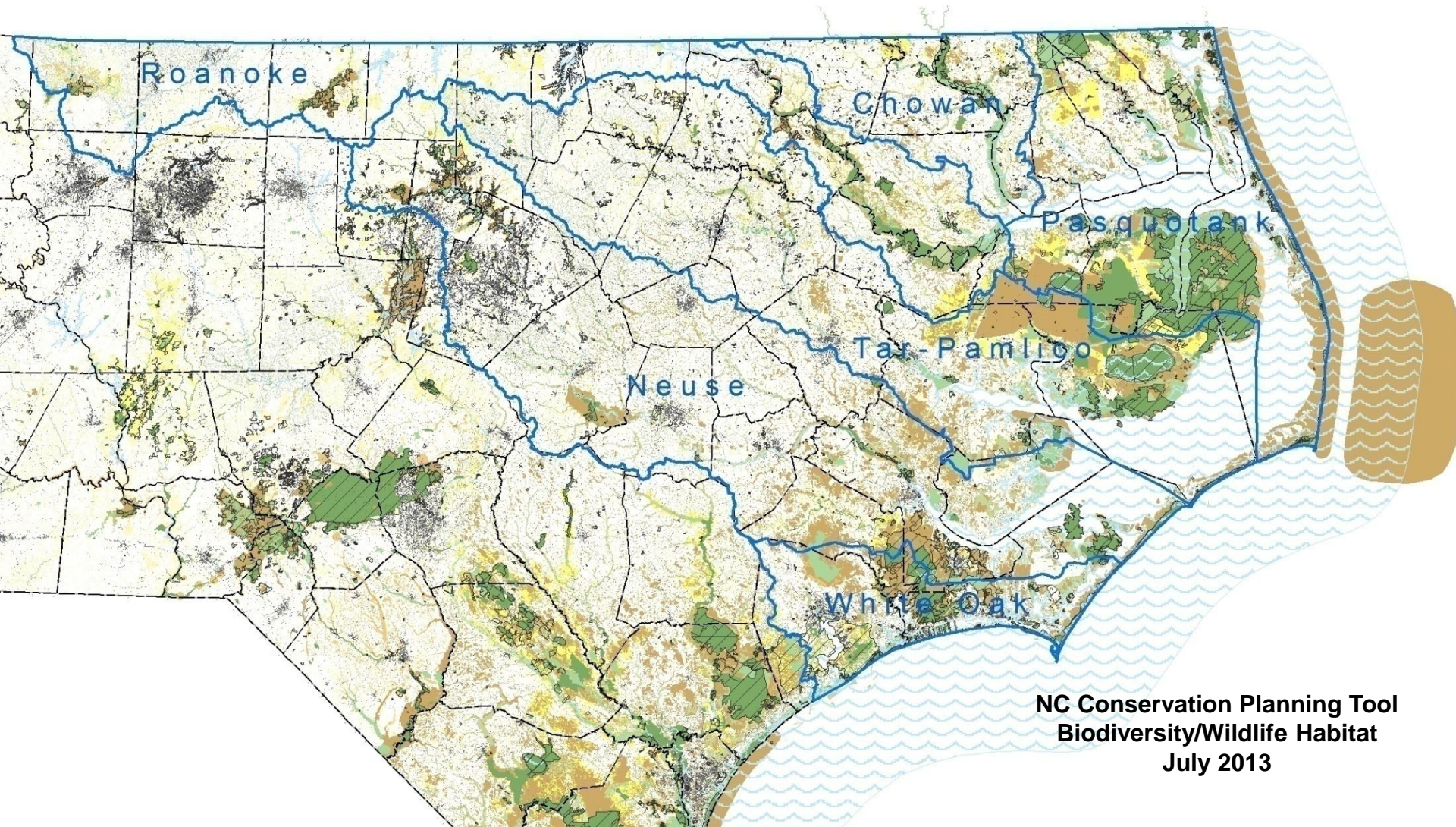
Significant Natural Heritage Areas (SNHAs) are prominent in these watersheds



Watersheds that drain to the sounds in NC are rich in biodiversity and wildlife habitat conservation value



Biodiversity/Wildlife Habitat overlaid with MAREAs



**NC Conservation Planning Tool
Biodiversity/Wildlife Habitat
July 2013**

Some examples of the application and use of the CPT

- Local land use planning
- Conservation planning
- Watershed planning
- Transportation planning
- Parks, recreation, and greenway planning
- Identification of preservation and restoration sites for mitigation
- Grant applications, NC Conservation Tax Credit Program
- Land acquisition



GREEN GROWTH TOOLBOX

**Wildlife and natural resources stewardship in planning:
A guide for communities and planners**



Led by the North Carolina Wildlife Resources Commission

**In partnership with Land of Sky Regional Council, Sustainable Sandhills, NC Coastal
Land Trust & the NC Natural Heritage Program**



Kacy Cook and Brooke Massa, NC Wildlife Resources Commission



What is the Green Growth Toolbox?

A comprehensive guide to integrating
priority wildlife & habitat conservation
in local land use planning.



Bald Eagle



Pine Barrens Treefrog



American Kestrel



Bog Turtle



What is the Green Growth Toolbox?

- Handbook
- Conservation data and GIS maps
(NC Conservation Planning Tool)
- Training workshops
- Technical assistance
- www.ncwildlife.org/greengrowth



Marbled Salamander



Prothonotary Warbler



Box Turtle



Chestnut-sided Warbler

www.conservatontool.nc.gov

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McAfee

Conservation, Planning and Community Affairs

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North Carolina Conservation Planning Tool



Data Download

The Conservation Planning Tool statewide datasets are available for download. Use of these data require Geographic Information System (GIS) software and expertise, and the datasets must be downloaded and saved to your computer. [View Here](#)

Conservation Planning Tool Report

How is the CPT Used?

Value of Conservation Planning

Mission

The North Carolina Conservation Planning Tool provides a valuable means for synthesizing and sharing the priorities of the state's conservation agencies and organizations with planners in government and the private sector to inform decisions and guide conservation efforts statewide.

The North Carolina Conservation Planning Tool (CPT) provides maps that integrate information from multiple sources. Four maps are provided:

- Biodiversity and Wildlife Habitat
- Open Space and Conservation Lands
- Agricultural Lands
- Forestry Lands

The data and maps included in the statements can be used independently or in combination. By coordinating statement data, various users can identify lands that provide multiple resource priorities.

This comprehensive planning tool is used by local and state governments, regional planning organizations, and non-profit organizations to inform decisions about conservation and other land use planning efforts in North Carolina. By showing a relative order of conservation significance, these data can assist with conservation funding decisions and support cost-effective investments.

[MapInfo](#) provides more information about the data used in the development of the Conservation Planning Tool. Access to data and maps is available [here](#).

For more information, please contact Allison Schwanz Woskyj, Conservation Planner, at 919-707-8632 or allison.woskyj@ncdenr.gov.

The Biodiversity/Wildlife Habitat assessment, Open Space and Conservation Lands, and Agricultural Lands components of the CPT were updated in Spring 2011.

Feedback

Start

Desktop 10:01 AM

North Carolina



Conservation

Planning Tool



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Questions?