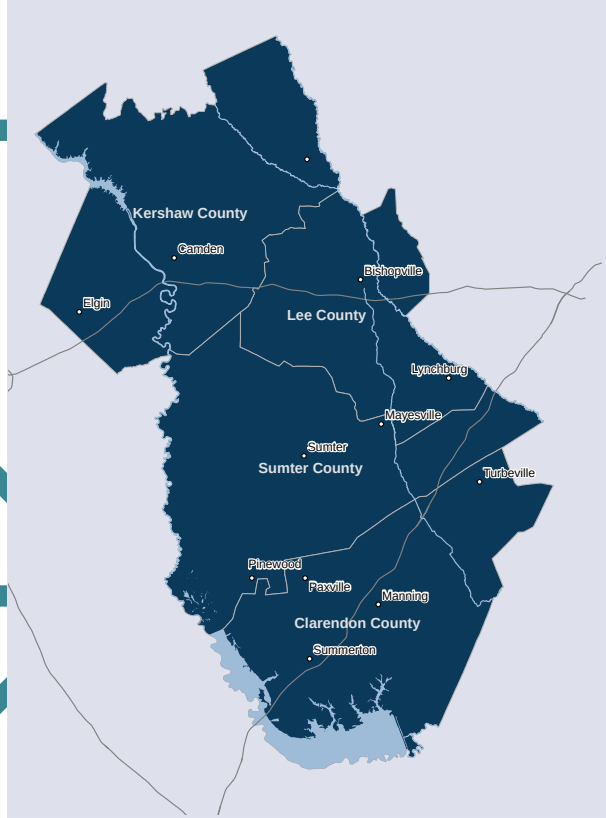
Santee-Lynches Regional Green Infrastructure Plan 2022 Update

This work, an update to the Santee-Lynches Regional Green Infrastructure Plan of 2017, is a collaborative effort of the Green Infrastructure Center, the South Carolina Forestry Commission, the Santee-Lynches Regional Council of Governments, and local government partners.

December, 2022

Introduction

Santee-Lynches Region



The Santee-Lynches region covers 2400 square miles and is home to nearly 240,000 residents. The region has diverse landscapes including a rich natural landscape of wetlands, forests, farmland, rivers, a complex cultural landscape that includes Native American settlements and a historic colonial sites, and small cities and towns. The region's natural assets include Lakes Wateree and Marion, portions of four major rivers (Wateree, Black, Santee, and Lynches), and numerous state parks, state forests, heritage preserves, and wildlife refuges.

The region has long been an agricultural hub, but like much of South Carolina, there has been steady growth and urbanization as manufacturing, retail, and service industries have become the dominant employment sectors. The area grew at 6.0% rate between 2000 and 2010 and that growth rate is expected to continue particularly in the Sumter metropolitan area and western Kershaw County. As the region's human footprint continues to expand, planning for the stewardship and enhancement of the invaluable natural, cultural, and economic assets of the region is critical to ensure a high quality of life for residents and the long-term health of the environment.

What is Green Infrastructure?

Communities are comprised of the built and natural environment, both of which are critical to maintain and ensure a high quality of life for residents. Through strategically placed built infrastructure (e.g. roads, utilities) and the use and stewardship of natural resources (e.g. air, soil, water, trees), communities can ensure that residents live and prosper in a healthy environment. The natural environment is increasingly viewed as as 'green infrastructure,' a "natural life support system – an interconnected network of waterways, wetlands, woodlands, wildlife habitats, and other natural areas; greenways, parks, and other conservation lands; working farms, ranches and forests; and wilderness and other open spaces that support native species, maintain natural ecological processes, sustain air and water resources and contribute to the health and quality of life for America's communities nod and people."[1]

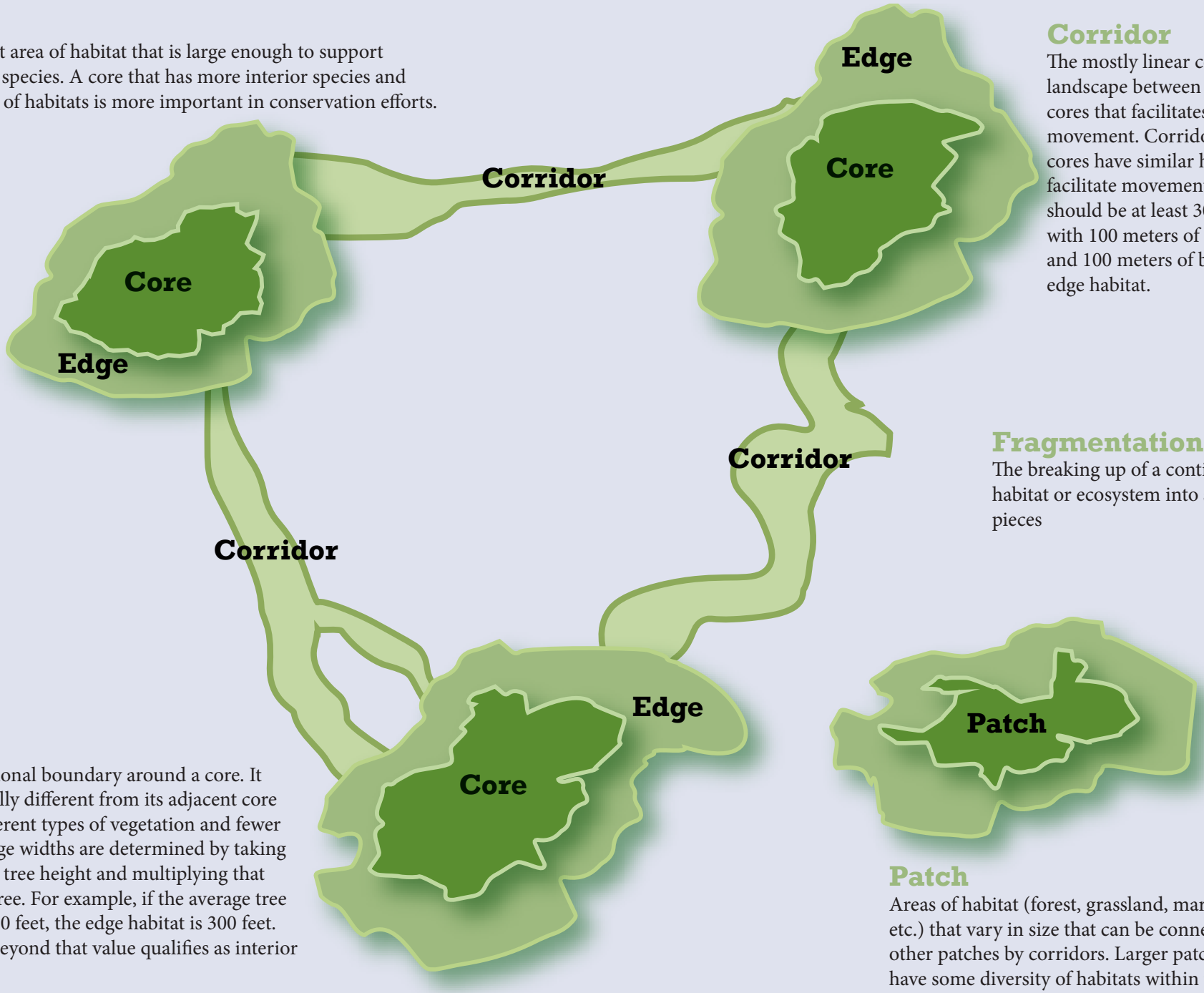
The GI network is critical for healthy environments and access to breathable air, clean drinking water, and rich agricultural soils. In addition to health benefits, green infrastructure provides social and emotional benefits. To ensure the long-term maintenance and preservation of our region's green infrastructure, we need to actively plan for green infrastructure and create path forward for how to ensure our region can responsibly plan for growth and development while maintaining the natural elements critical for a healthy environment.

1 Benedict, Mark and Edward McMahon. *Green Infrastructure Linking Landscapes and Communities. 2006*

Palmetto Park, Sumter SC

Green Infrastructure Network Components

Core
An intact area of habitat that is large enough to support multiple species. A core that has more interior species and diversity of habitats is more important in conservation efforts.



Corridor
The mostly linear connecting landscape between different cores that facilitates safe wildlife movement. Corridors and interior cores have similar habitats to facilitate movement. Corridors should be at least 300 meters wide with 100 meters of interior habitat and 100 meters of buffers as the edge habitat.

Fragmentation
The breaking up of a continuous habitat or ecosystem into smaller pieces

Edge
The transitional boundary around a core. It is structurally different from its adjacent core having different types of vegetation and fewer species. Edge widths are determined by taking the average tree height and multiplying that value by three. For example, if the average tree height is 100 feet, the edge habitat is 300 feet. Anything beyond that value qualifies as interior habitat.

Patch
Areas of habitat (forest, grassland, marshland, etc.) that vary in size that can be connected to other patches by corridors. Larger patches usually have some diversity of habitats within them, while smaller patches are mostly homogenous.

Source: Firehook, Karen. Evaluating and Conserving Green Infrastructure Across the Landscape. February 2015

How can this plan be used?

Green infrastructure planning is an ongoing multi-jurisdictional, collaborative process that helps communities develop policies and strategies that accommodate growth and development while preserving and enhancing the natural assets of the region. This plan provides communities and stakeholders with shared knowledge about the region's assets so that we can simultaneously plan for the natural and built landscape. The integration of green infrastructure planning into the development of the built environment will ensure that communities are maximizing the benefits of green infrastructure.

By using a regional approach to green infrastructure planning, we will have a more nuanced understanding of how the natural systems link all of us together. For example, from a city- or county-level perspective, we may see a forested area as a potential site for development. However, when examining green infrastructure from a regional level, that land may be part of a critical corridor connecting one habitat core in one county to another habitat core in a separate county. This type of larger-scale analysis can inform better decision-making and prevent us from planning in a vacuum.

This document is as a planning tool for municipalities, transportation agencies, natural resource agencies, and others to incorporate green infrastructure planning into long-range initiatives. The Plan emphasizes objectives that can be used by resource agencies, private foundations, cities, counties, and other local or state agencies for updating master plans, transportation plans, or watershed plans. This tool does not seek to stop development or limit population growth. Rather, it provides information about the natural landscape to help us evaluate important environmental factors and take steps to protect and enhance what is important. Development will then occur in ways that recognize and protect the area's most important natural resources. The implementation of this plan will provide the us with healthy and vibrant communities, economic growth opportunities, cost savings, conserved natural areas, and numerous other benefits.

The maps on the following pages depict prime core habitat and natural areas in the region; agriculture, water, recreation, and cultural assets; critical areas for land and solar energy development; and locations of water quality concerns.

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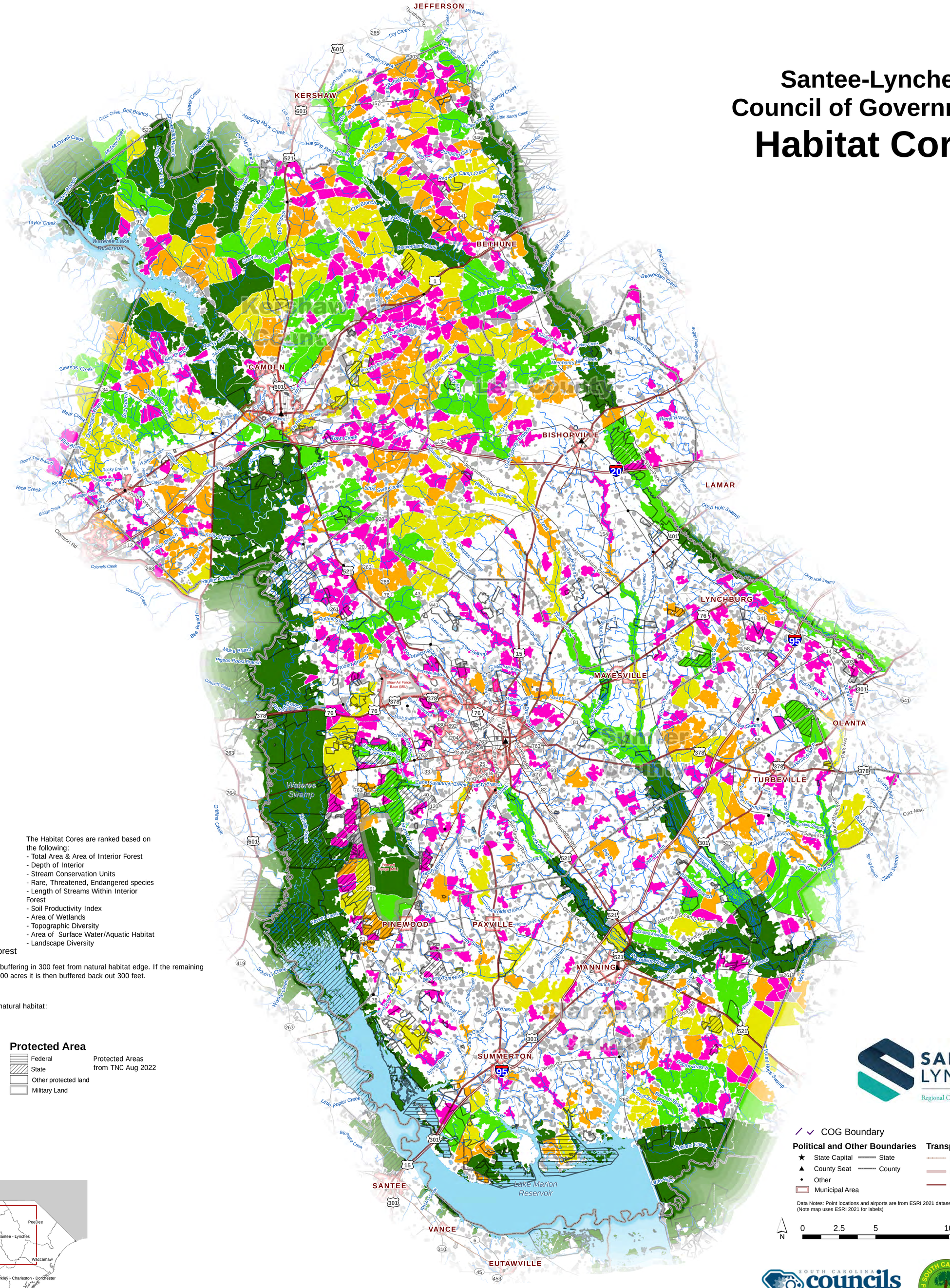
Habitat Cores



Score Weight

Best

- 3.8 - 4.9
- 3.0 - 3.7
- 2.5 - 2.9
- 2.0 - 2.4
- 1.3 - 1.9
- Fragmented forest

The Habitat Cores are ranked based on the following:
- Total Area & Area of Interior Forest
- Depth of Interior
- Stream Conservation Units
- Rare, Threatened, Endangered species
- Length of Streams Within Interior Forest
- Soil Productivity Index
- Area of Wetlands
- Topographic Diversity
- Area of Surface Water/Aquatic Habitat
- Landscape Diversity

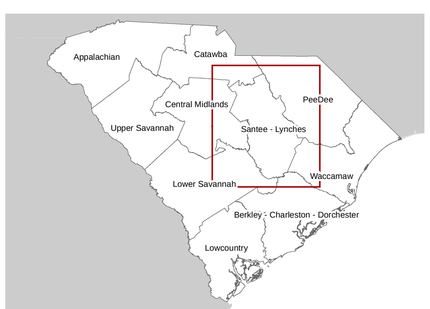
Habitat Cores are mapped by buffering in 300 feet from natural habitat edge. If the remaining polygon (Core) is larger than 100 acres it is then buffered back out 300 feet.

The NLCD Classes considered natural habitat:
Open Water
Barren Land
Deciduous Forest
Evergree Forest
Mixed Forest
Scrub/Shrub
Herbaceous
Wood Wetlands
Emergent Wetlands
* Includes industrial forest

Protected Area

- Federal
- State
- Other protected land
- Military Land

Protected Areas from TNC Aug 2022



N 0 2.5 5 10 15 Miles

Map prepared by the Green Infrastructure Center,

SANTEE LYNCHES
Regional Council of Governments

COG Boundary

Political and Other Boundaries
- State Capital
- County Seat
- Other
- Municipal Area
- State
- County

Transportation
- Railroad
- Interstate
- Highway
- Major Road
- Other Road
- Airport Area

Data Notes: Point locations and airports are from ESRI 2021 dataset. Transportation data are from SCDOT. (Note map uses ESRI 2021 for labels)

N 0 2.5 5 10 15 Miles

SOUTH CAROLINA councils of governments

SOUTH CAROLINA FORESTRY COMMISSION

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Map was exported on 9/14/2022.

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Agriculture

Kershaw County

Lee County

Sumter County

Clarendon County

KERSHAW
CAMDEN
ELGIN
BISHOPVILLE
HARTSVILLE
MAYESVILLE
SUMTER
EASTOVER
PAXVILLE
PINEWOOD
MANNING
SUMMERTON
GREELEYVILLE
SANTEE
VANCE
EUTAWVILLE

South Carolina Penitentiary State Farm Number One

FRPP, Sumter, South Carolina

ACER-ALE, Sumter, South Carolina

FRPP, Clarendon South Carolina

Lake Marion Reservoir

Wateree Lake Reservoir

Shaw Air Force Base (MIL)

Fort Jackson (MIL)

Legend

- ★ State Capital
- ▲ County Seat
- • Other

- Military Land
- Agricultural Easements
- State
- County
- Coastline
- Interstate
- Highway
- Major Road
- Other Road
- Airport Area

Data Notes:
-- Soils data from SSURGO Web Soil Survey from USDA.
-- Wooded Wetlands, Wetlands and Open Water (Coastline) come from National Wetlands Database (NWI) 2021.

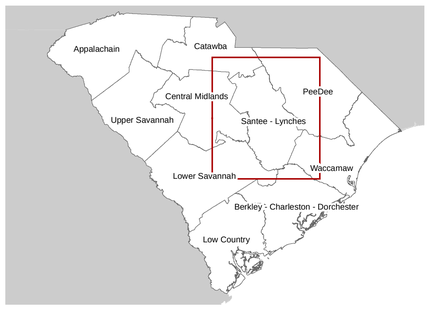
Agriculture Suitability Soils (SSURGO)

NonIrrigatedCapabilityClass

- Non-Irrigated Capability Class I (Over pervious surfaces)
- Non-Irrigated Capability Class II (Over pervious surfaces)

Landcover

- Waterbodies
- Rivers
- Habitat Core
- Not Habitat Core



0 2.5 5 10 Miles

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Map prepared by the Green Infrastructure Center,

Map was exported on 6/3/2022.

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Water

Legend

Municipal Boundary

NHD Waterbody

Feature Type

- LakePond
- Reservoir
- FEMA Firm 100-year Flood Zones

Groundwater Protection Zones

Protection zones for public water supply wells are based on times of travel calculations (i.e., how far -distance in feet a particle of water would travel within a specified time frame) Zone 1 is a one year time of travel. Zone 2 is a five year time of travel and Zone 3 is a ten year time of travel. Time of travel is based on hydrogeologic characteristics of the aquifer and pumping capacity of the well. (from SCDHEC)

ZONE

- 0
- 1
- 2
- 3
- Watershed Boundary (HUC 10)
- ★ State Capital
- ▲ County Seat
- • Other
- State
- County
- Coastline
- Railroad
- Interstate
- Highway
- Major Road
- Other Road
- Unpaved Roads
- Airport Area
- USA Detailed Water Bodies (Labels)
- Rivers - StreamLevel gt 3
- Habitat Cores
- Not Habitat Core

Data Notes:
Land Cover
-- Tree Canopy from NLCD 2019
-- Wetlands from NHD
Assets
-- Protected Areas from PADUS2.1
-- The Nature Conservancy 2022

0 2.5 5 10 15 Miles

N

Map prepared by the Green Infrastructure Center,

Data Notes:
-- Watershed, Rivers and Reservoirs data from National Hydrologic Database. (USGS 2021)
-- Flood plain data from Flood Insurance Rate Map (FIRM) from Federal Emergency Management Agency (FEMA). Note: This dataset appears to have a hole in SE South Carolina. Need to confirm.
-- Wooded Wetlands, Wetlands and Open Water (Coastline) come from National Wetlands Database (NWI) 2021.

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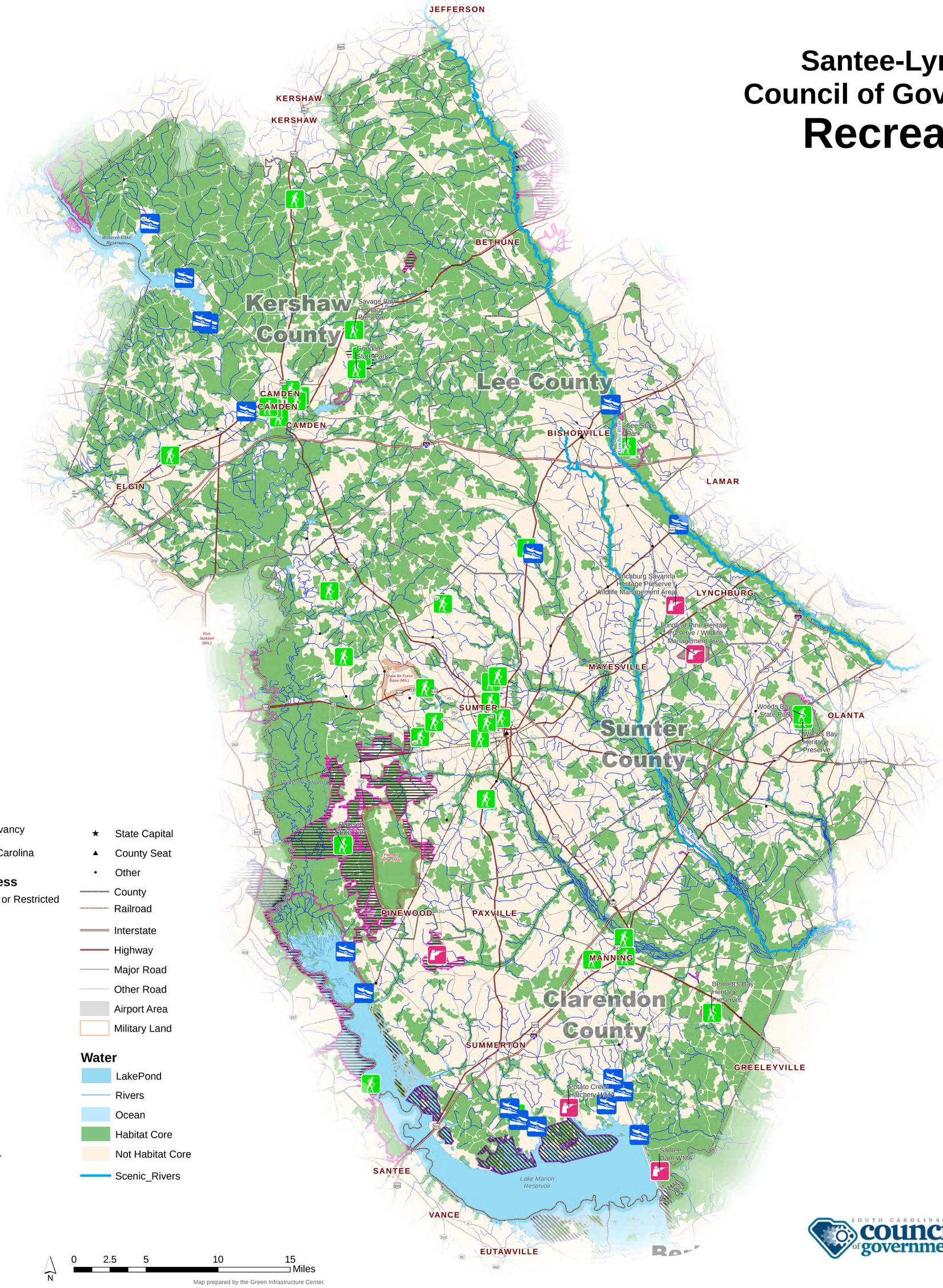
Recreation



Nature Based Recreation Assets

- Boat Ramp
- Agriculture Park
- Hunting
- Bike Trail
- Recreation

Managed Areas data from The Nature Conservancy South Carolina chapter, the Conserved Lands Database steering committee, and the South Carolina Land Trust Network

Category

- Federal
- State
- Local Government
- Other Managed Land
- Military Land

Public Access

- Limited or Restricted
- Public

- ★ State Capital
- ▲ County Seat
- • Other
- County
- Railroad
- Interstate
- Highway
- Major Road
- Other Road
- Airport Area
- Military Land

Water

- LakePond
- Rivers
- Ocean
- Habitat Core
- Not Habitat Core
- Scenic_Rivers

Data Notes:
Land Cover
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Assets
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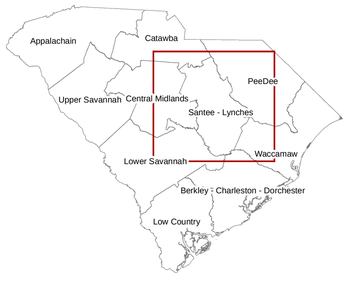
-- The Nature Conservancy 2022



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Map prepared by the Green Infrastructure Center,

Map was exported on 6/3/2022.

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Cultural Resources

Legend

National Register Sites

- Historic Battlefields, Forts, or Magazines
- Historic Cemeteries

Cultural Assets (From USPAD)

- Other Historic Sites
- Native American Sites
- Historic Battlefields, Forts, or Magazines
- Historic Cemeteries
- Historic Places of Worship
- Gardens
- Historic Plantations
- Heritage Preserves
- Historic Agricultural Site

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Category

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- Other Managed Land
- Military Land

Public Access

- Limited or Restricted
- Public

Data Notes:
Land Cover
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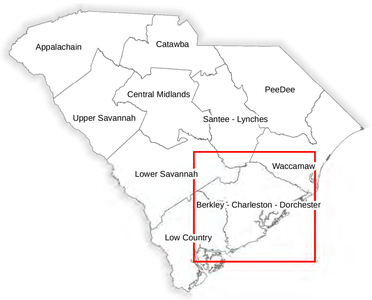
-- The Nature Conservancy 2022

- ★ State Capital
- ▲ County Seat
- • Other
- County
- Railroad
- Interstate
- Highway
- Major Road
- Other Road
- Airport Area
- Military Land

Water

- LakePond
- Rivers
- Ocean
- Habitat Core
- Not Habitat Core



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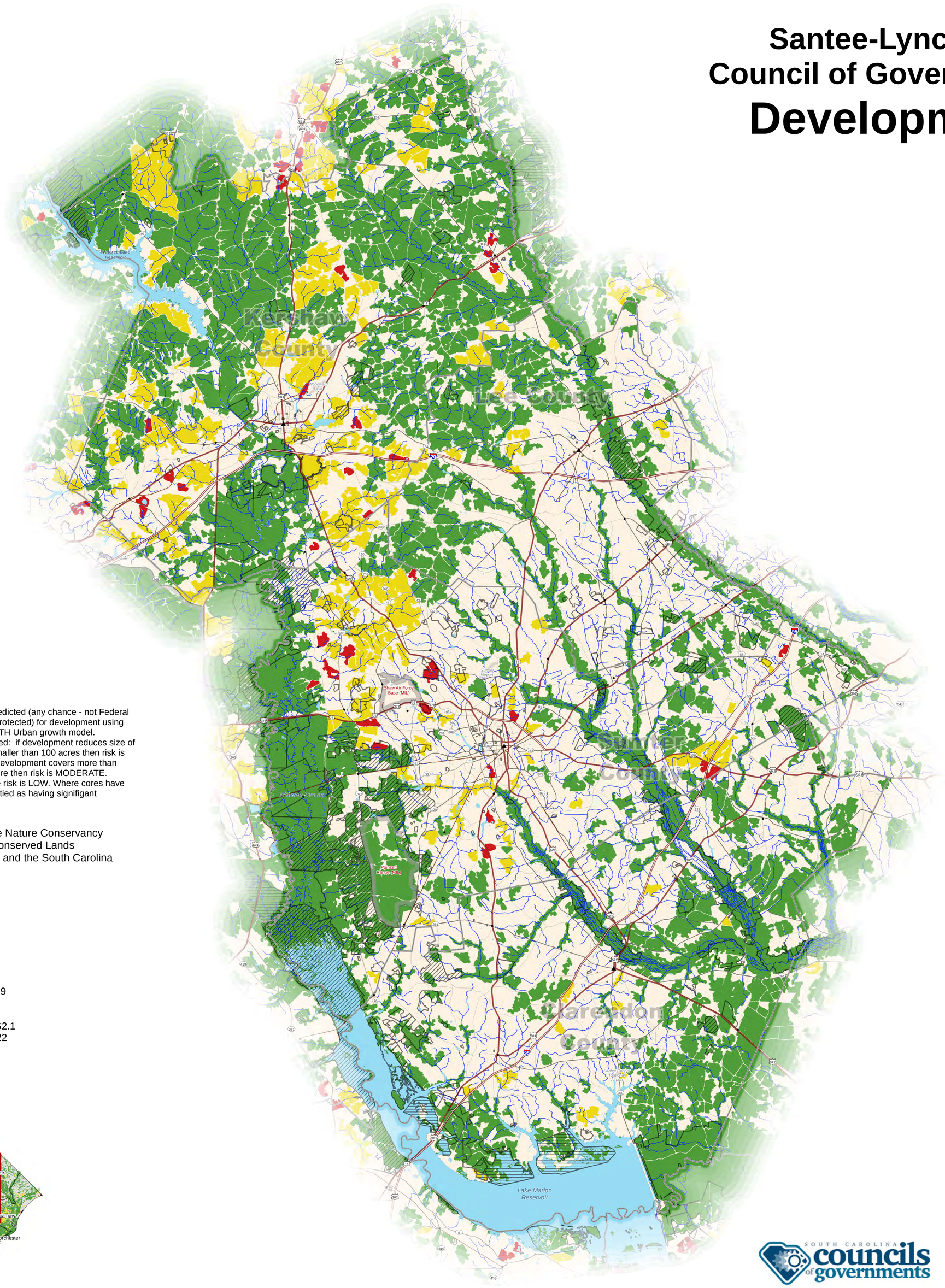
Development



Risks

- High
- Moderate
- Low
- Not Habitat Core

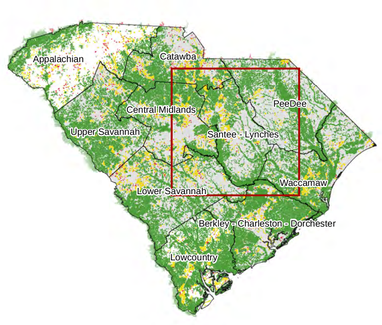
Where predicted (any chance - not Federal or State protected) for development using the SLEUTH Urban growth model.
How ranked: if development reduces size of core to smaller than 100 acres then risk is HIGH. If development covers more than 20% of core then risk is MODERATE. Otherwise risk is LOW. Where cores have been identied as having signifigant

Managed Areas data from The Nature Conservancy South Carolina chapter, the Conserved Lands Database steering committee, and the South Carolina Land Trust Network

Protected Area

- Federal
- State
- Other protected land
- Military Land

Data Notes:
Land Cover
-- Tree Canopy from NLCD 2019
-- Wetlands from NHD
Assets
-- Protected Areas from PADUS2.1
-- The Nature Conservancy 2022



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0 2.5 5 10 15 Miles

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Map was exported on 9/13/2022.

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Solar Development

Using data from Southeast Conservation Adaptation Strategy (SECAS) that depicts suitability for solar energy development.

Where possibility less than 45% there is a risk is LOW. From 45% to 55% is Moderate and above 55% is High.

Risks

- High
- Moderate
- Low
- Not Habitat Core

- Wetland (not incl. Wooded Wetland)
- Water
- 100 Year flood plain

Managed Areas data from The Nature Conservancy South Carolina chapter, the Conserved Lands Database steering committee, and the South Carolina Land Trust Network

Protected Area

- Federal
- State
- Other protected land
- Military Land

N

0 2.5 5 10 15 Miles

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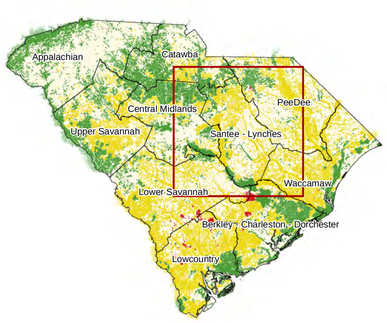

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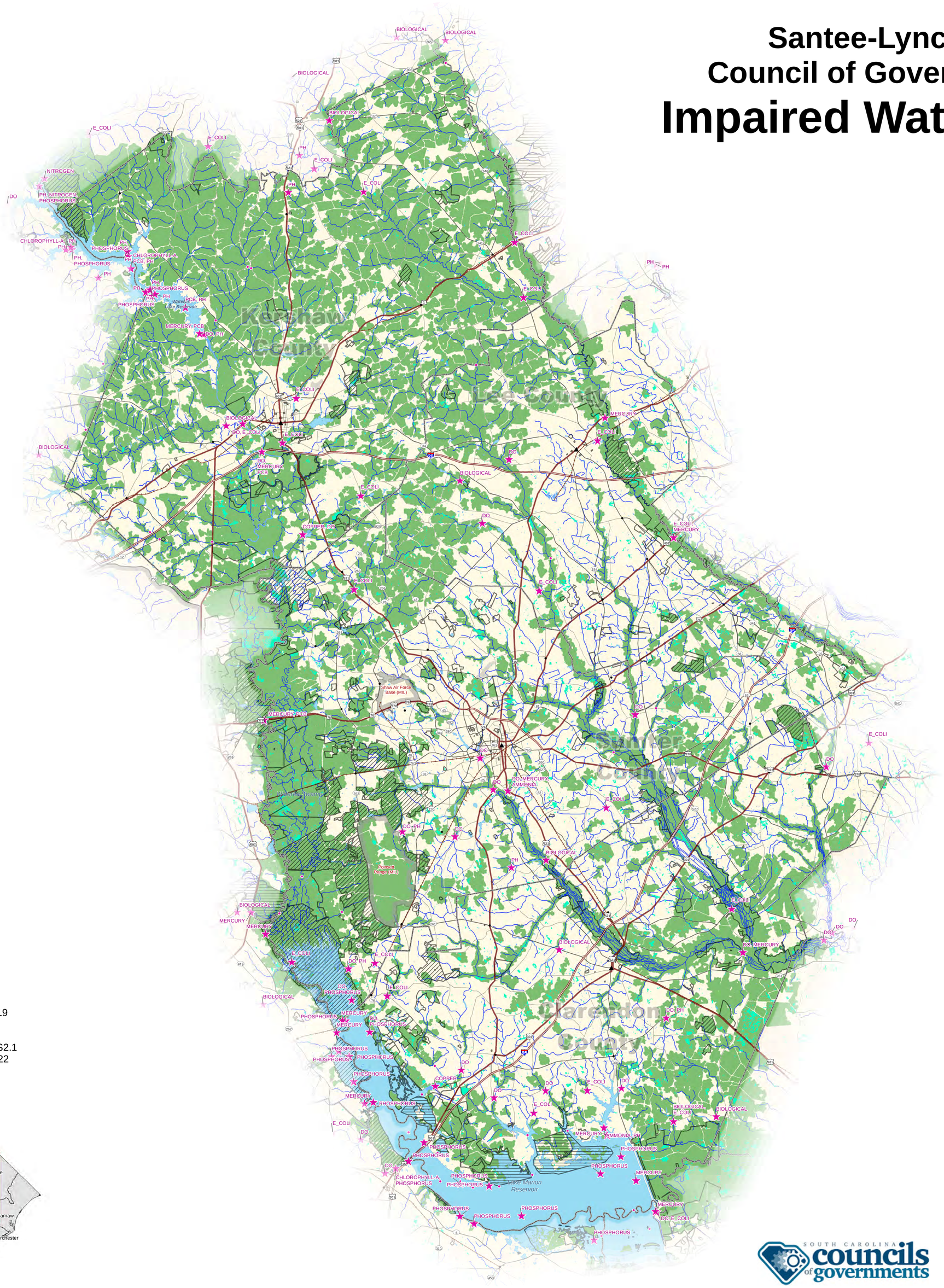
Impaired Watersheds



- Impairment Indicated
- No impairment listed
- Habitat Core

Protected Area

- Federal
- State
- Other protected land
- Military Land

Data Notes:
Land Cover
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Assets
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-- The Nature Conservancy 2022

N

0 2.5 5 10 15 Miles

Map prepared by the Green Infrastructure Center,

Map was exported on 9/12/2022.

This data and maps presented in this plan are intended to be as accurate as possible. Any errors or omissions are unintentional.
The objectives and strategies outline different approaches to enhancing green infrastructure in the region and can be used as a planning tool for groups in the region.

Santee-Lynches Regional Council of Governments, 2022

SANTEE LYNCHES

Regional Council *of* Governments