

# A Green Infrastructure Plan

to Restore, Connect, and Protect  
South Carolina's Habitats



Planning for Green Infrastructure involves protecting and connecting the natural and cultural assets of the Upper Savannah region.



**March 2023**

Prepared for the state of South Carolina by the Green Infrastructure Center  
Funded by the South Carolina Forestry Commission and the USDA Forest Service, Southern Region





## Executive Summary

The Upper Savannah Council of Governments (COG) region contains diverse natural and cultural resources, from blackwater rivers to historic battlefields and churches. With several major interstate highways, economic diversity, and a high quality of life, the Upper Savannah region continues to grow. While economic prosperity is very important to the communities in this region, it is vital to grow in patterns that conserve natural resources and habitats. Continuation of local efforts to conserve land, create regional partnerships, and establish both ordinances and planning guidance for growth that protects green infrastructure will ensure the high quality of life of the Upper Savannah region for future generations.

The Upper Savannah COG region is on the central western edge of the state adjacent to Georgia, it is bounded on the southwest by the Savannah River and the northeast by the Enoree River in Laurens County and the Saluda River in Saluda County. It encompasses the counties of Laurens, Abbeville, Greenwood, McCormick, Saluda, and

Edgefield. The Upper Savannah region includes forests, wetlands, rivers, lakes, and farms. Laurens, Greenwood, Edgefield, and Saluda are counties experiencing some urban growth, while Abbeville and McCormick remain predominantly rural. Sumter National Forest, Lakes Murray, Greenwood, and Thurmond, and the Ninety-Six National Historic Site contribute to a sense of place. Additionally, there is a military presence in the region with the Clarks Hill Reservation National Guard Military Training Area. Approximately 14% of the land in the Upper Savannah COG region is protected in several state parks, national forests, wildlife management areas, military land, and other open spaces.

The region is the ancestral home of the Cherokee, Yamasee, and Catawba Native Peoples.\* The Catawba Nation is the only federally recognized tribe currently in South Carolina and has a reservation in the Catawba COG region. The Piedmont American Indian Association is a state recognized native group living in this region.



14% of the land in the Upper Savannah COG region is protected in several state parks, national forests, wildlife management areas, military land, and other open spaces.

## Green Infrastructure Planning Process

This Green Infrastructure Plan comprises a set of maps and strategies for conserving and restoring a connected landscape in the state. GIC led the Upper Savannah COG and local stakeholders through GIC's Six-Step Green Infrastructure Planning Process with a series of four workshops from 2021-22. This process involved mapping habitats cores and corridors, as well as existing natural and cultural assets, followed by risk analysis to inform strategies for action. With these data, local stakeholders determined priority areas for conservation in the region, as well as strategies to ensure a connected landscape into the future. GIC followed regional COG workshops with state agency engagement. The resulting statewide plan includes statewide priorities informed by regional priorities.

This COG chapter will appear as a separate document, distinct from the full report, since it is one of ten COG chapters that have been included in the statewide assessment. The full report can be found here: <https://scgiplan-gicinc.hub.arcgis.com/> or at [www.gicinc.org](http://www.gicinc.org) or <https://www.scfc.gov/management/urban-forestry/>

The statewide scale of this project did not allow GIC to drill down to the level of county and city green infrastructure plans, but did establish important priorities for each region.

1. In the first workshop, GIC presented an overview of the project and shared a map of the region's ranked habitat cores. Feedback on the accuracy of the map and areas of development were noted and incorporated.
2. In the second workshop, GIC presented themed overlay maps that showed the region's agricultural soils, water resources, recreation, and cultural assets and asked workshop attendees to add their local input on additional assets, such as historic churches and farms. The final Upper Savannah asset maps and dataset included new data recommended by participants.

## Upper Savannah FAST FACTS

- 1,958,400 acres**– total COG area (3,060 mi<sup>2</sup>)
- 1,199,360 acres**– of habitat cores (1,874 mi<sup>2</sup>)
- 61% of COG land area is habitat cores**
- 242,560 acres**– of protected cores (379 mi<sup>2</sup>)
- 20% of habitat cores are protected**
- 265,600 acres**– area of protected land (cores and other) (415 mi<sup>2</sup>)
- 14% of total area are protected land**
- 187,520 acres**– area of public parkland (293 mi<sup>2</sup>)
- 10% of total land is public parkland**
- 717,440 acres**– area of habitat cores with known cultural/archaeological resources (1,121 mi<sup>2</sup>)
- 347,520 acres**– area of habitat cores with highest value ranking (top 5th) (543 mi<sup>2</sup>)
- 96,640 acres**– area of habitat cores that intersect a groundwater protection zone (151 mi<sup>2</sup>)
- 334,080 acres**– area of prime agricultural soils on open land (552 mi<sup>2</sup>)
- 2,560 acres** of wetlands (4 mi<sup>2</sup>)
- 1,056 mi of 1,240 mi (85%)**– miles of streams that flow within a habitat core
- 439 of 1,115 (39%)**– of habitat cores support cultural or recreational assets
- 51 of 1,115 (5%)**– of habitat cores support known rare, threatened, or endangered species





## Upper Savannah COG

3. In the third workshop, GIC presented draft maps of risks to habitat cores in the region, including development, utility-scale solar development, and impaired waters. Stakeholder feedback about these risks was used to update and finalize the risk maps.
4. In the fourth and final workshop, GIC shared a strategy map that showed ranked habitat cores, protected lands, and regional corridors. The stakeholders then considered priority habitats and risks to those assets and recommended strategies to reduce or prevent impacts to high-value resources.

### 6-Step Green Infrastructure Planning Process

- 1. Set Your Goals** What does your community value?
- 2. Review Data** What do we know or need to know, to map identified values? Combine the state modeled data with local data.
- 3. Map Your Community's Ecological and Cultural Assets** Based on the goals established in Step 1 and data from Step 2.
- 4. Assess Risk** What assets are most at risk and what could be lost, if no action was taken?
- 5. Rank Assets and Determine Opportunities** Based on those assets and risks you have identified, which ones should be restored or improved?
- 6. Implement Opportunities** Include natural asset maps in both daily and long-range planning (park planning, comp plans, zoning, tourism and economic development, seeking easements etc.)

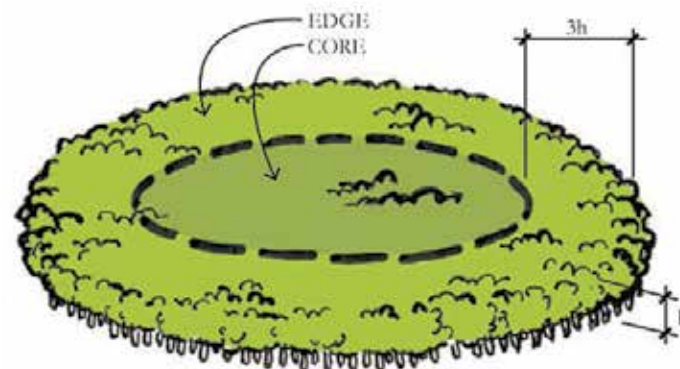
### Habitat Cores

*Habitat cores* are intact areas of the landscape that provide adequate habitat to support native species and were modeled using source data from the 2019 National Land Cover Dataset. Habitat cores are forests, forested wetlands, and marshes at least 100 acres or more in size and are ranked using additional attributes such as water richness, topography, and the presence of rare, endangered, or threatened species. This size is large enough to provide adequate foraging and nesting habitat for interior forest dwelling birds and to support a range of other wildlife species.

### Habitat cores encompass 61% of Upper Savannah COG land area.

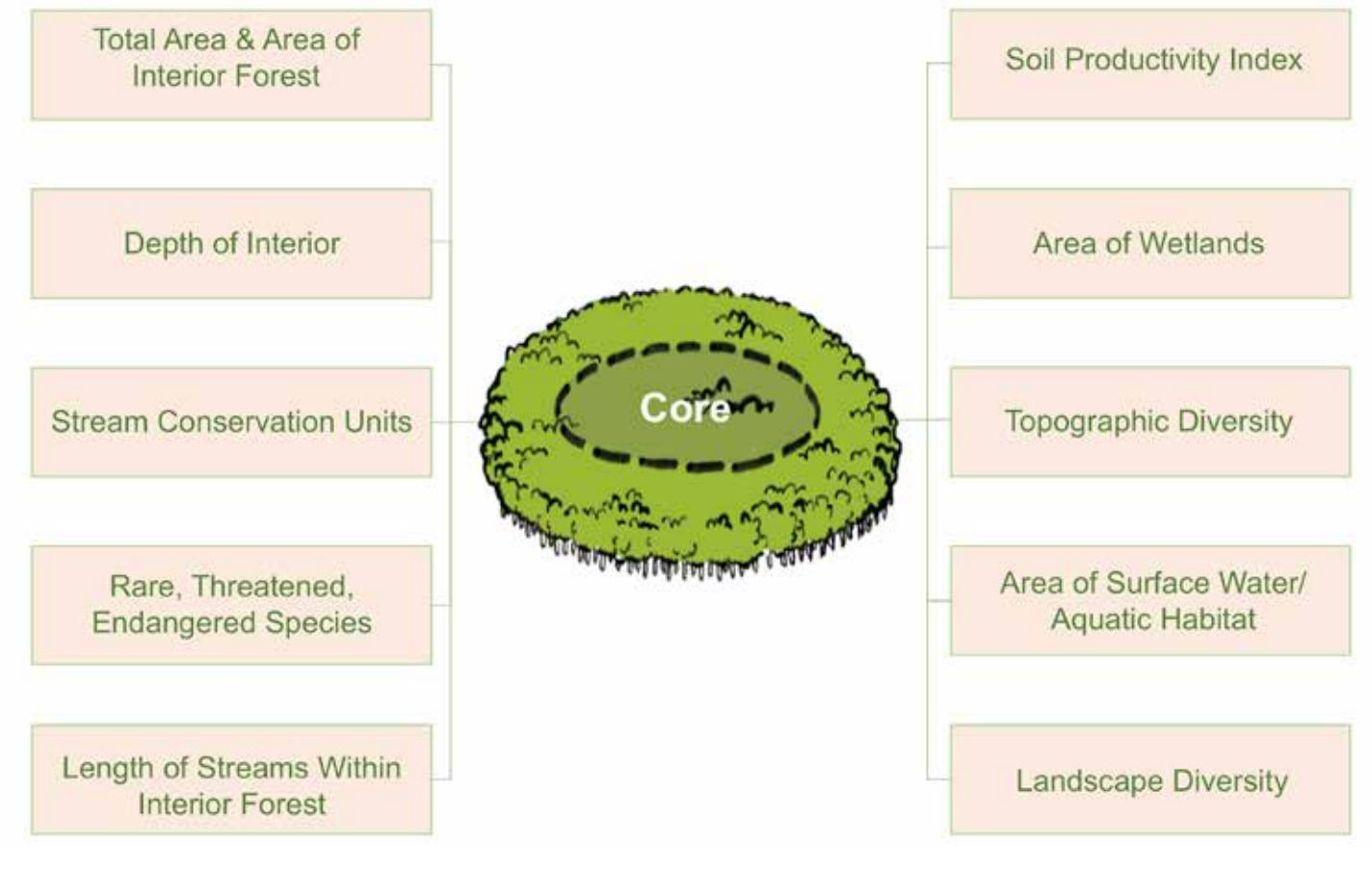
For more on how habitat cores are created, see the Methods and Maps section (page 7) and the Technical Appendix of the full report.

Ranking cores for the values they provide allows land-use planners, agency officials, and site managers to prioritize those specific habitat cores that best meet management goals and objectives, while providing the highest value for species.



Habitat cores consist of an area of intact interior wildlife habitat of 100 acres or more and an edge area that serves as a buffer absorbing impacts from outside the core.

### Habitat cores are ranked based on these ecological metrics.

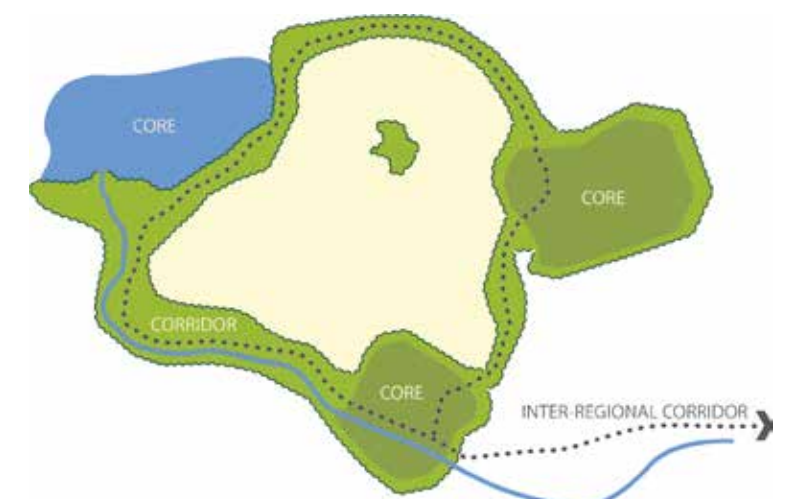


GIC modeled and mapped ranked habitat cores across both the region and state, based on ecological metrics, *see chart above*.

For more on corridor modeling see the Introduction section (pages 10 and 11) and the Technical Appendix of the full report.

### Corridors

Wildlife moves between habitat cores along corridors that support biodiversity by allowing species to move across the landscape and repopulate areas following such disturbances as hurricanes or fires. Restoration or preservation of corridors may also present opportunities to incorporate trails for human recreation. In addition to regional corridors, GIC modeled corridors that are of statewide importance. A graphic representation of this connectivity is displayed on the maps as state and local corridor lines. As the region continues to grow, every effort should be made to continue to maintain these corridors for a more connected and resilient landscape.



Green Infrastructure planning is about connecting the landscape. Corridors provide connections between core habitats. A well-connected landscape is more resilient.





## Upper Savannah COG

### Assets

*Natural Assets* are the environmental elements that provide healthy surroundings, recreational opportunities, and clean water and food for both people and wildlife. These natural assets include forests, waterways, wetlands, bays, agricultural soils, and other natural resources. *Cultural Assets* are the landscape elements or uses that people value, such as parks, boat landings, trails, historic or archaeological sites, or scenic vistas and roads that add to the beauty of the area. Natural assets support cultural assets by providing scenic backdrops to historic sites, buffering them from storms and providing settings in which to enjoy them, such as the trails through historic sites that engage visitors in history while they enjoy the natural surroundings. GIC mapped these assets using existing state and national datasets, as well as data from stakeholders. The asset maps include water, agriculture, recreation, and cultural assets. Locating these assets is the first step in protecting them and allows decision-makers and planners to make more informed decisions about growth and conservation.

### Risks

Mapping important habitats, agricultural soils, and cultural sites is only a first step towards planning to conserve important assets into the future. Mapping risks, in order to understand which assets are most vulnerable is the next step. GIC analyzed the following risks across the state: sea level rise, storm surge, impaired waters, development, and solar development. These risk maps can be used to determine the most critical regional risks and priority areas for conservation. Impaired waters maps can be used to determine areas to target for riparian plantings. Development and solar development maps can guide conservation efforts, as well as planning policy. Tools to mitigate risk can also include establishing solar ordinances, or drawing urban growth boundaries to avoid high-value habitat cores.

### Upper Savannah Risks



**27 of 1,115 (2%)** habitat cores with **impaired streams**



**229 of 1,115 (21%)** habitat cores at risk of **development**



**788 of 1,115 (71%)** habitat cores at risk of **solar development**



**817 of 1,115 (73%)** habitat cores at **cumulative risk**



The landscape around historic Belfast Plantation supports the historic setting and protects its views.

### Regional Observations

The Upper Savannah region's highest quality habitat cores are found in Sumter National Forest, the Savannah River Corridor, the Saluda River Corridor, and the Enoree River Corridor. The larger wildlife corridors in the region follow these same rivers and connectivity can be ensured or restored by maintaining and planting buffers and seeking protection along the rivers. Prime agricultural soils are abundant in the region, with a higher concentration in Saluda County. The region supports nature-based recreational assets, such as paddling a scenic river, hiking in a national forest, fishing or boating on a lake, and biking along the Palmetto Trail. The number of assets highlighted in the maps is the result of participation by stakeholders so the counties that participated in the process are likely to see more assets represented on the maps.

Protected land makes up 14% of the total area in the Upper Savannah COG, equal to the statewide rate. The Governor has adopted the 30 by 30 goal to preserve 30% of the state's lands by 2030. To achieve this goal, the region will need to double its protected lands and should continue to work with the Upper Savannah Land Trust and other organizations to protect high-value habitat cores and corridors in the region. Currently, 20% of regional habitat cores are protected and the habitat cores and corridors map shows the most important lands that still need protection. Public park land in the region is 10% of the total area, above the 5% statewide rate. As the region continues to grow, local governments should invest in high-quality public park space in the region and habitat cores should be a key consideration for locating future parkland.

The greatest risk for the region is development, especially suburban sprawl-patterned growth, and utility scale solar development. Urban development risks are greatest around the municipalities of Lauren, Clinton, Greenwood, Saluda, and Edgefield. Additionally, habitat cores and prime agricultural soils across the region are at risk of development for utility-scale solar farms. Planning for smart, compact growth will be critical to maintain habitat connectivity, food production capability, and quality of life in the region.

### Regional Stakeholders

Participants in the Upper Savannah stakeholder workshops include representatives from:

- Upper Savannah Council of Governments
- Greenwood County
- Laurens County
- Abbeville County
- McCormick County
- Vision Greenwood
- Upper Savannah Land Trust
- SC Department of Health and Environmental Control
- SC Forestry Commission



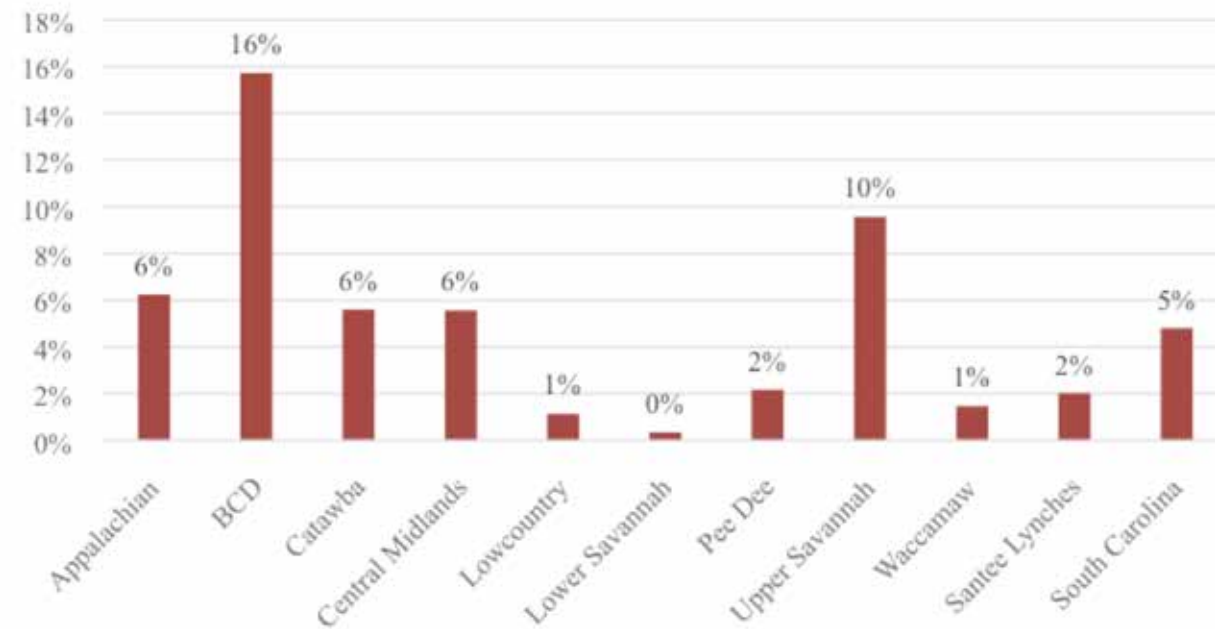
Ninety-Six National Historic Site is part of the public parkland in the Upper Savannah. The percentage of public parkland in the region is 10%, one of the highest rates in the state of South Carolina.





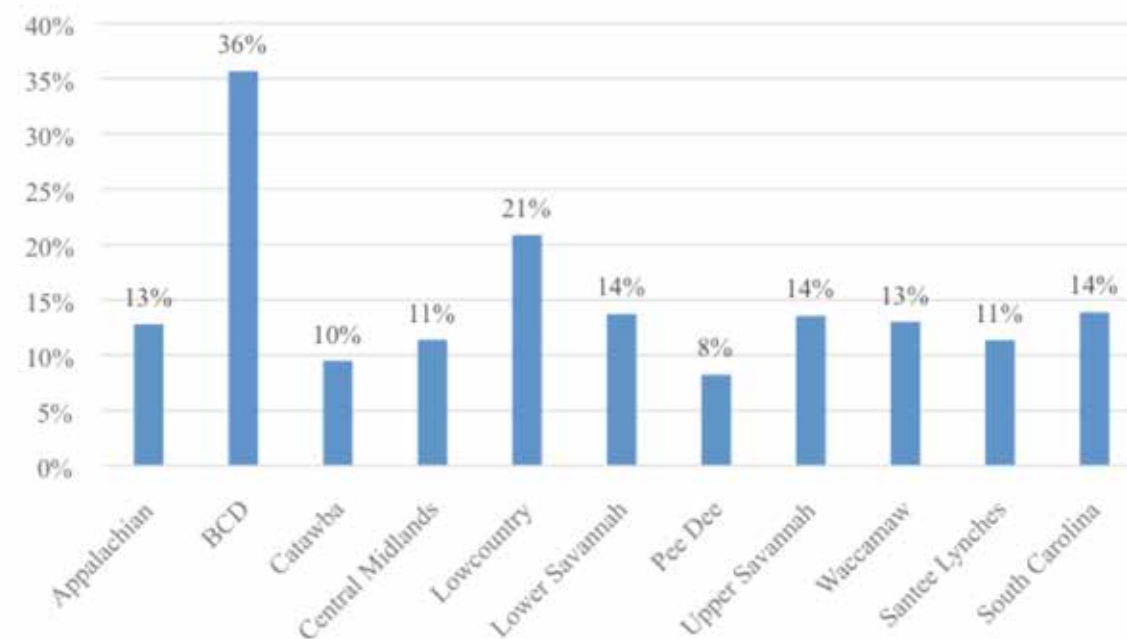
## Upper Savannah COG

Percentage of Total Area that is Public Park Land



The percentage of public parkland in the Upper Savannah region is 10%, above the 5% statewide rate, and one of the highest rates in the state.

Percentage of Total Area that is Protected Land



The percentage of protected land in the Upper Savannah region is 14% equal to the 14% statewide rate.

## Upper Savannah Priority Areas

Upper Savannah stakeholders identified several areas in the region that are priorities for protection and restoration.

- Prioritize and restore the Saluda River and Lake Greenwood.
- Prioritize and restore the Enoree River.
- Investigate wildlife crossing opportunities on Route 34 over the Saluda River near Lake Greenwood.
- Prioritize and restore Boyd's Mill Pond and the Reedy River Corridor.
- Prioritize and restore Rabbon Creek as a corridor.
- Prioritize and restore Stevens Creek, Hard Labor Creek, and Cuffeytown Creek.
- Protect Rocky Shoal Spider Lily populations on Stevens Creek.
- Conserve agricultural land in Edgefield County that supports wildlife connectivity.

### Upper Savannah COG Priority Areas Map



This map illustrates the habitat cores corresponding to the COG identified priority areas for protection and restoration.





## Upper Savannah COG

### Upper Savannah Strategies

Project maps to inform these strategies can be found at the end of this chapter as well as on the project HUB site <https://scgiplan-gicinc.hub.arcgis.com/>. Users can access all the data online and download data for any county.

#### Strategy 1: Implement a Green Space Sales Tax.

Laurens, Abbeville, Greenwood, McCormick, Saluda, and Edgefield Counties should consider placing the Green Space Sales Tax on their ballots to raise funds to conserve more land in the region. Counties can use the funds collaboratively to protect land across county boundaries.

#### Strategy 2: Create and strengthen solar ordinances.

Create solar ordinances in Saluda, Greenwood, McCormick, and Laurens counties. Strengthen solar ordinances in Abbeville and Edgefield counties. The South Carolina Energy Office has resources for creating or updating solar ordinances and examples of model solar ordinances.

#### Strategy 3: Connect protected lands.

Connect protected lands by targeting future protections to corridor connections between such properties.

#### Strategy 4: Adopt conservation subdivision ordinances.

All counties in the region should pass conservation subdivision ordinances. Greenwood County has a conservation subdivision ordinance that would benefit from added incentives to encourage this type of development.

#### Strategy 5: Increase buffer and sideyards' width requirements in Greenwood County.

Wider stream buffers and buffer yards should be required in Greenwood County to create more regional corridors for wildlife movement.

#### Strategy 6: Use greenways to protect cores and corridors.

Greenways should be used to protect or restore connectivity. The North Augusta Greenway is expanding into Edgefield County. The Upper and Lower Savannah COGs should work collaboratively on the trail planning with habitat cores and corridors data as a key consideration. Similarly, the Swamp Rabbit Trail is expanding into Laurens County and trail planning with the Appalachian COG should also utilize habitat cores and corridors data.

#### Strategy 7: The City of Clinton is using tree canopy assessment data to plan for green infrastructure.

The City of Clinton received a technical support grant from the SCFC to create an urban tree canopy assessment and planning assistance. The city will use this data to meet tree canopy goals and prioritize new tree plantings.



The larger wildlife corridors in the region follow the rivers. Connectivity can be ensured or restored by maintaining and planting buffers and seeking protection along the rivers.

### Next Steps

The data created for this plan are a foundation upon which to build a detailed local Green Infrastructure Plan. Any municipality or county wishing to pursue a more detailed local plan should contact GIC.

The purpose of this project was to identify and prioritize those green infrastructure assets that most urgently require protection or restoration in the state. The strategies and maps of habitat cores, corridors, assets, risks, and priorities provide a roadmap and shared vision

for conservation and restoration efforts of state agencies, counties, cities, and landowners. Moving forward, agencies, planners, and citizens can view and download these priorities, maps, and data through the HUB site GIC has created in partnership with Esri. Additionally, the GIS datasets have been disseminated to all the agencies, municipalities, and organizations involved in this project to use in land use decisions and conservation planning. <https://scgiplan-gicinc.hub.arcgis.com/>



Lake Greenwood State Park is one of 16 state parks built by the Civilian Conservation Corps. The 914 acre park offers shoreline campsites and nature trails and provides year-round opportunities for bass fishing and boating.



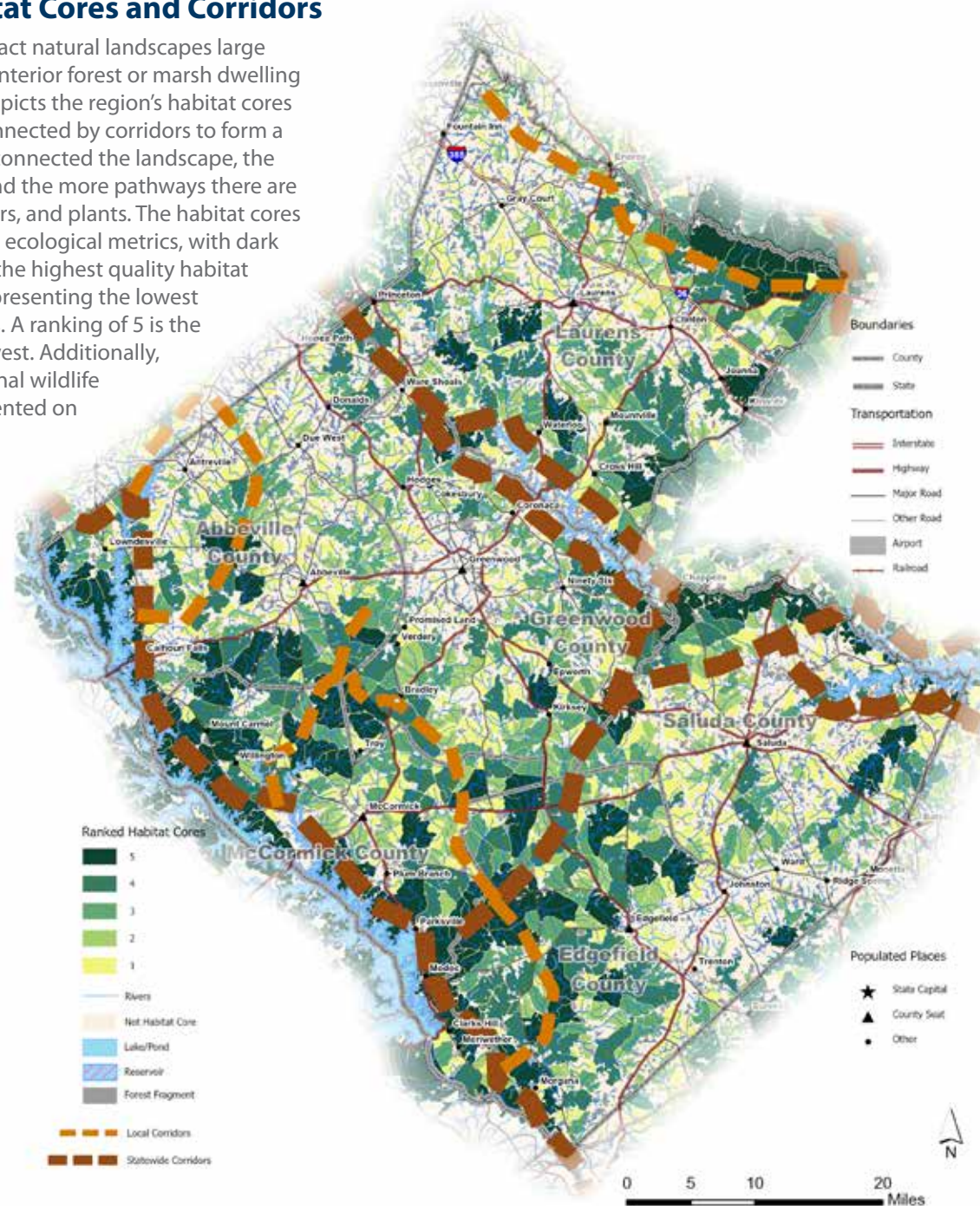


## Upper Savannah COG

### Maps

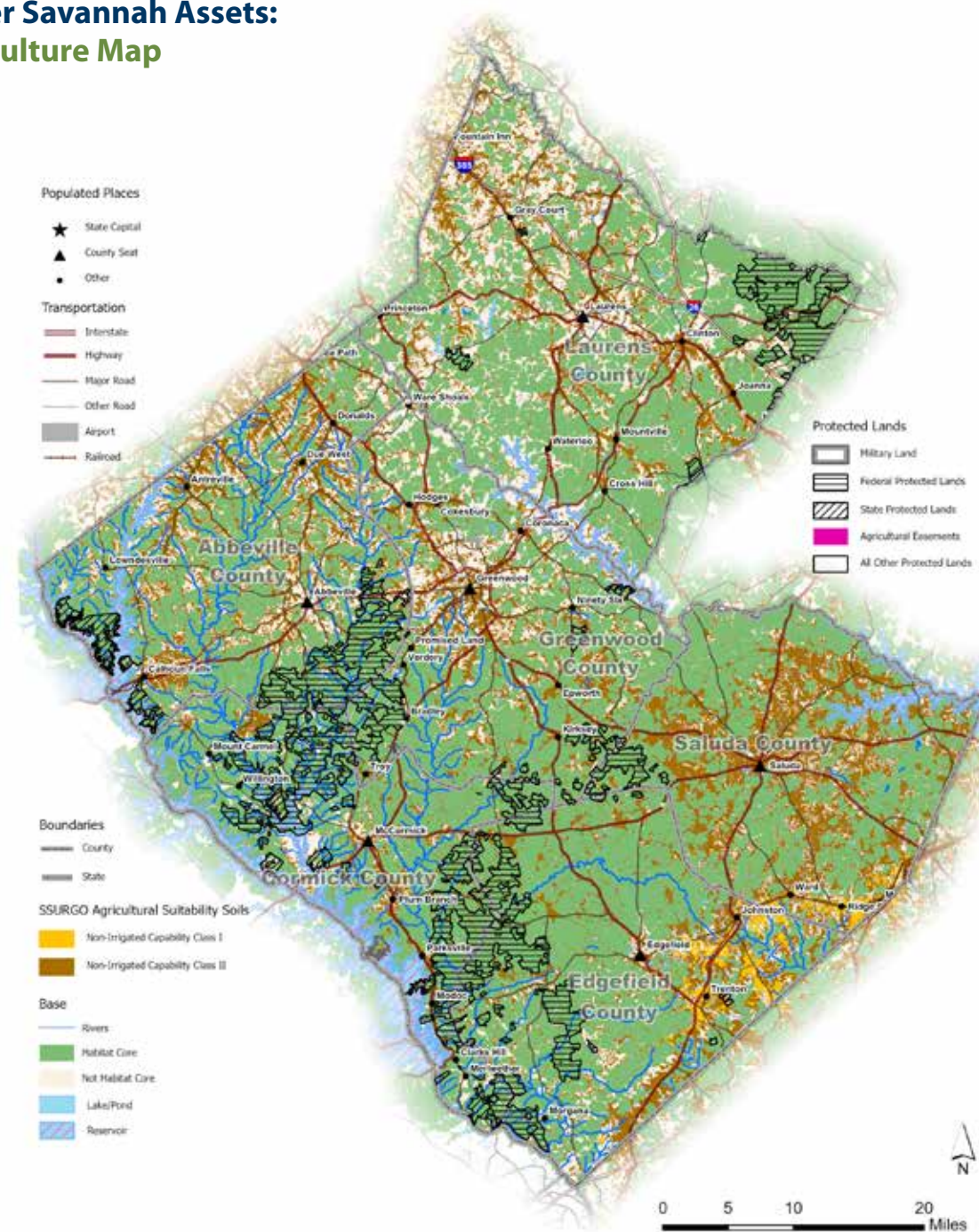
#### Upper Savannah Strategic Planning Map: Ranked Habitat Cores and Corridors

Habitat cores are intact natural landscapes large enough to support interior forest or marsh dwelling species. This map depicts the region's habitat cores and shows them connected by corridors to form a network. The more connected the landscape, the more resilient it is and the more pathways there are for people, pollinators, and plants. The habitat cores are ranked based on ecological metrics, with dark green representing the highest quality habitat cores and yellow representing the lowest quality habitat cores. A ranking of 5 is the best and 1 is the lowest. Additionally, statewide and regional wildlife corridors are represented on this map by brown dashed lines.



View all these maps on line and download habitat core data at:  
<https://scgiplan-gicinc.hub.arcgis.com/>

#### Upper Savannah Assets: Agriculture Map



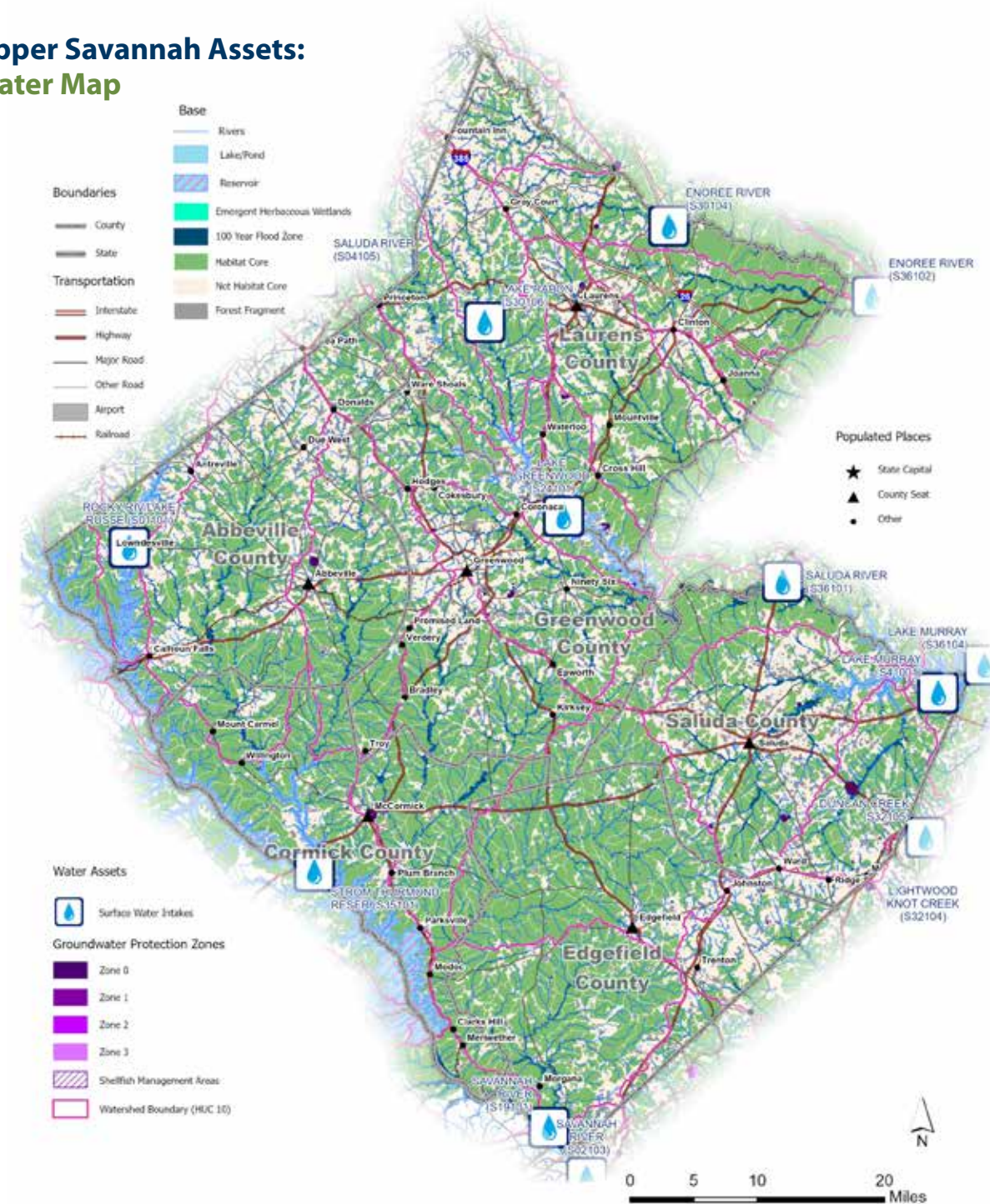
This map identifies the highest quality agriculture soils (classes 1 and 2) on open land, as well as agricultural easements in the region.



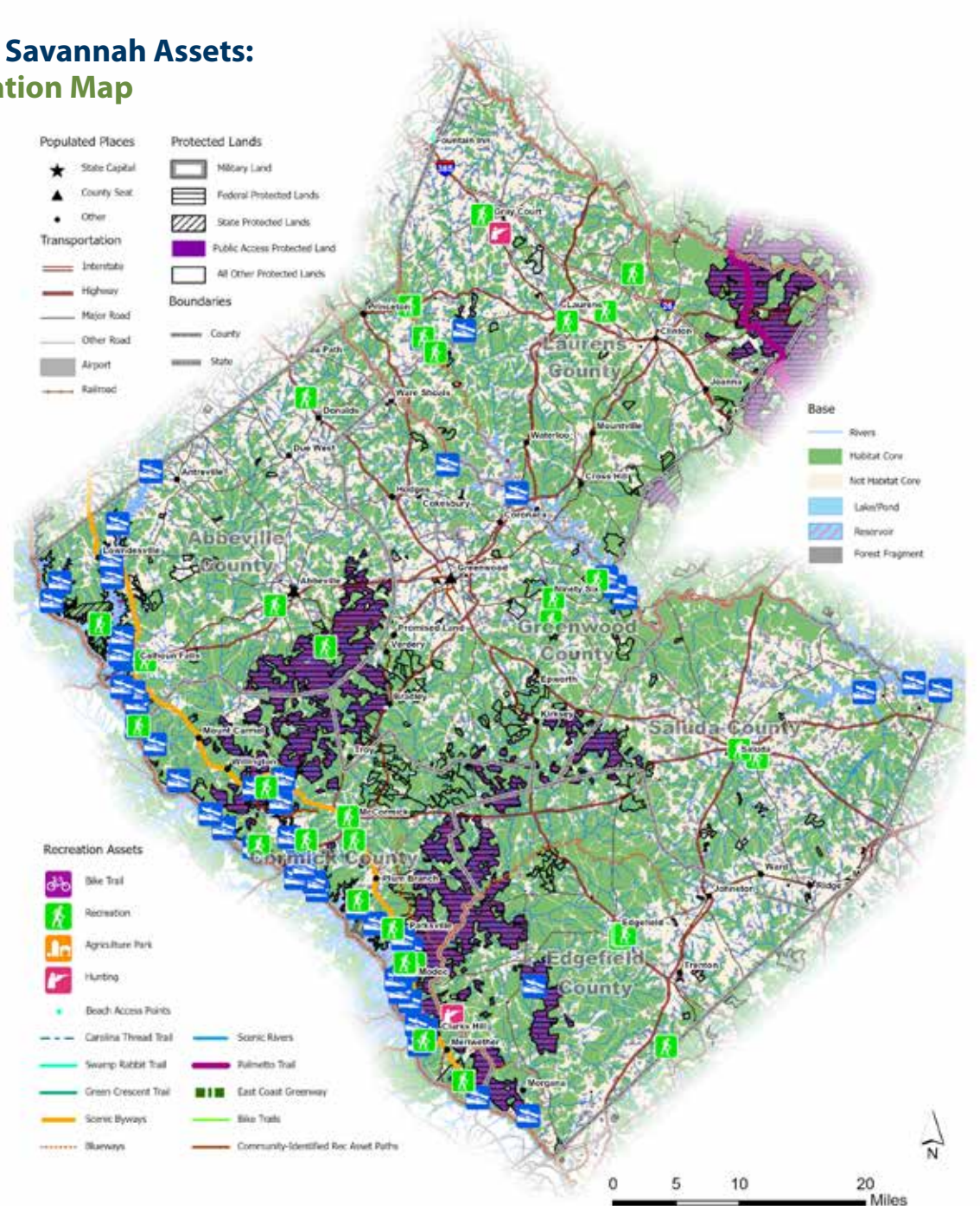


# Upper Savannah COG

## Upper Savannah Assets: Water Map



## Upper Savannah Assets: Recreation Map

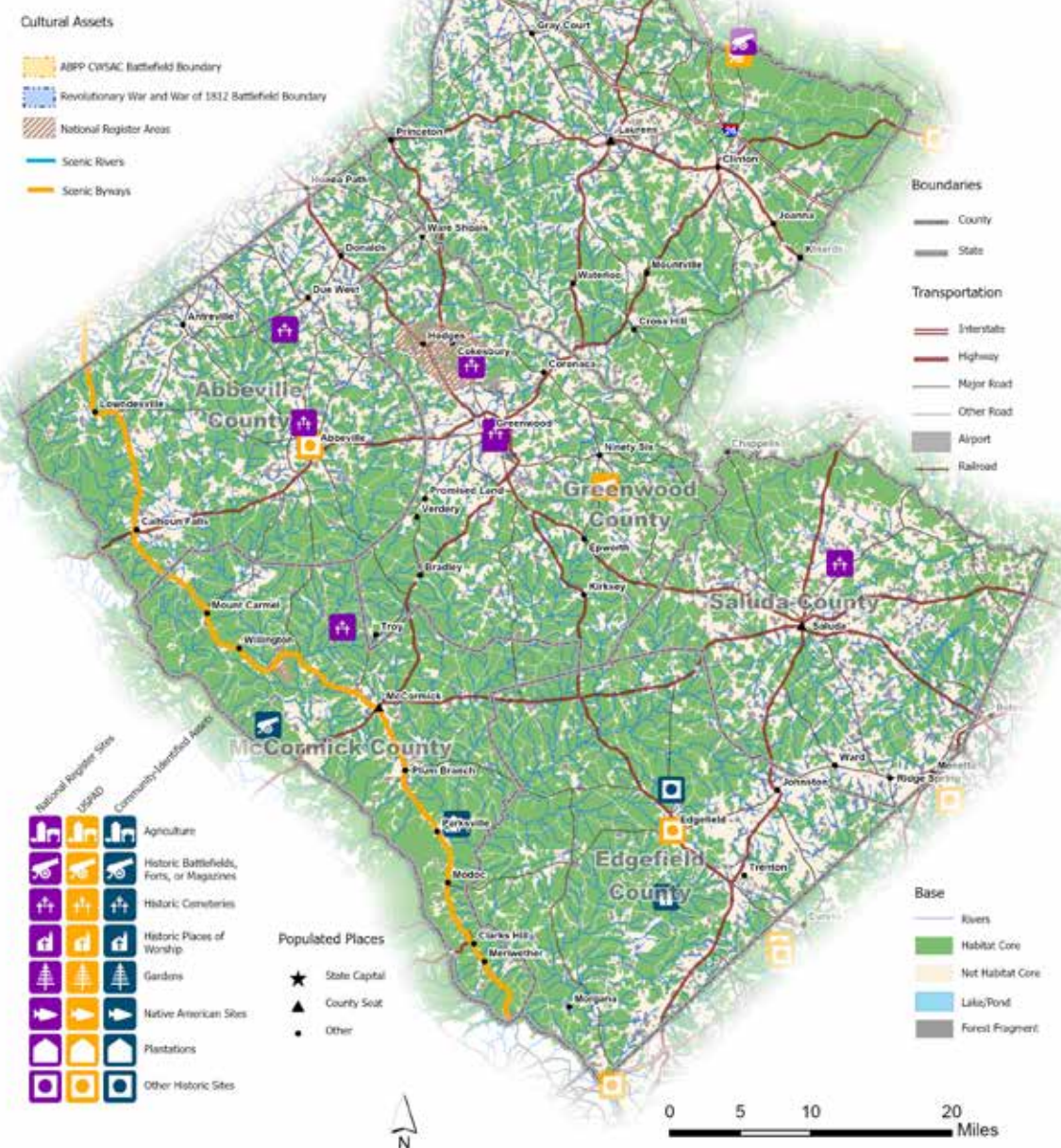






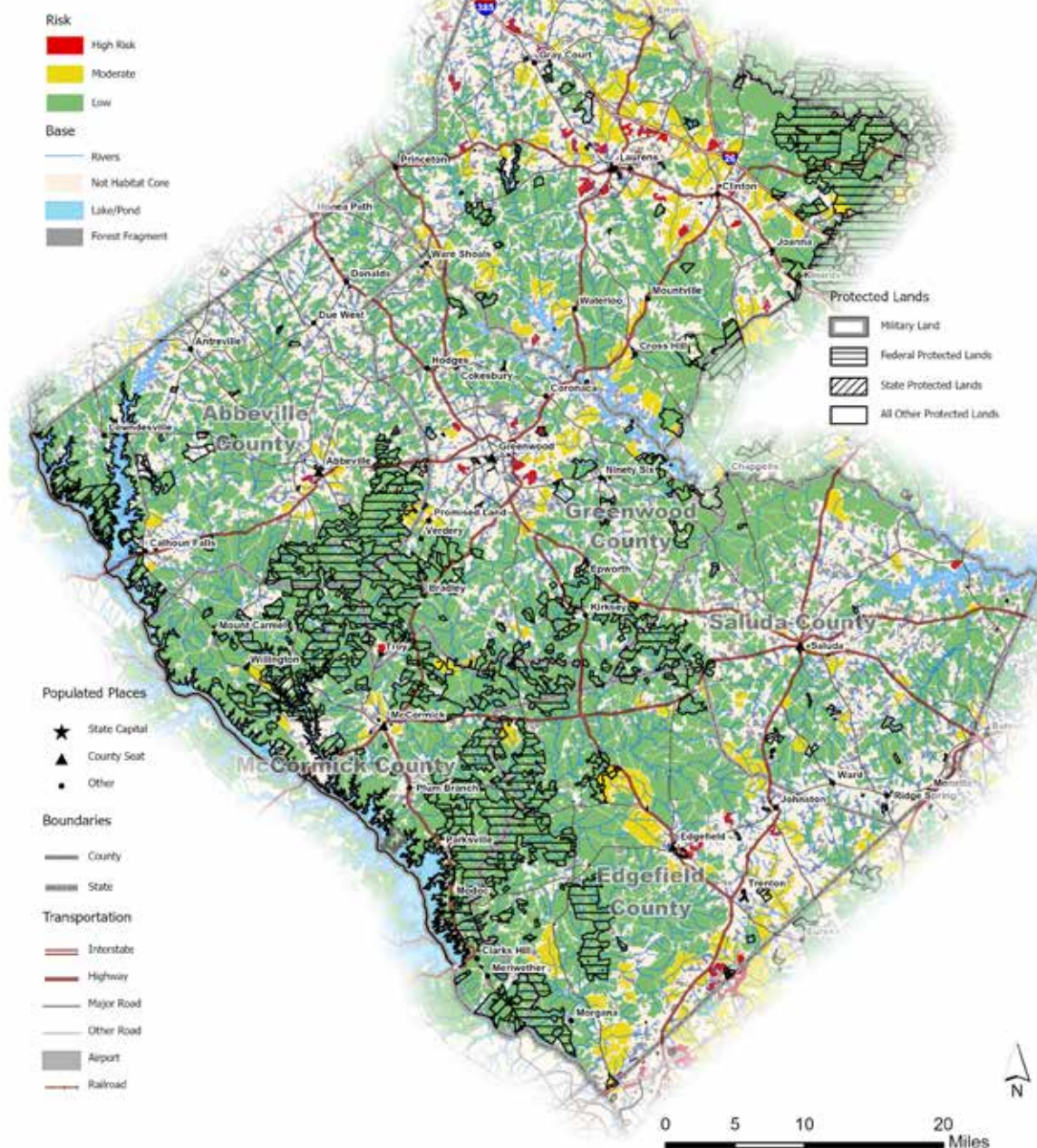
# Upper Savannah COG

## Upper Savannah Assets: Culture Map



This map displays historic sites, Native Peoples sites, cultural overlay districts, scenic highways, scenic rivers, and waterfalls in the Upper Savannah region. Natural landscapes provide the context, backdrops, and buffers for these sites and contribute to their settings and beauty.

## Upper Savannah Risks: Development Risk Map



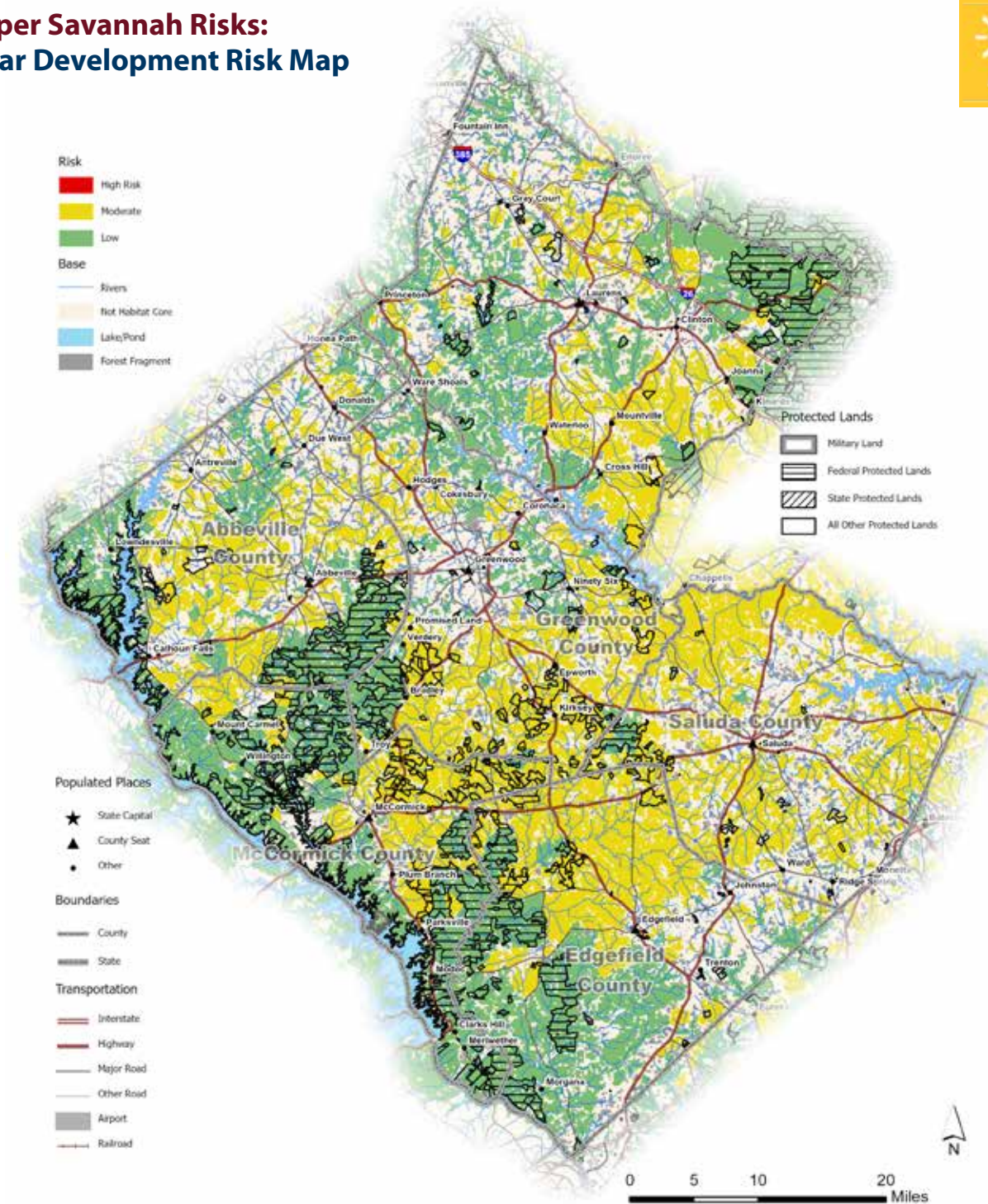
This map depicts the level of development risk based on the SLEUTH Urban Growth Model projected to the year 2060, with protected lands excluded.





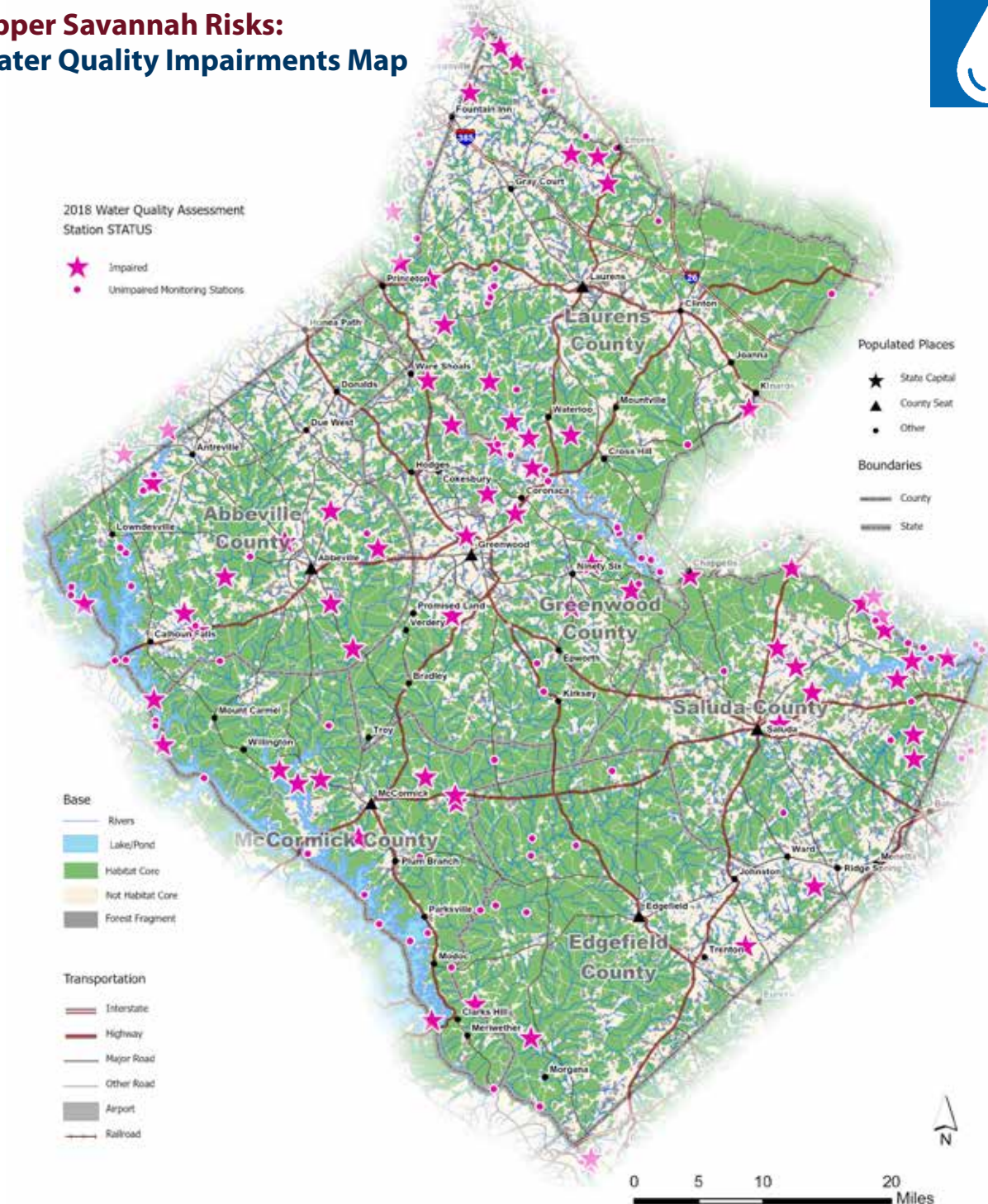
# Upper Savannah COG

## Upper Savannah Risks: Solar Development Risk Map



This map depicts the level of solar development risk based on Argonne Lab's Solar Site Suitability Analysis, with wetlands and protected lands excluded.

## Upper Savannah Risks: Water Quality Impairments Map



This map depicts water quality assessment sites and specific impairments across the region, and includes SC DHEC Water Quality Assessment data.



## Notes

\*Native people of the Upper Savannah region as shown on Native Land Map:

Disclaimer from <https://native-land.ca/>

This map does not represent or intend to represent official or legal boundaries of any Indigenous Nations. To learn about definitive boundaries, contact the nations in question.

## Acknowledgments

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Contributing authors to this report include the following Green Infrastructure Center staff: Lauren Doran, Matt Lee, and Karen Firehock; maps are by Stuart Sheppard and Christian Schluter; editing by Tim Lewis.

To obtain any materials presented in this report please contact:

GIC, 320 Valley St., Scottsville VA 24590-4996: Tel: 434-286-3119.

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