



APPENDIX G: PRIORITY FLOOD MITIGATION AREAS FOR CONSERVATION

OVERVIEW

The South Carolina Office of Resilience has used a combination of public and private datasets to better understand the landscape's role in flood mitigation across South Carolina.

The methodology used to identify priority flood mitigation areas focuses on areas where flood hazards are expected, as well as wetlands that absorb excess water, as well as those areas where water is most likely to infiltrate, reducing runoff. Protecting these areas will reduce community flood risk and allow for the natural storage and conveyance functions.

This appendix includes a description of the methodology used, a process flowchart, as well as a series of maps showing the identified Priority Flood Mitigation Areas.

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AREA IDENTIFICATION DEVELOPMENT

STEP 1: FLOOD HAZARD AREAS

This step focusing on protecting those areas with high current and future flood risks from being developed. This part of the model incorporates the Federal Emergency Management Agency's (FEMA) 1% and 0.2% Annual Chance flood hazard areas. To ensure an appropriate focus on future flood risk, the First Street Foundation's Flood Hazard Layers (Version 2.0) were used to identify areas that would experience over 3 feet of flooding during a 0.2% Annual Chance flood scenario in 2052.

STEP 2: MARSH MIGRATION

This step focuses on protecting the future locations of marshes, which store floodwaters. NOAA's Sea Level Rise Viewer predicts a 1.5-foot rise in sea level by 2050 for South Carolina. With this predicted rise, NOAA's Marsh Migration Model predicts that by 2050, coastal marshes will naturally migrate inland if they have the space to. Conserving areas where these marshes are expected to migrate ensures that their absorptive properties are protected.

STEP 3: CURRENT WETLANDS

Similar to marshes, inland wetlands provide natural stormwater retention. Using the USGS 2019 National Land Cover Dataset, areas identified as wetlands were selected for conservation to ensure their retention properties are not threatened.

STEP 4: BEST INFILTRATION

Upland areas outside of floodplains and wetlands also directly contribute to flood mitigation by

allowing water to infiltrate the soil instead of flowing downstream. This is made most obvious when permeable soils are negated by the placement of impervious surfaces such as concrete over them, leading to runoff and an increase of floodwaters downstream.

In order to identify those upland areas most suited to infiltration, SCOR has used the USGS SSURGO Soils mapping in conjunction with the USGS 2019 National Land Cover Dataset and the USDA 30-meter Digital Elevation Model to calculate runoff curve numbers according to the USDA TR-55 technical report titled Urban Hydrology for Small Watersheds. In this calculation, high runoff curves convey high runoff potential, whereas low runoff curves communicate high infiltration potential. Any high slope areas (over 7%) where soils are classified as B, C, or D were multiplied by 1.25% to further isolate where flat land allows for longer infiltration time.

With runoff curves calculated, an analysis was performed to identify the 10th percentile best infiltration areas for each local watershed. These watersheds are formed out of HUC-8 level watersheds that were modified to include their entire upstream catchment areas, accounting for any substantive drainage resets, such as regulated dams. This ensures the identification of upland areas in every watershed in South Carolina that should be prioritized for conservation for infiltration.

This process can be replicated for watersheds of any size, which allows for downscaling to smaller local watersheds depending on the project proposed.

AREAS NOT INCLUDED IN SCOR'S MODEL

DEVELOPED AREAS & OPEN WATER

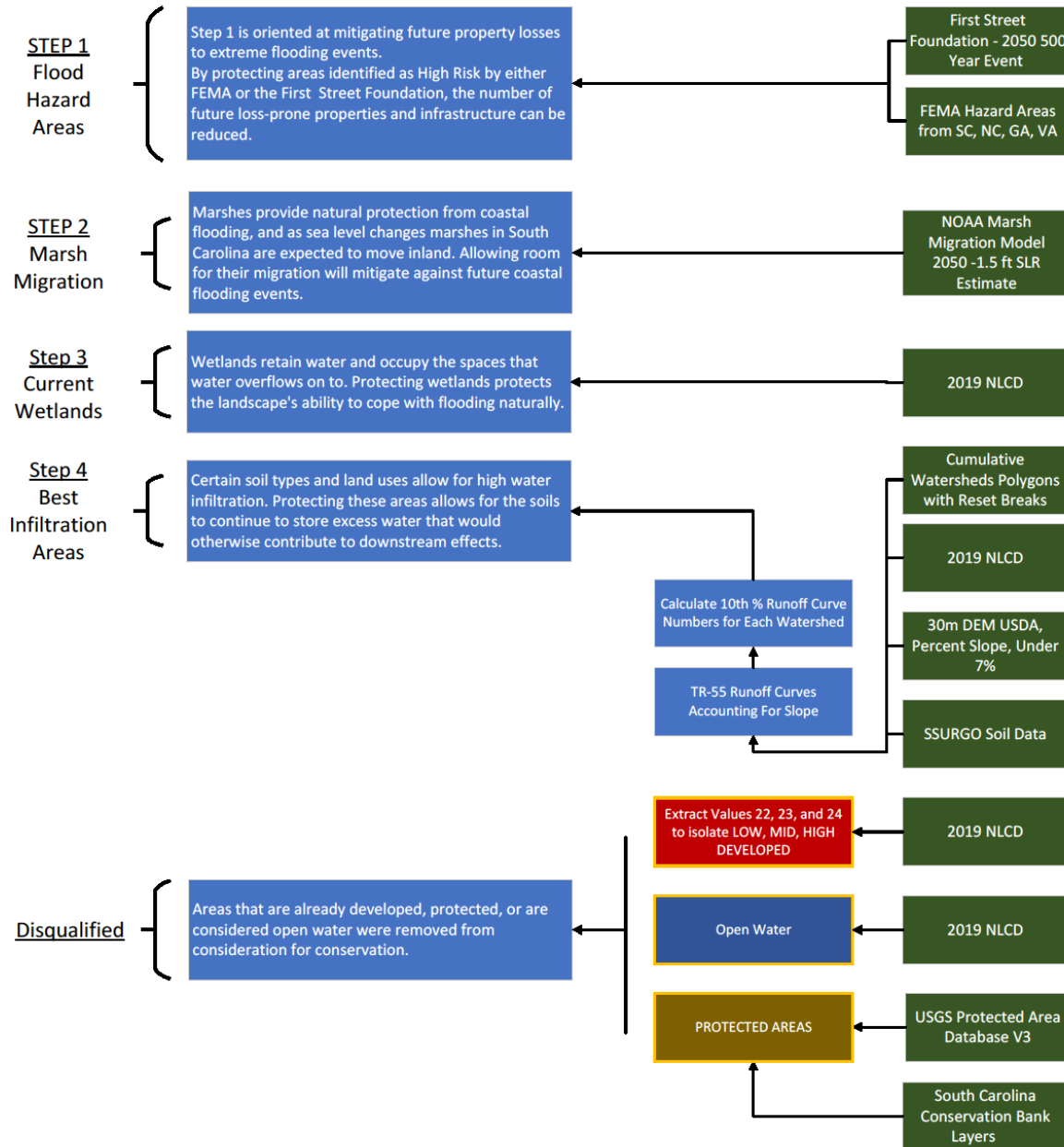
Any areas that are currently identified as open water or low, medium, or high intensity development by the 2019 National Landcover Dataset.

PROTECTED AREAS

Areas identified by the South Carolina Conservation Bank or the USGS Protected Area Database (Version 3) as being protected were removed from SCOR's model.

PRIORITY FLOOD MITIGATION AREAS FIGURES AND MAPS

PROCESS FLOWCHART

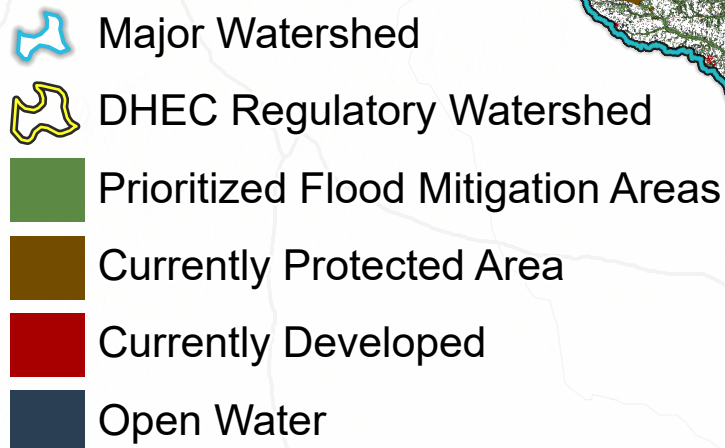


Flood Mitigation Through Conservation

SCOR's Prioritized Flood Mitigation Areas are the outcome of a data driven approach to identifying areas that will reduce severity and exposure to flooding in South Carolina's watersheds. By protecting these areas associated with low runoff or high flood-risk, we can protect South Carolinians and reduce severity and exposure to flooding in South Carolina's watersheds.

Prioritized Areas incorporate inputs from the 2019 National Land Cover Dataset, NRCS SSURGO, NOAA's Marsh Migration model, future high-risk flood areas from the First Street Foundation, and FEMA's Special Flood Hazard Areas.

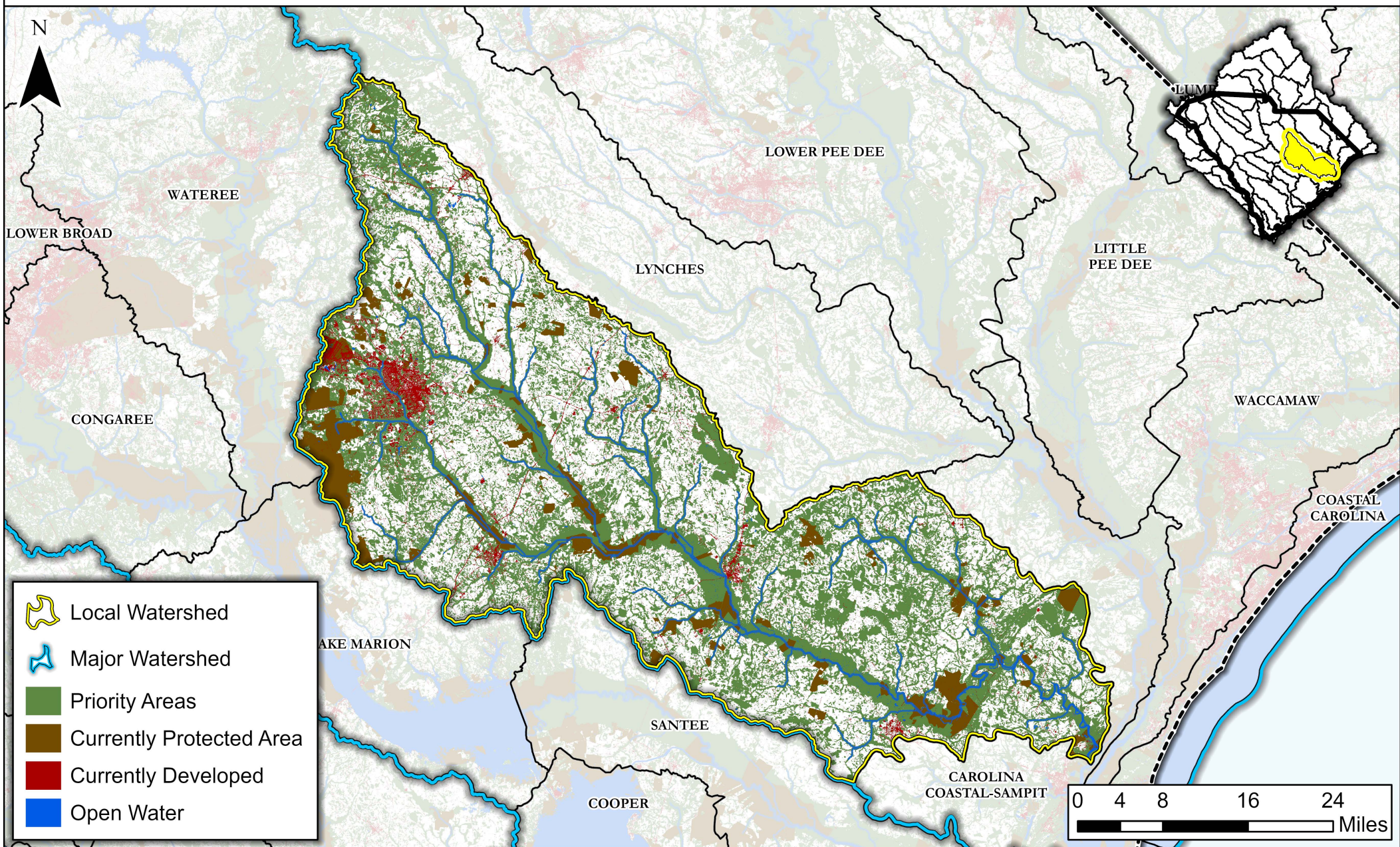
Currently Protected Areas are sourced from the USGS Protected Areas Dataset and the South Carolina Conservation Bank.



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Miles

Prioritized Flood Mitigation Areas

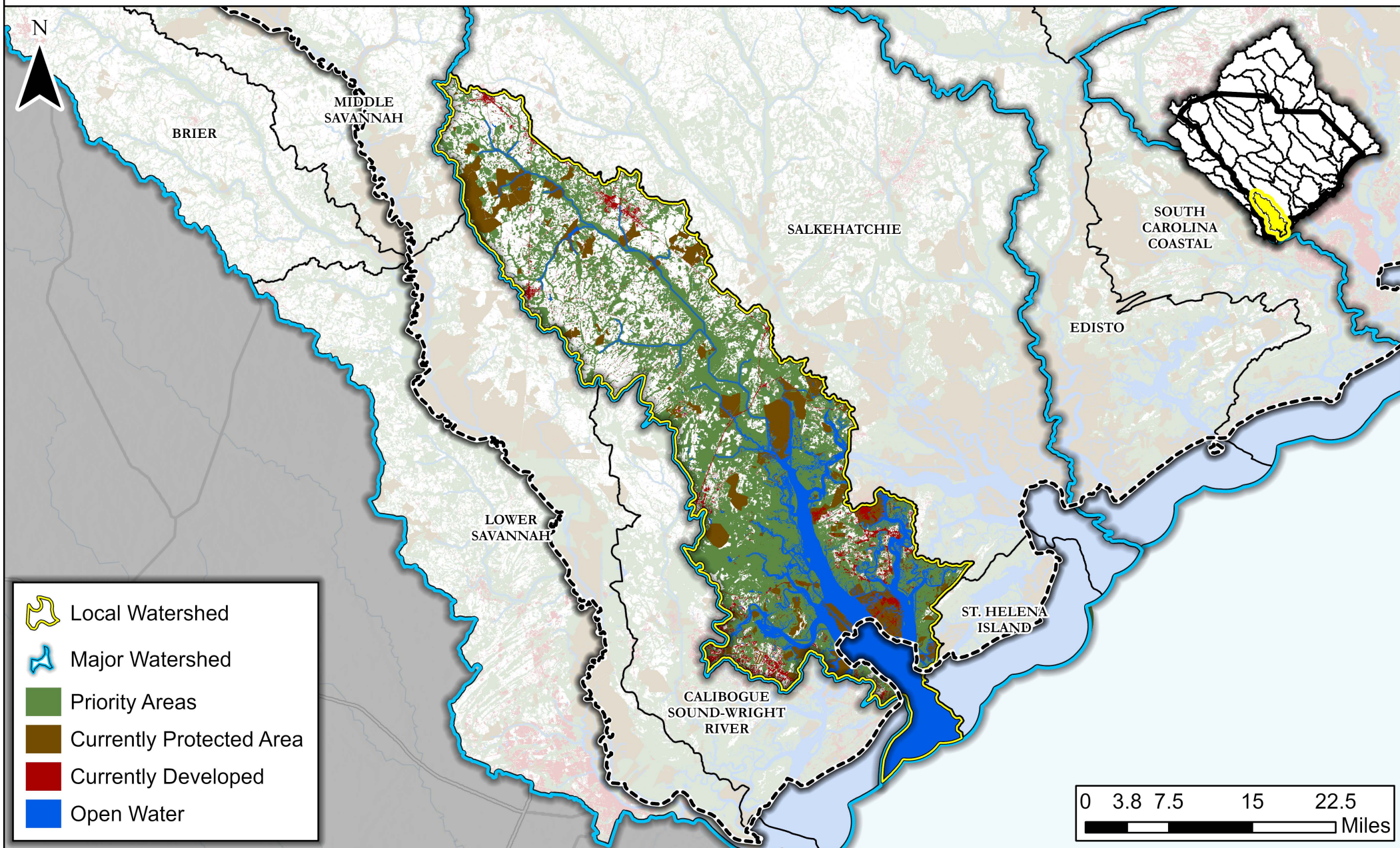
Black Watershed



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Prioritized Flood Mitigation Areas

Broad-St. Helena Watershed

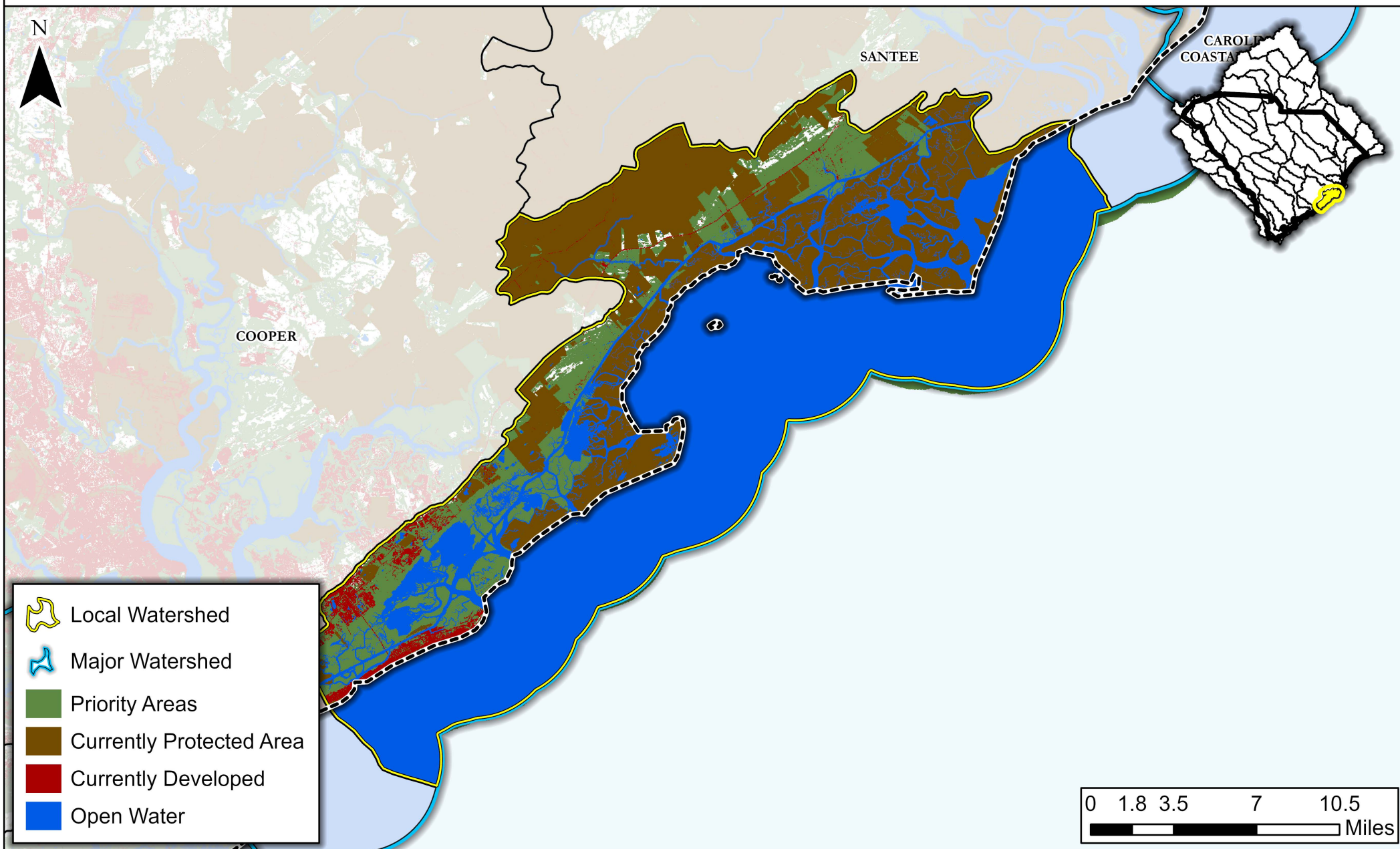


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Prioritized Flood Mitigation Areas

Bulls Bay Watershed

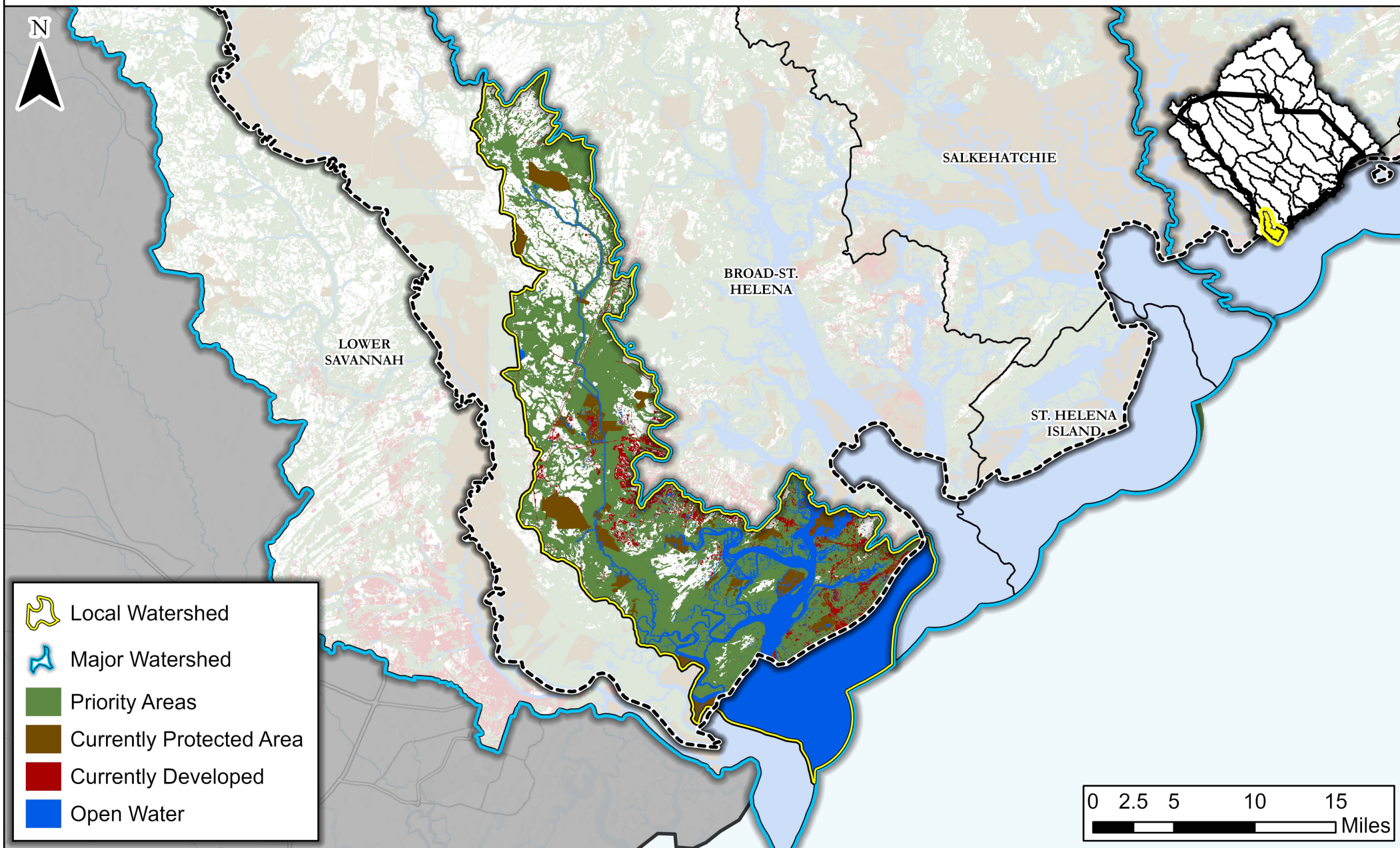


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Prioritized Flood Mitigation Areas

Calibogue Sound-Wright River Watershed

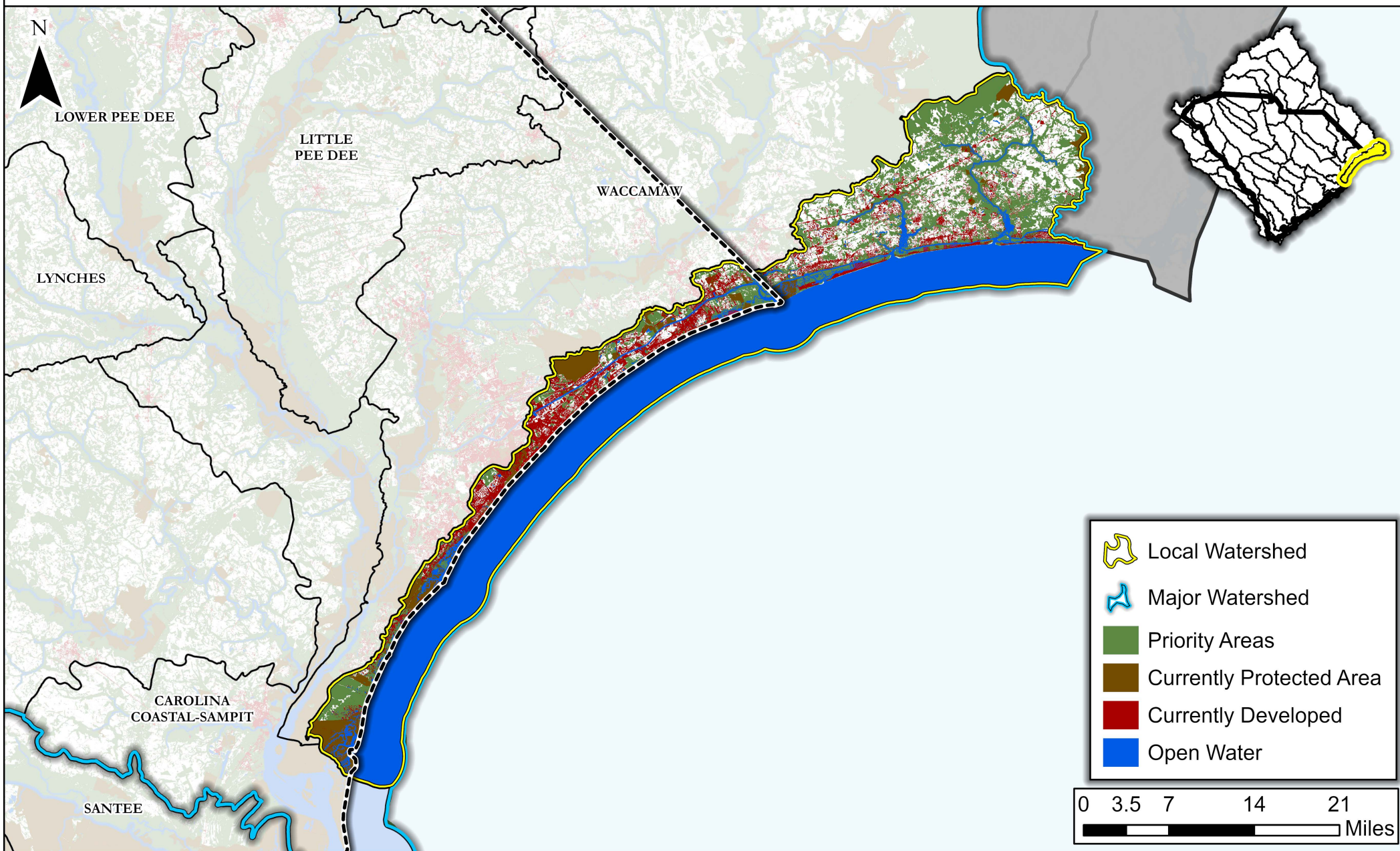


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Prioritized Flood Mitigation Areas

Coastal Carolina Watershed

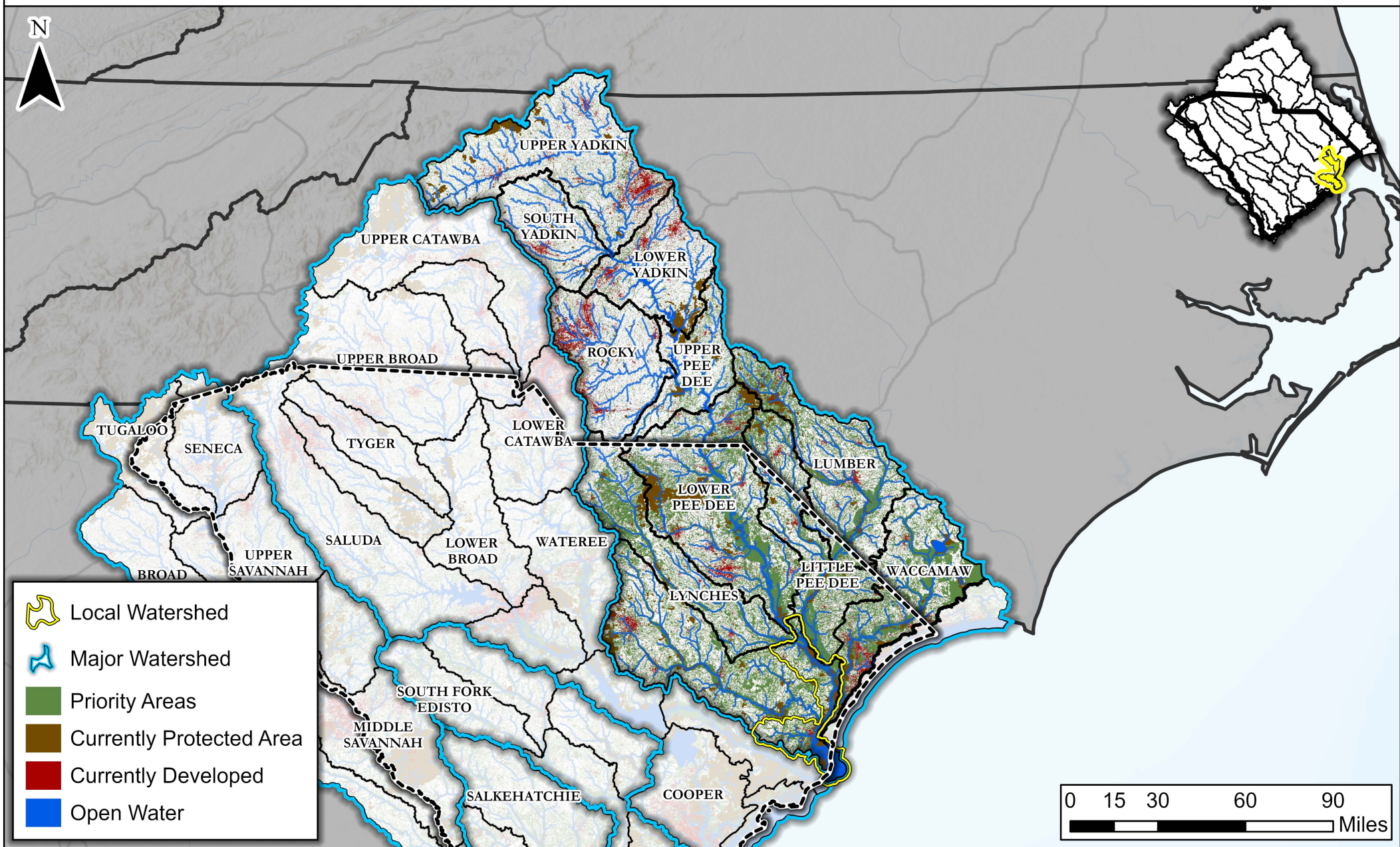


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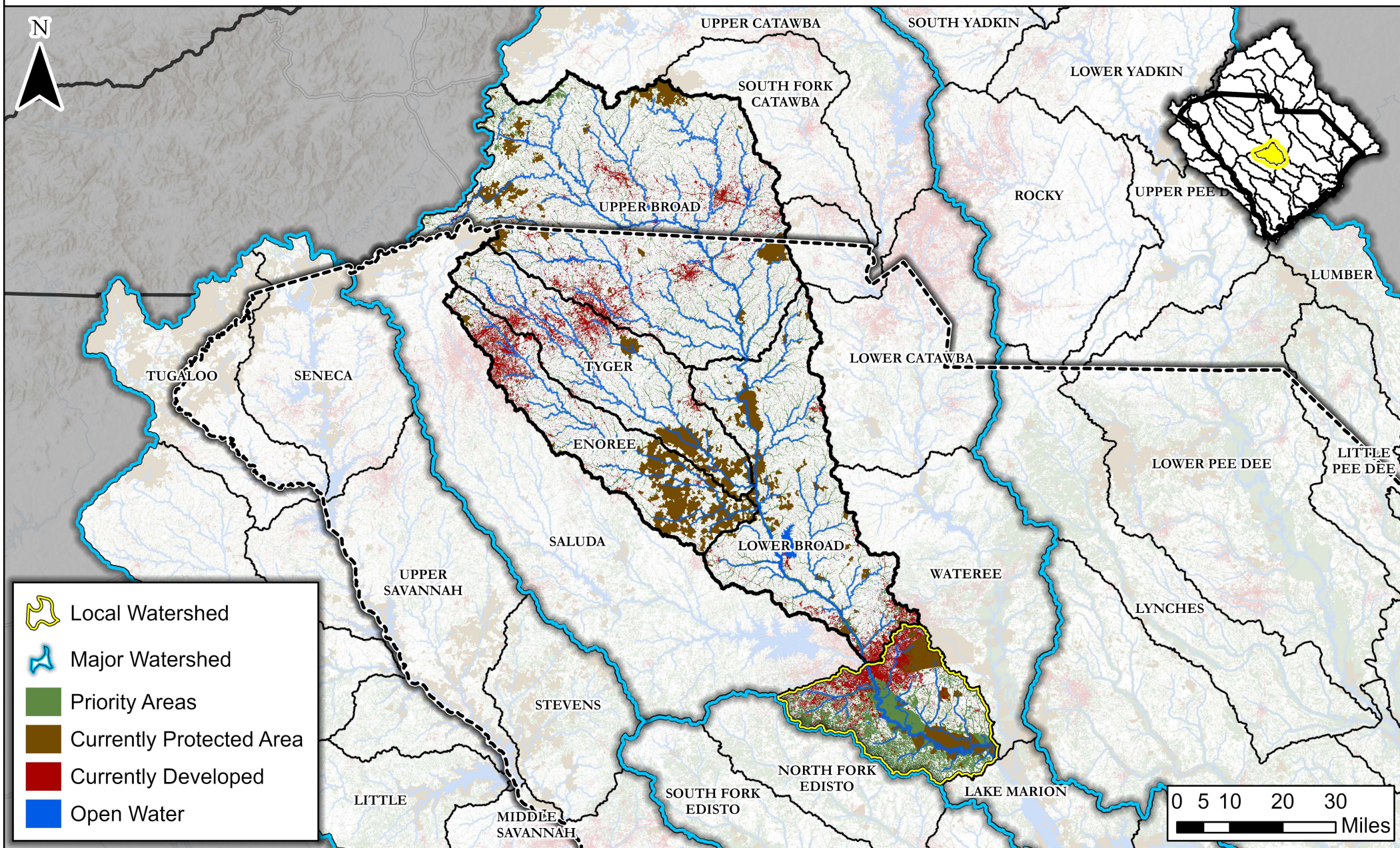
Carolina Coastal-Sampit Watershed



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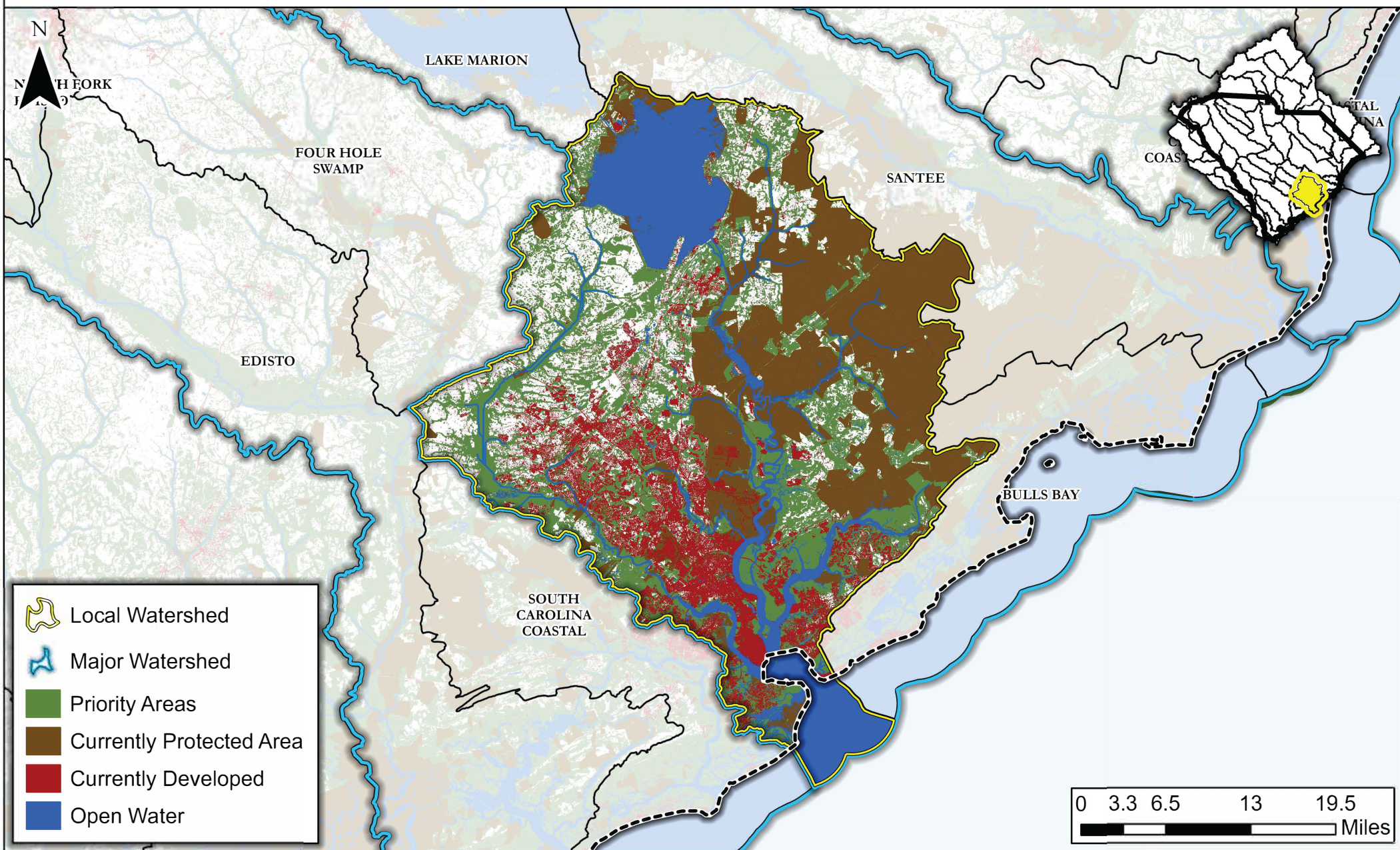
Congaree Watershed



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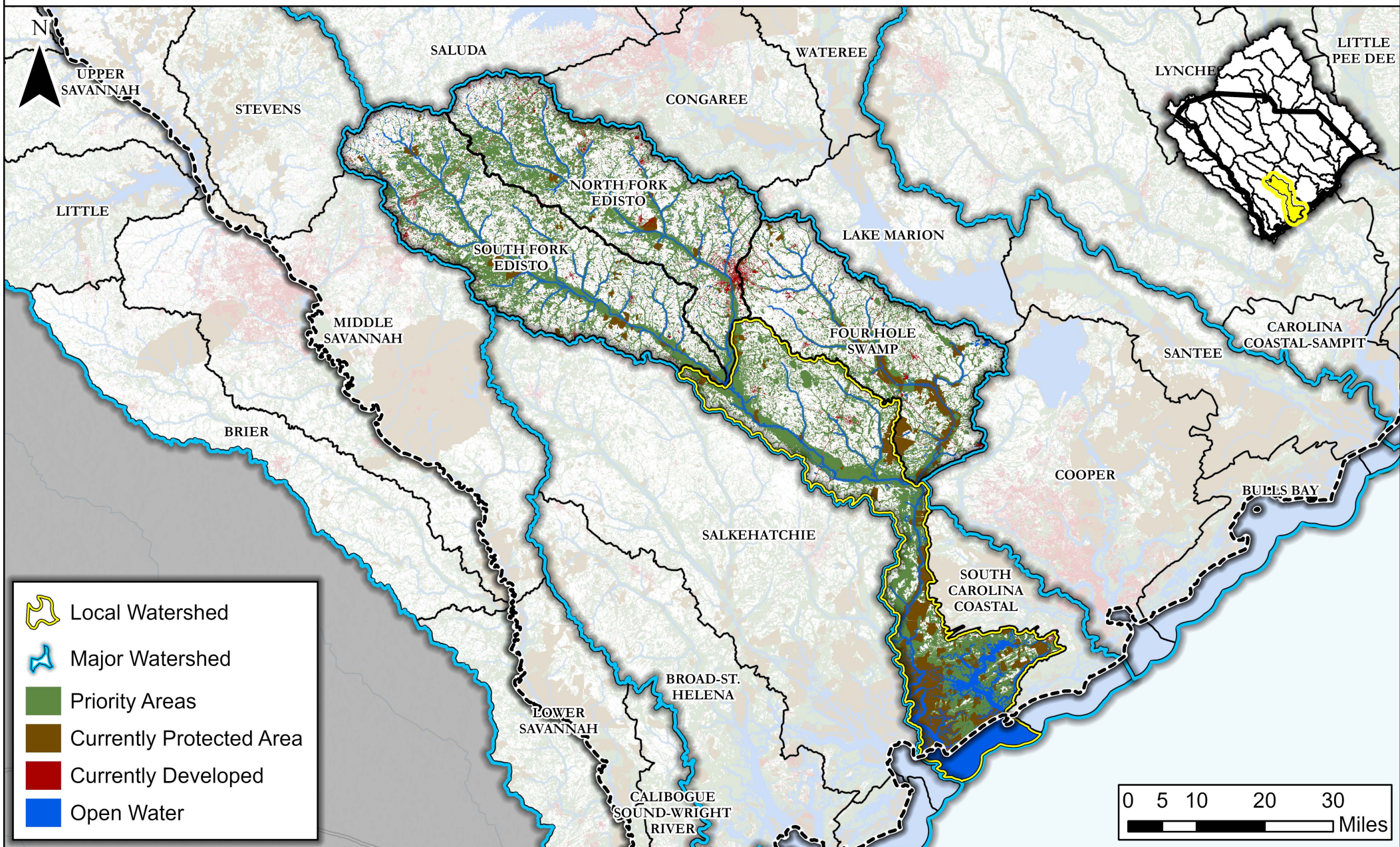
Cooper Watershed



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Prioritized Flood Mitigation Areas

Edisto Watershed

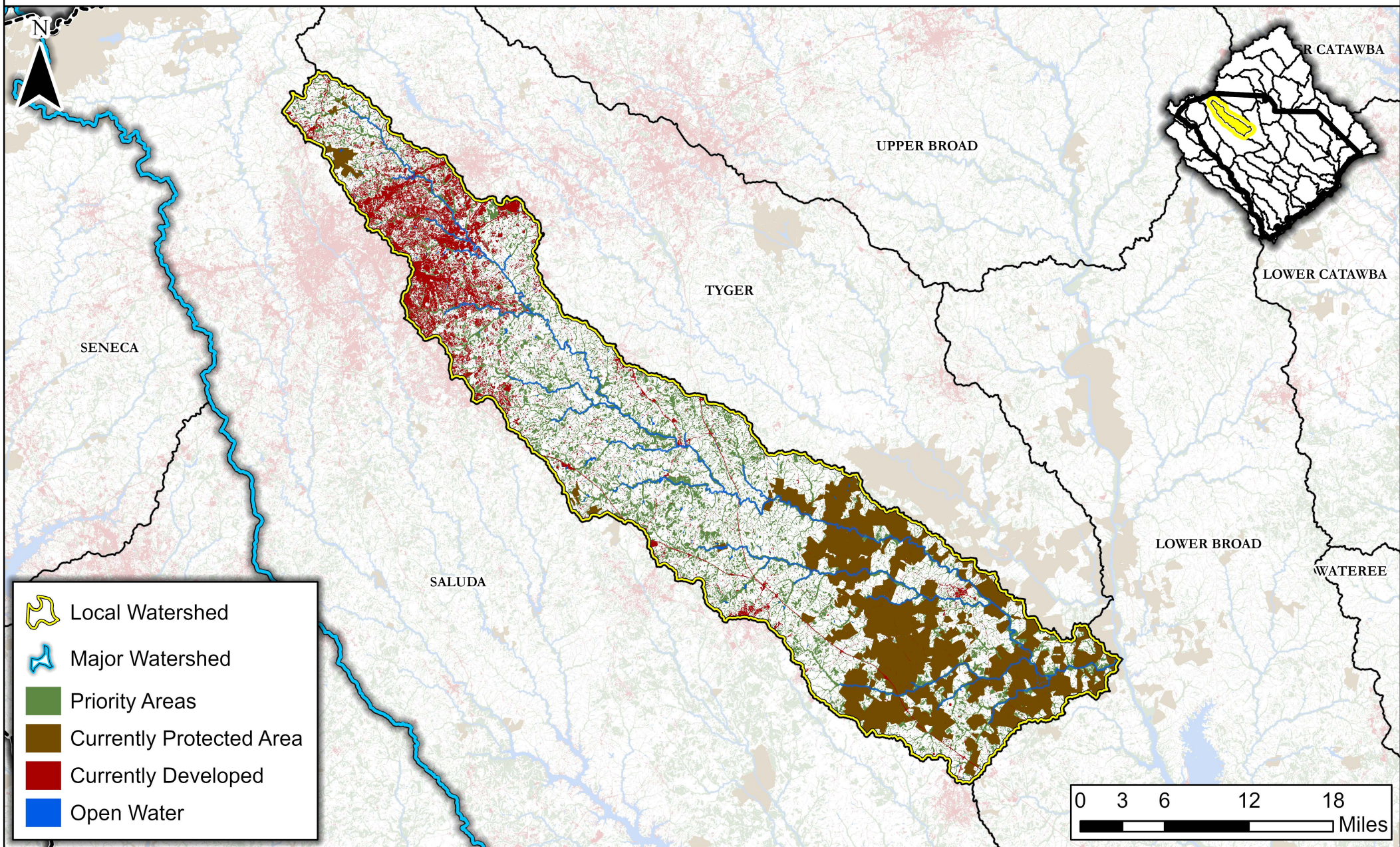


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Enoree Watershed

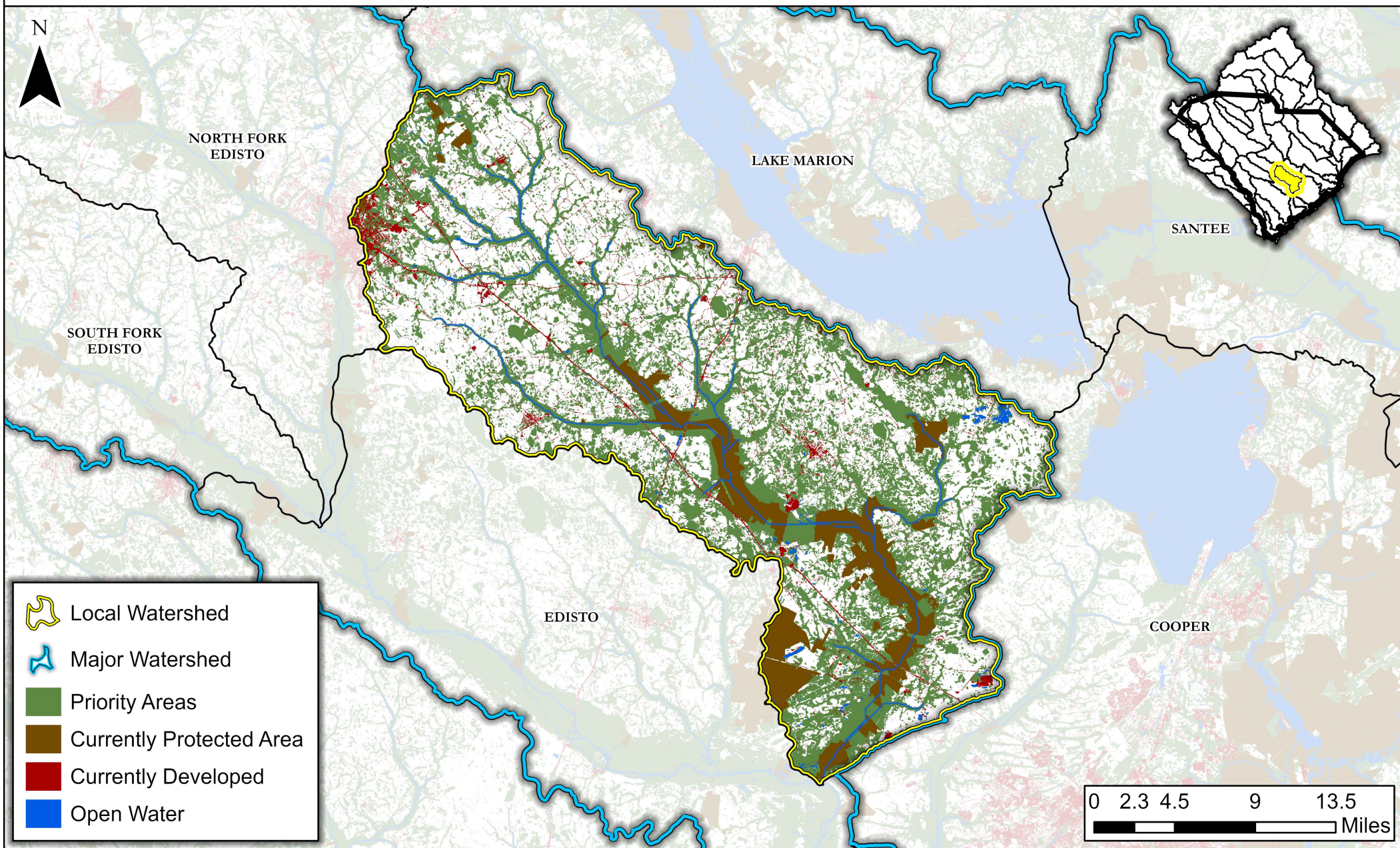


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Prioritized Flood Mitigation Areas

Four Hole Swamp Watershed

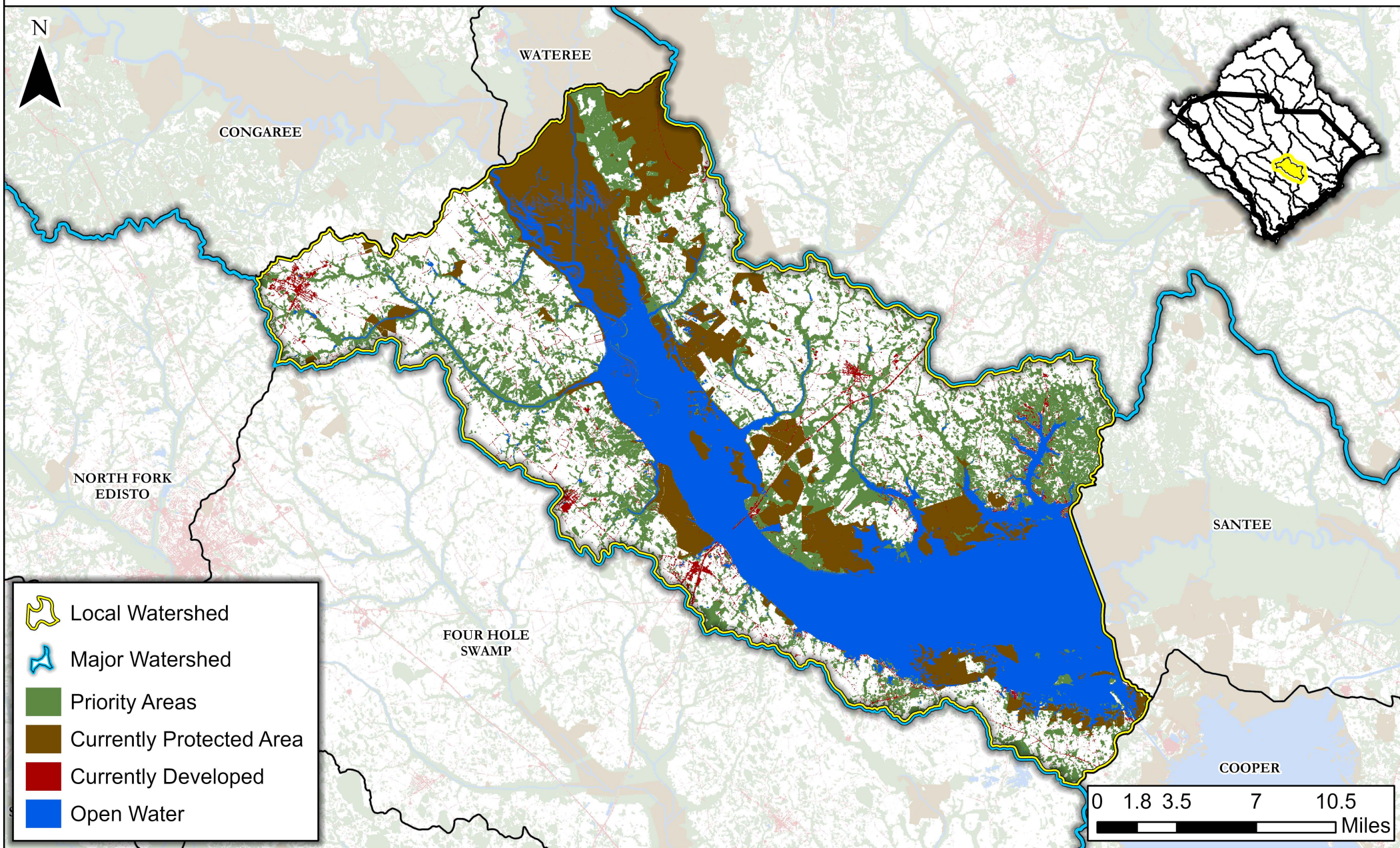


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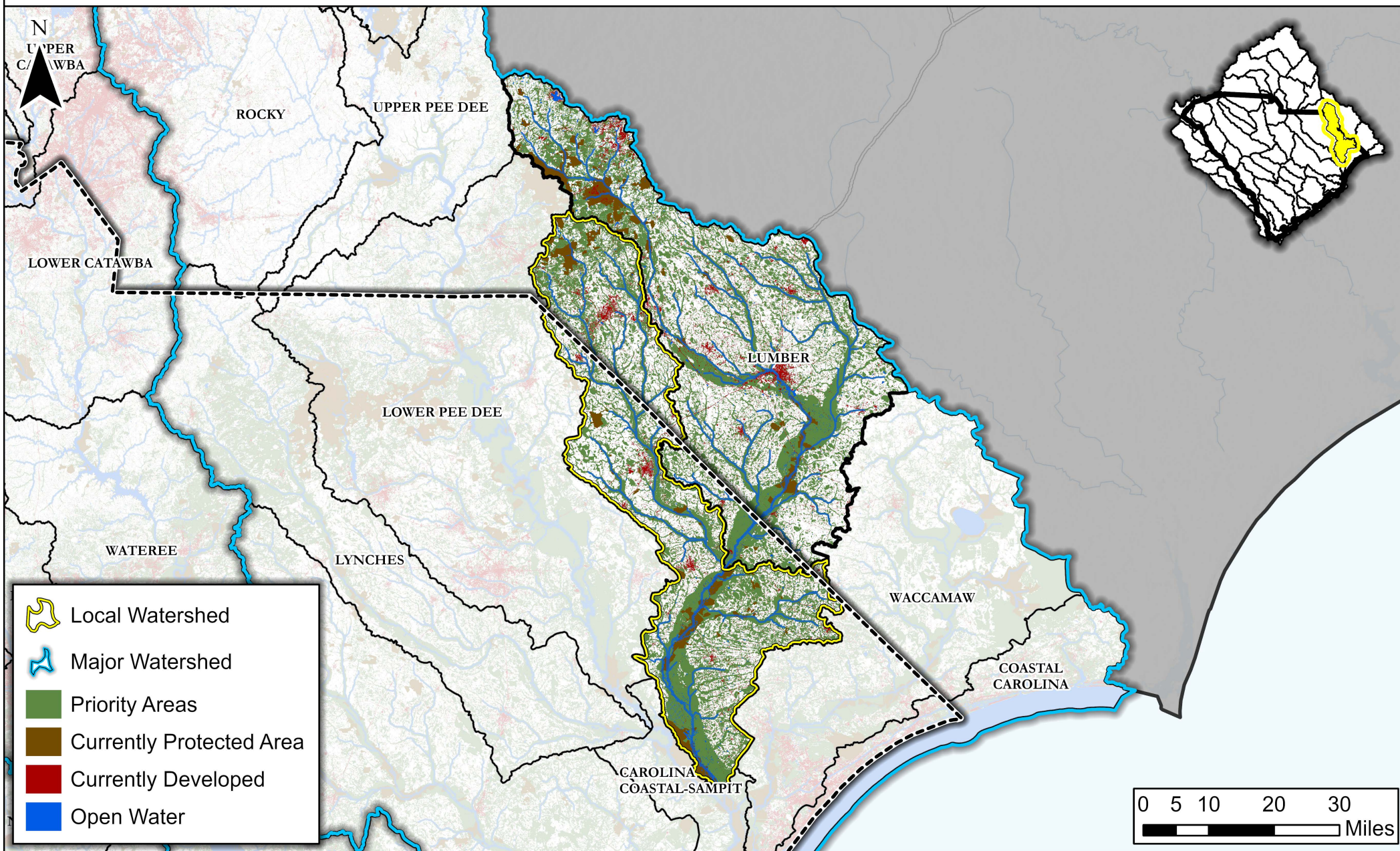
Lake Marion Watershed



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Prioritized Flood Mitigation Areas

Little Pee Dee Watershed

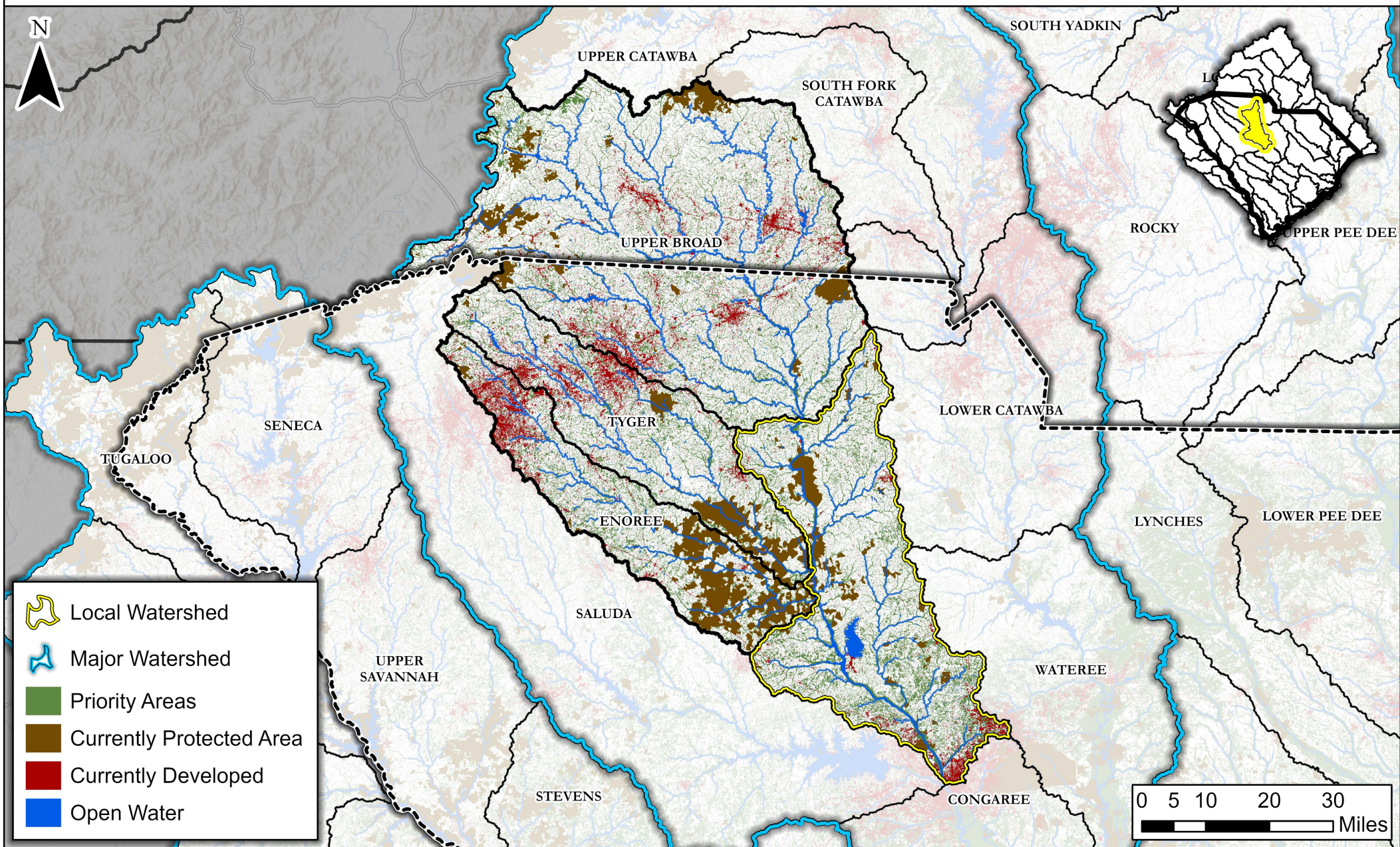


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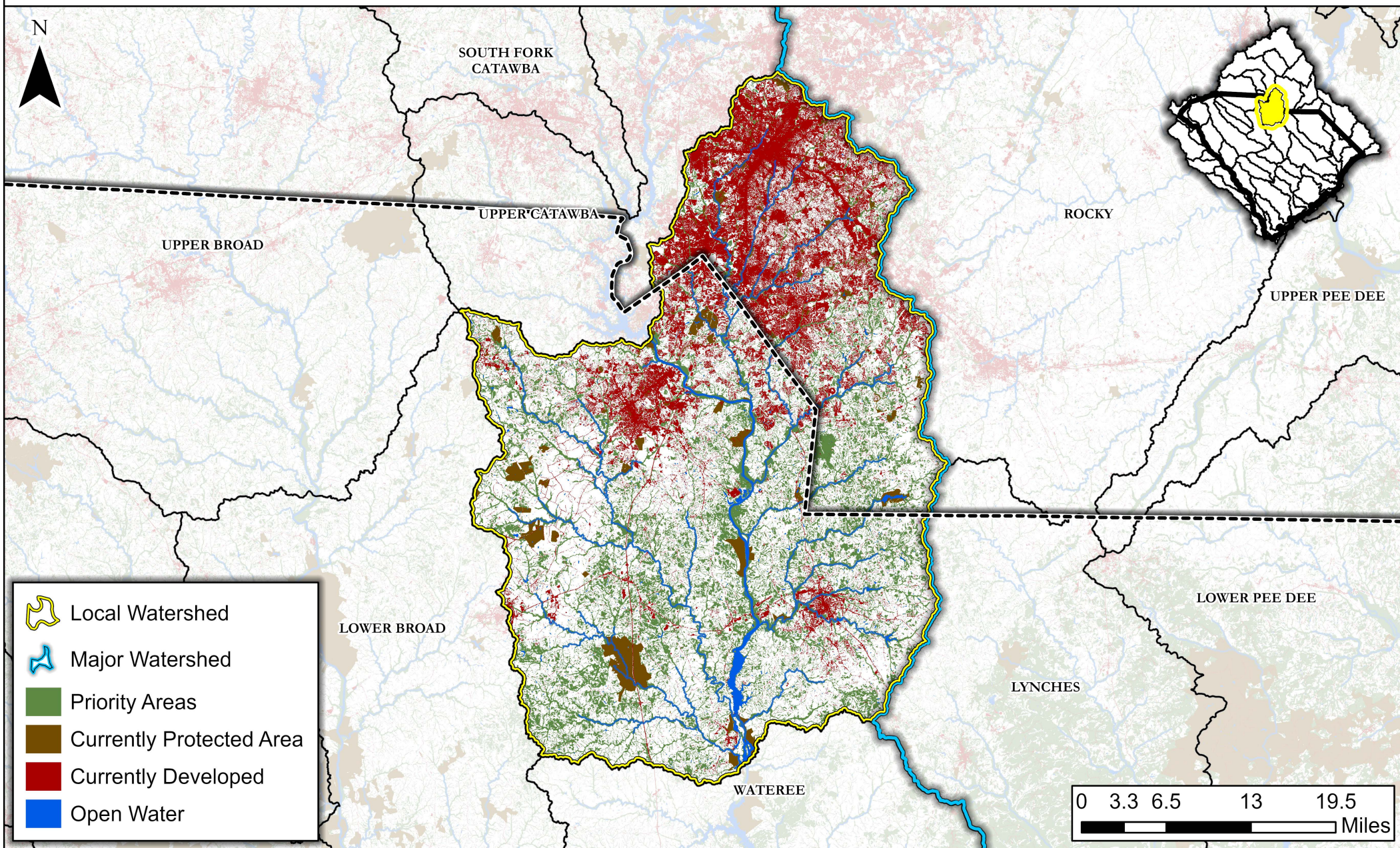
Lower Broad Watershed



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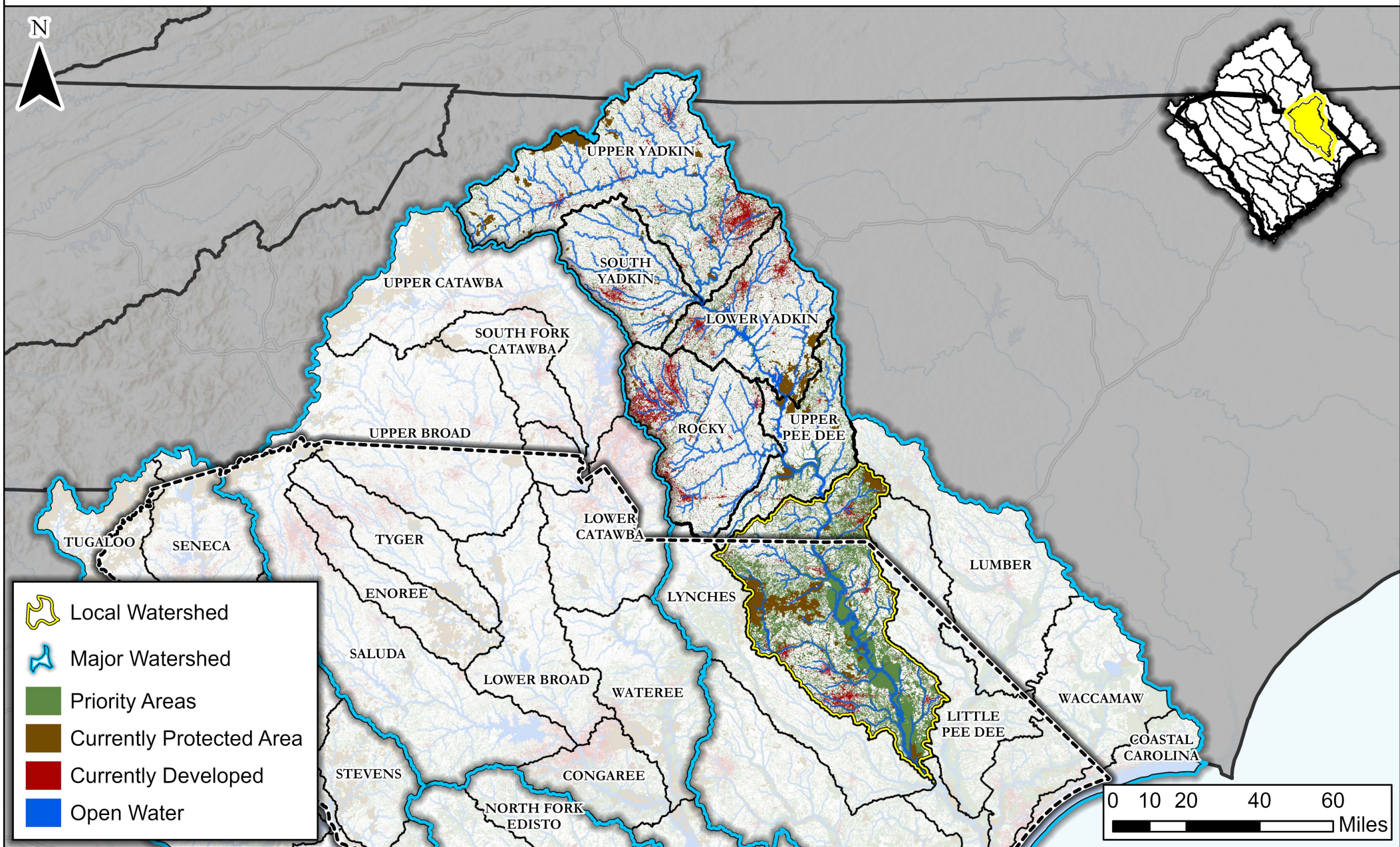
Lower Catawba Watershed



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Prioritized Flood Mitigation Areas

Lower Pee Dee Watershed

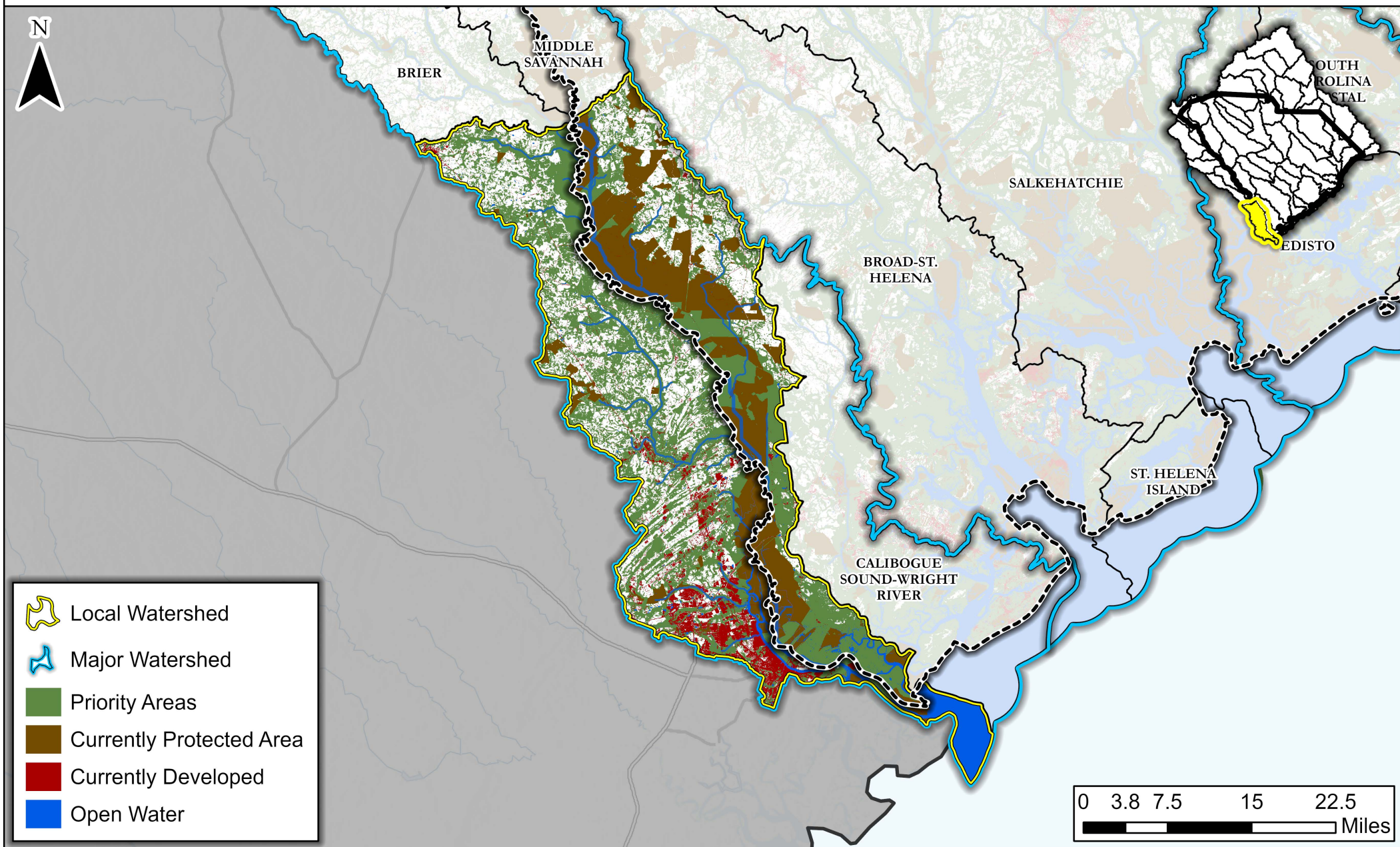


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Prioritized Flood Mitigation Areas

Lower Savannah Watershed

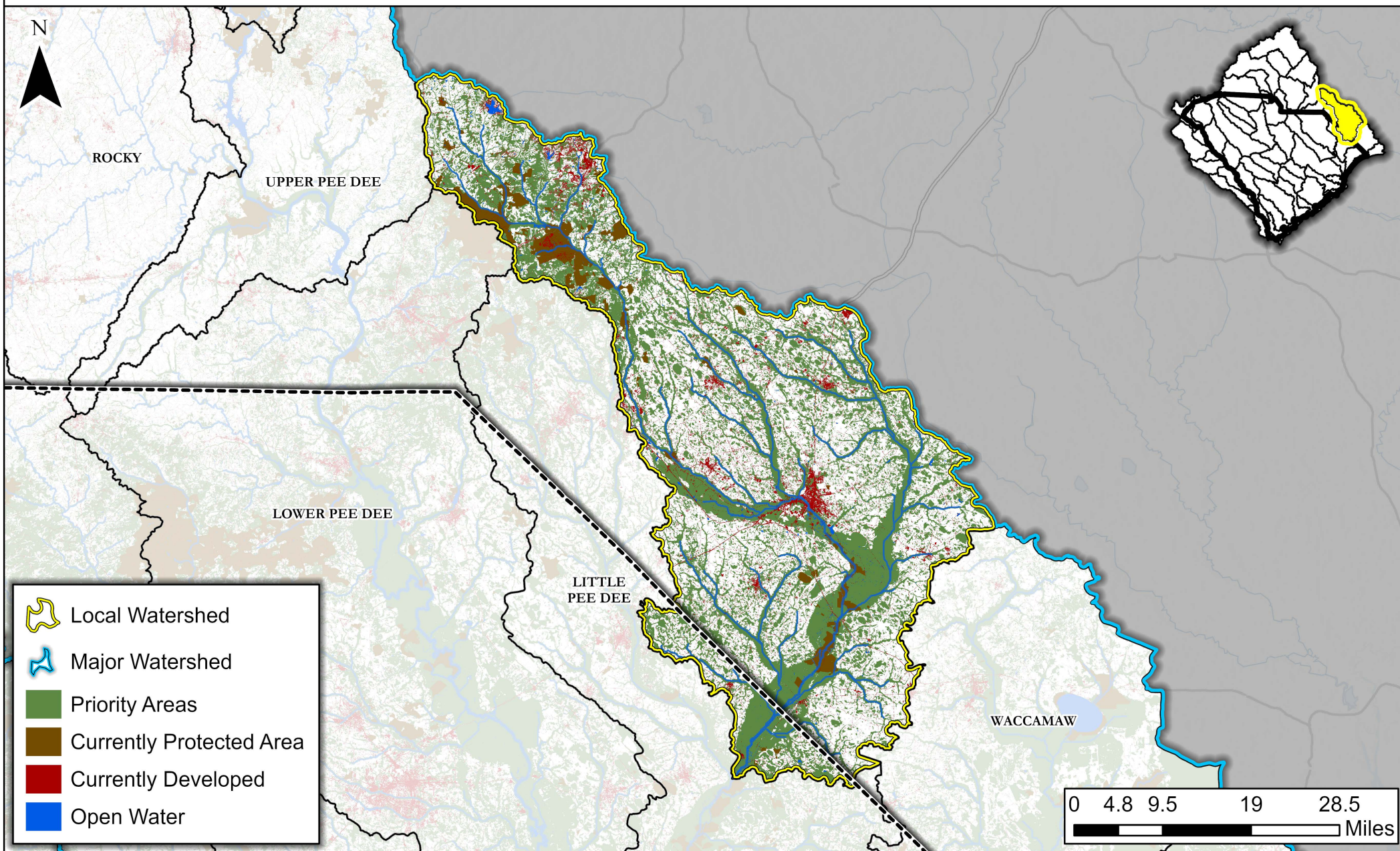


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Lumber Watershed

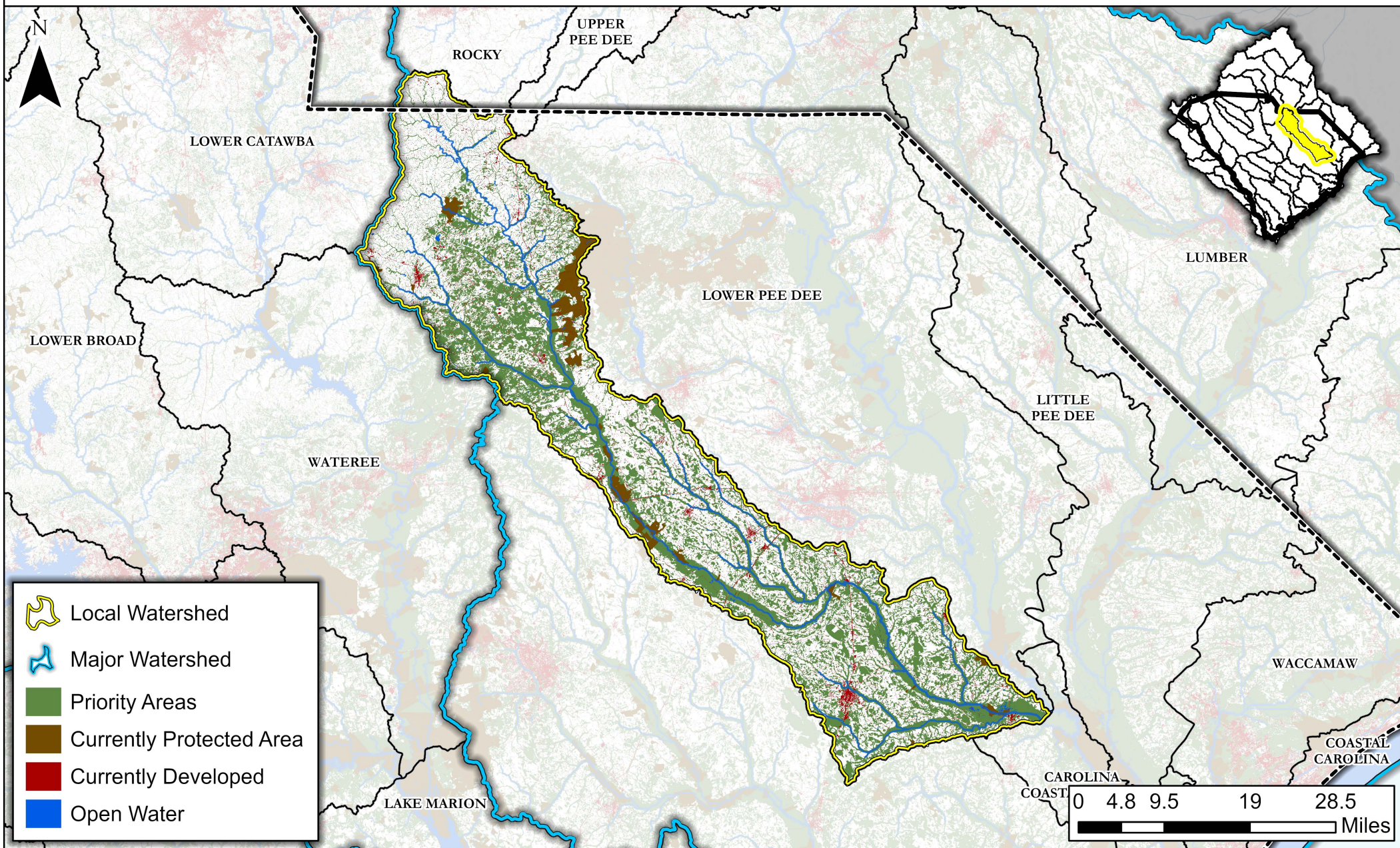


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Lynches Watershed

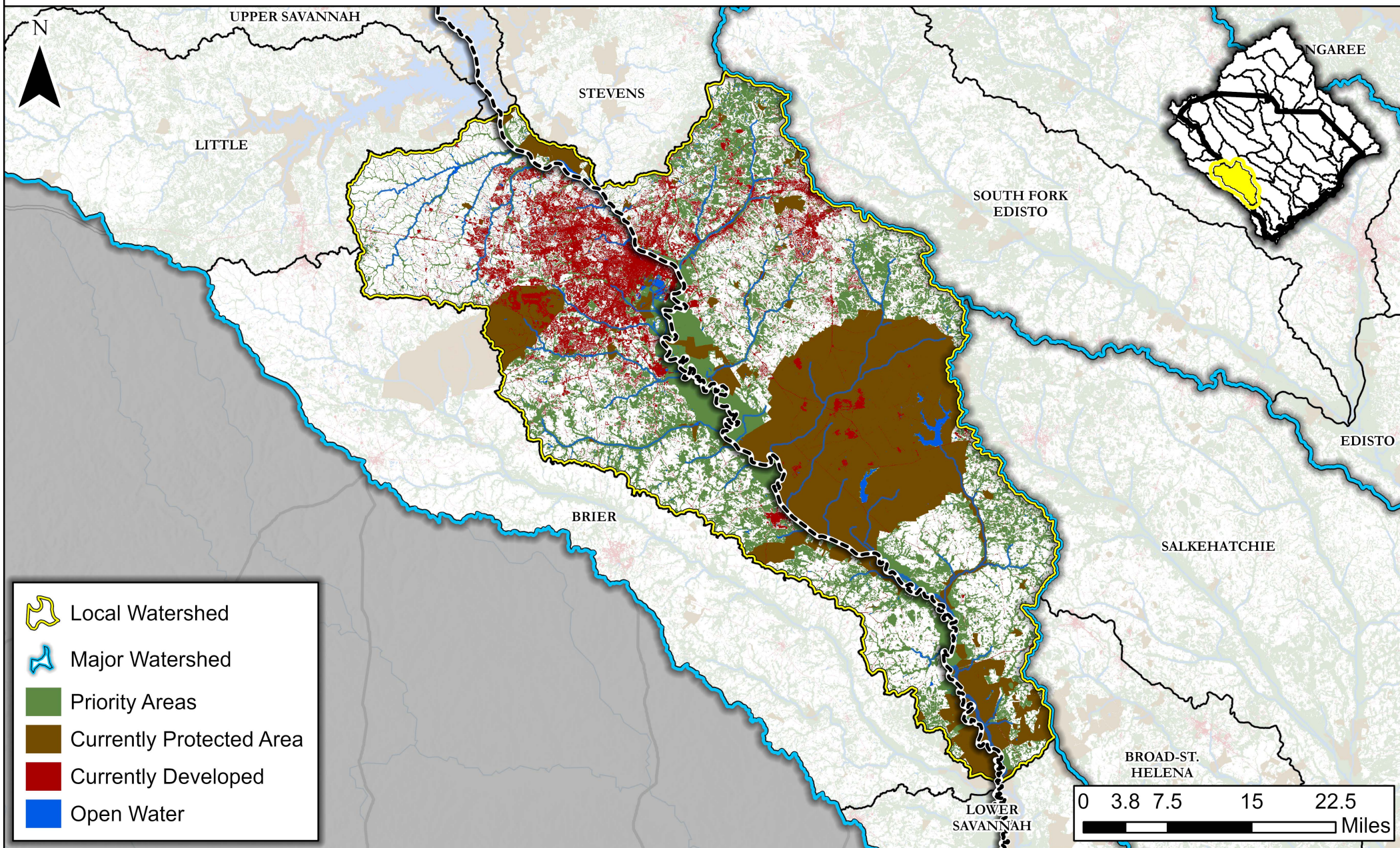


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Prioritized Flood Mitigation Areas

Middle Savannah Watershed

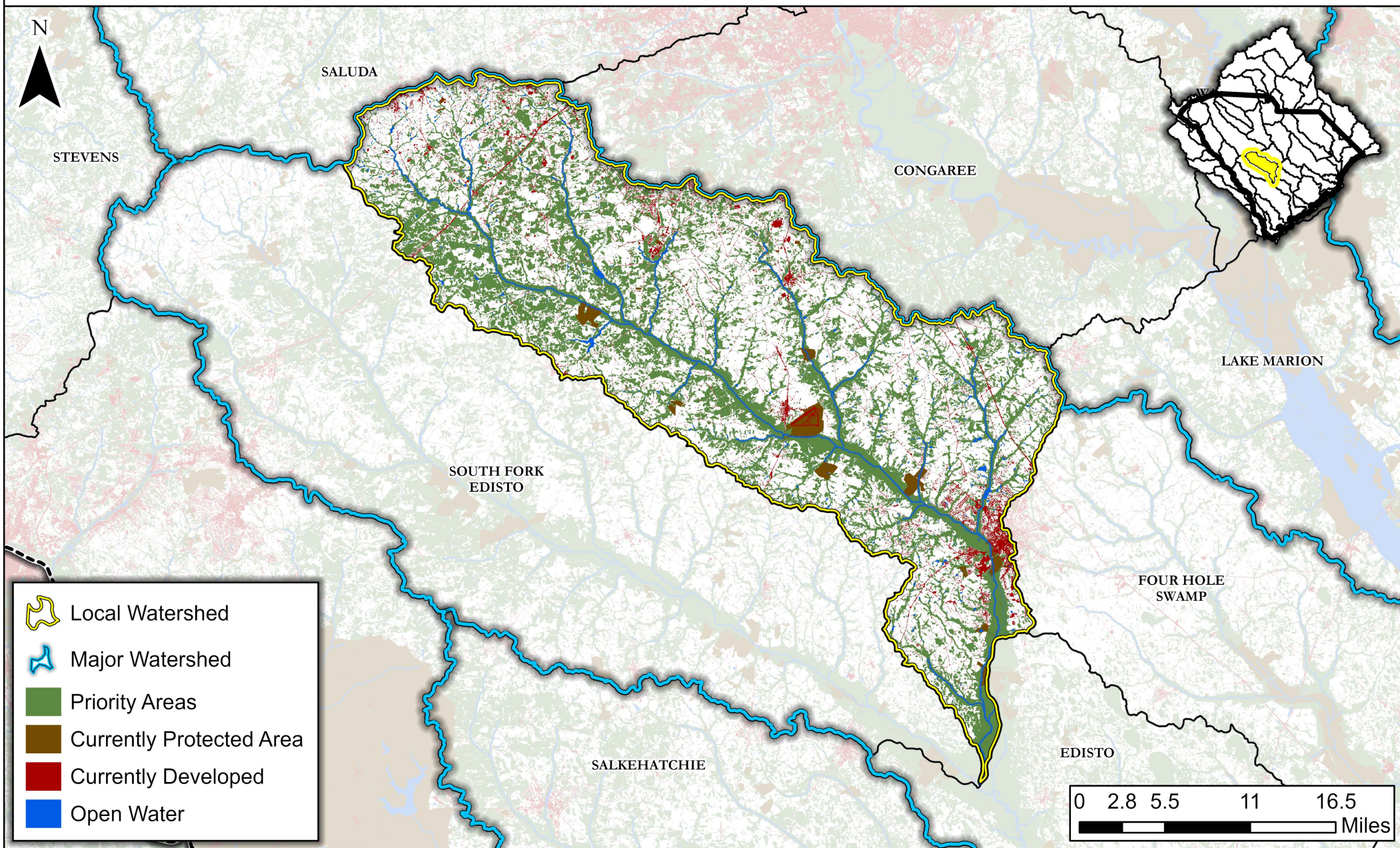


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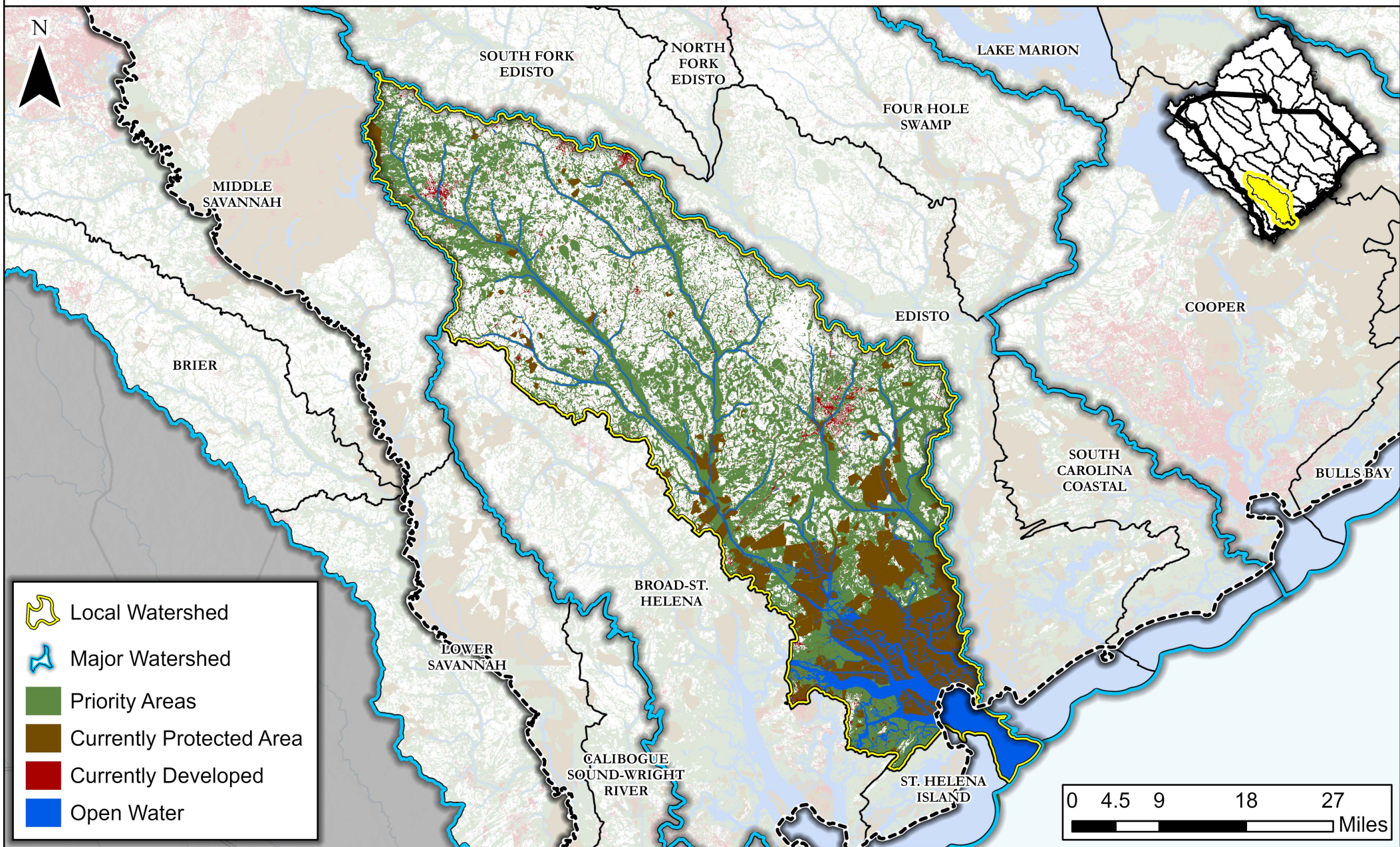
North Fork Edisto Watershed



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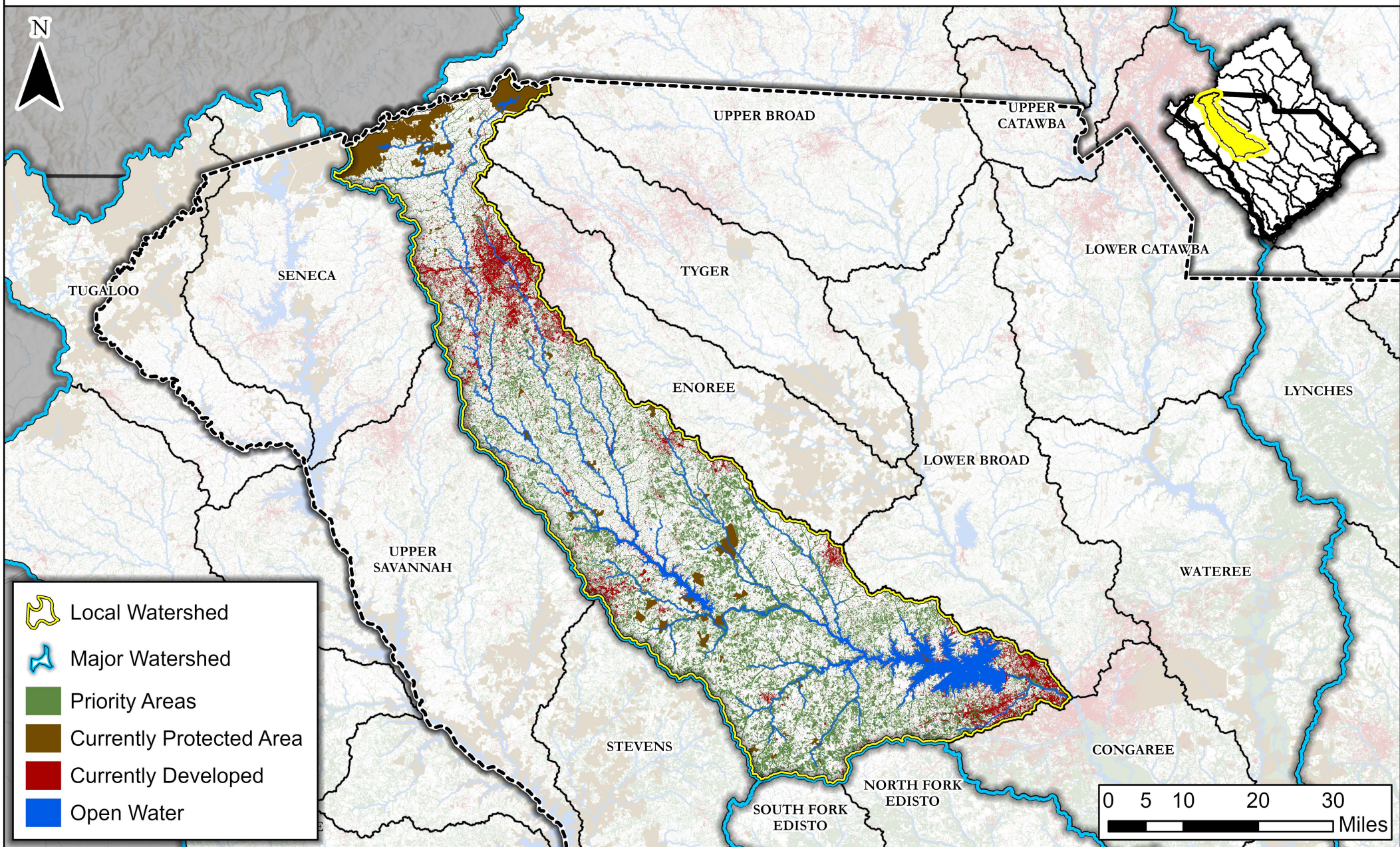
Salkehatchie Watershed



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Prioritized Flood Mitigation Areas

Saluda Watershed

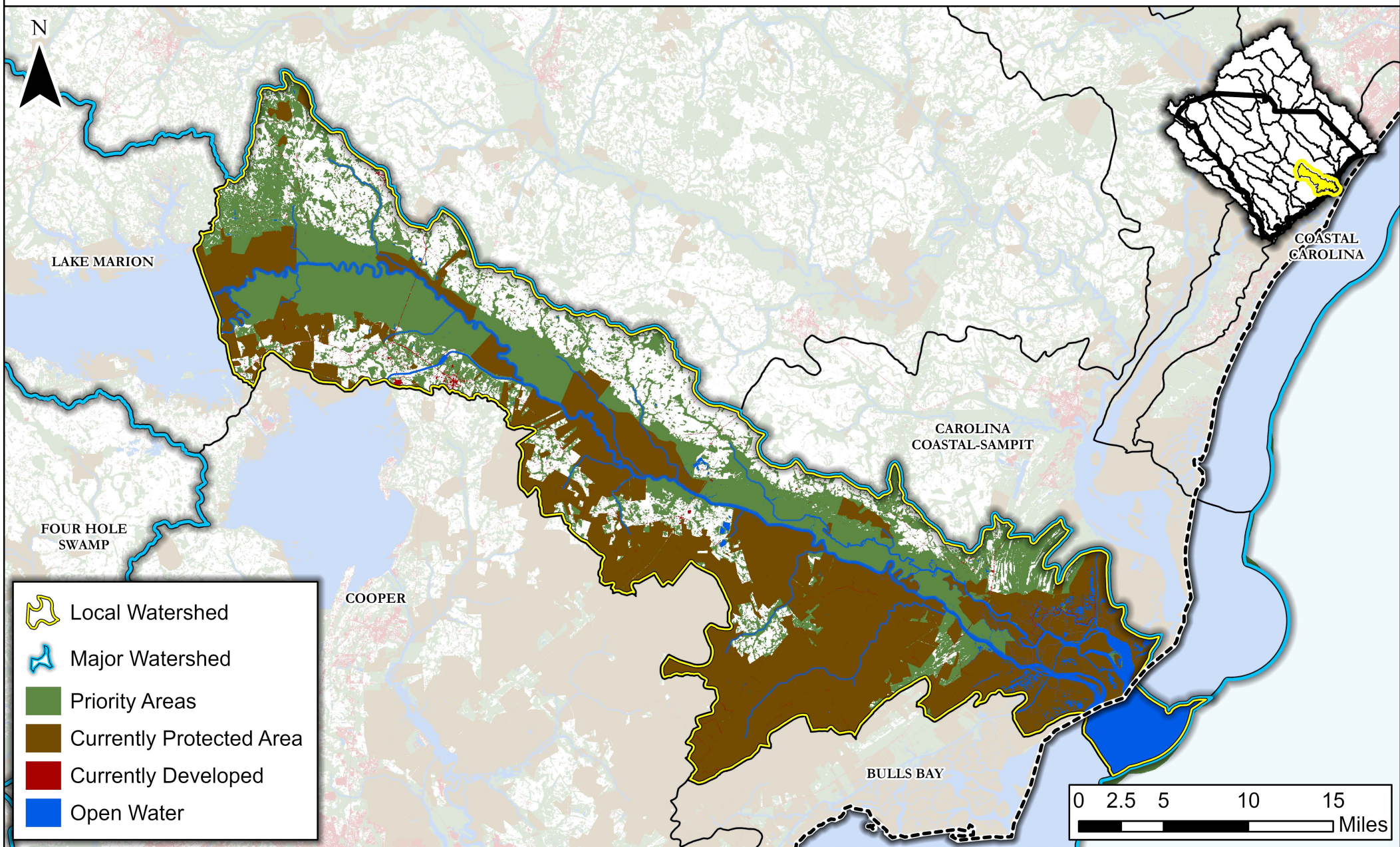


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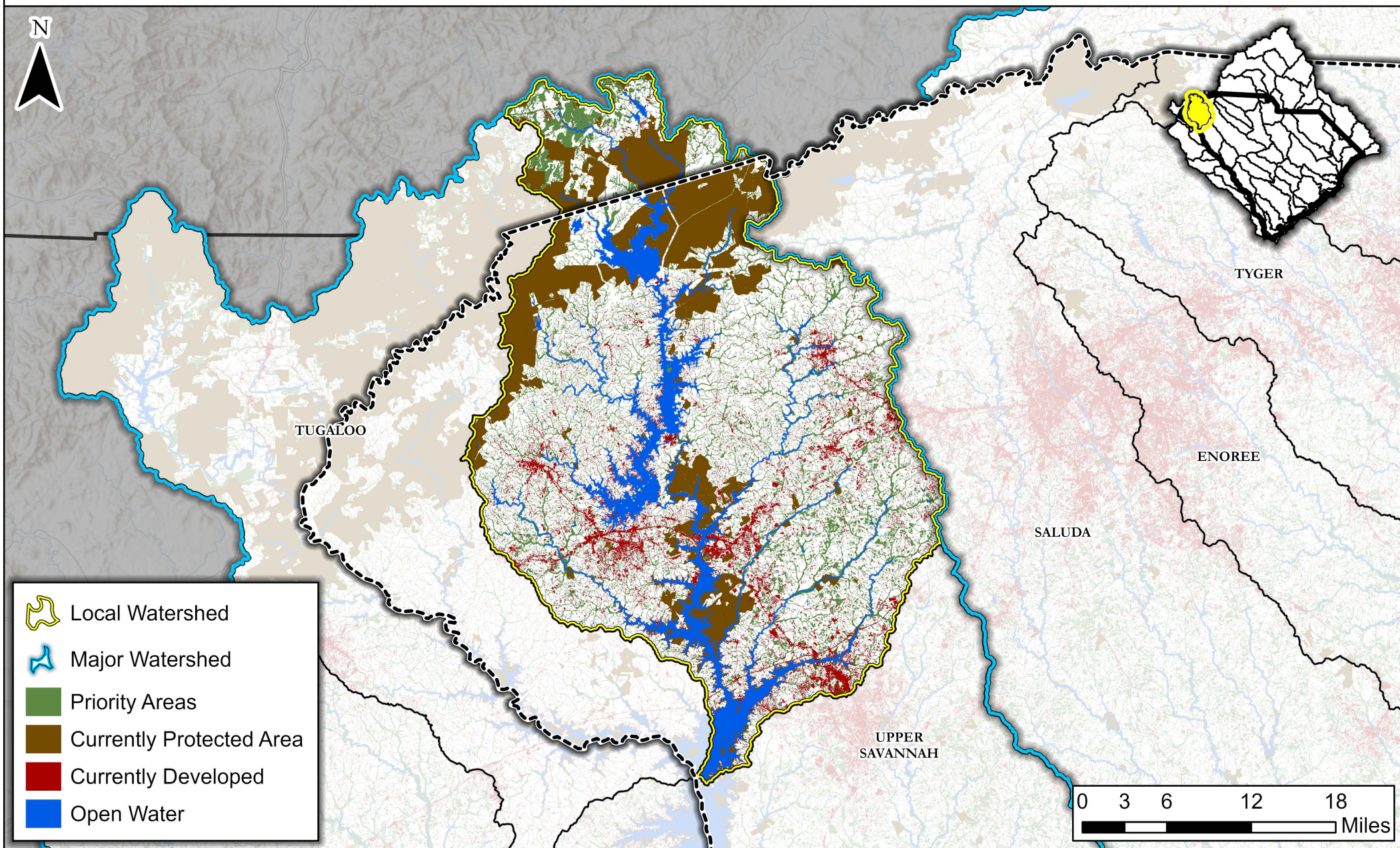
Santee Watershed



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Prioritized Flood Mitigation Areas

Seneca Watershed

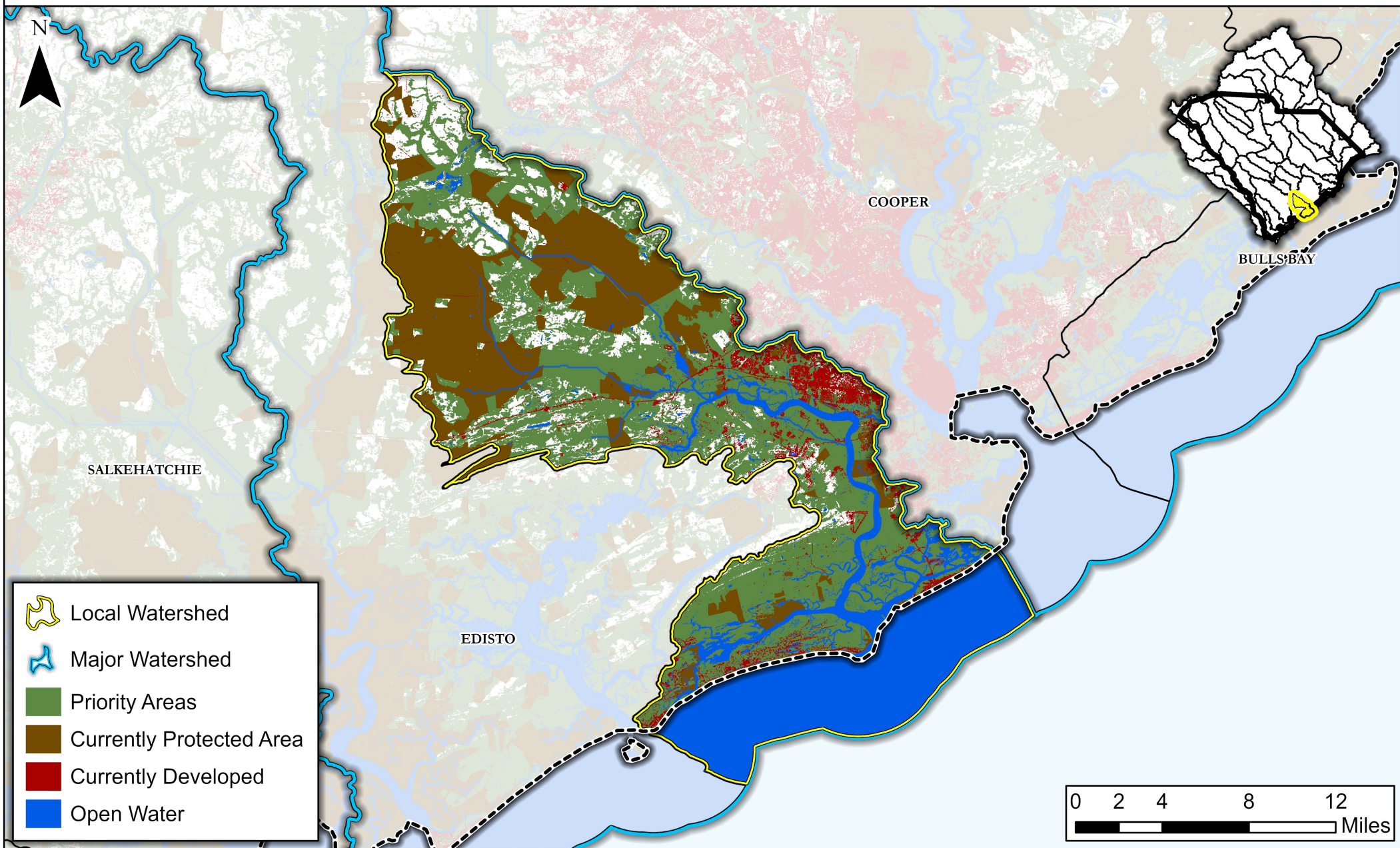


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South Carolina Coastal Watershed

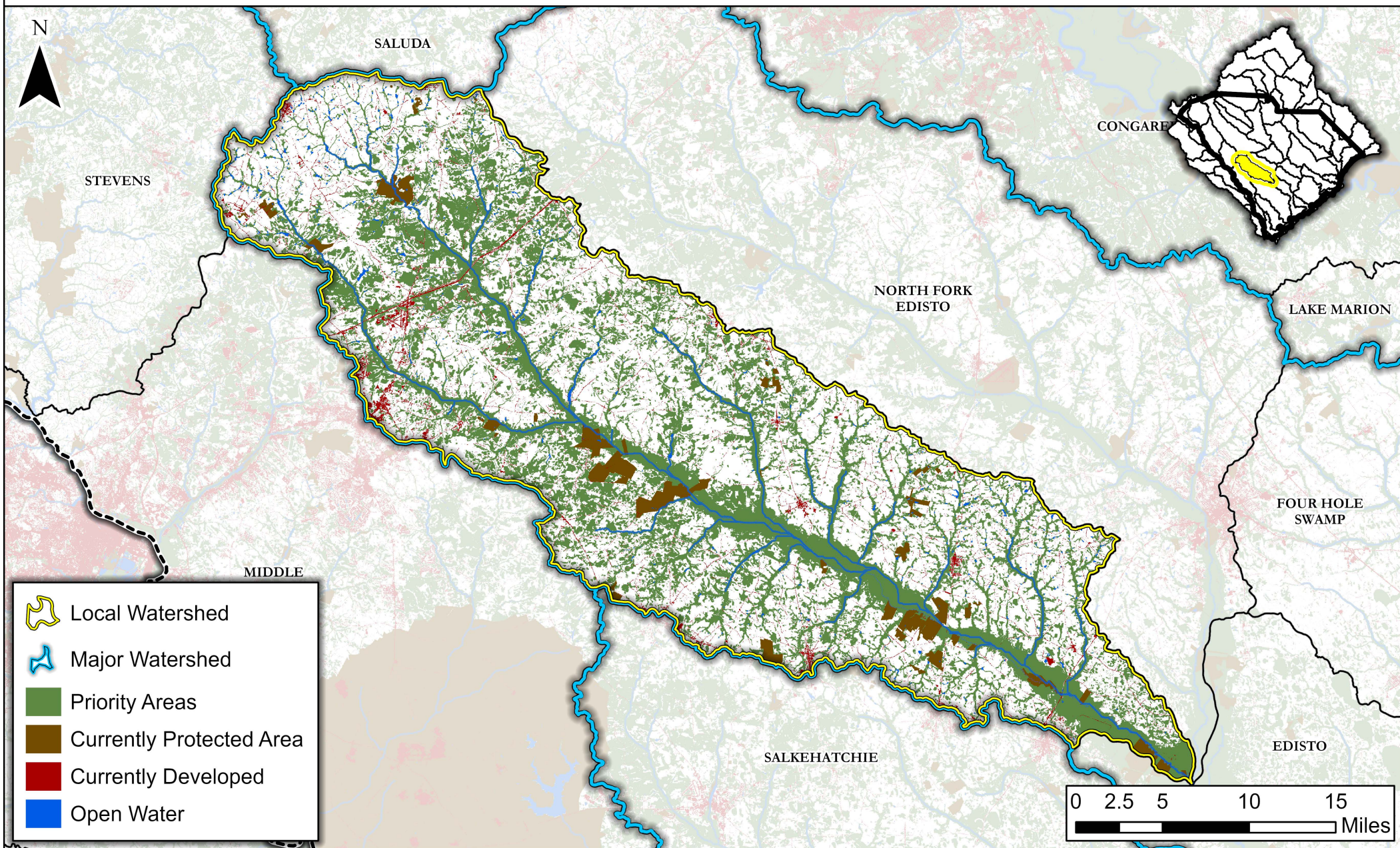


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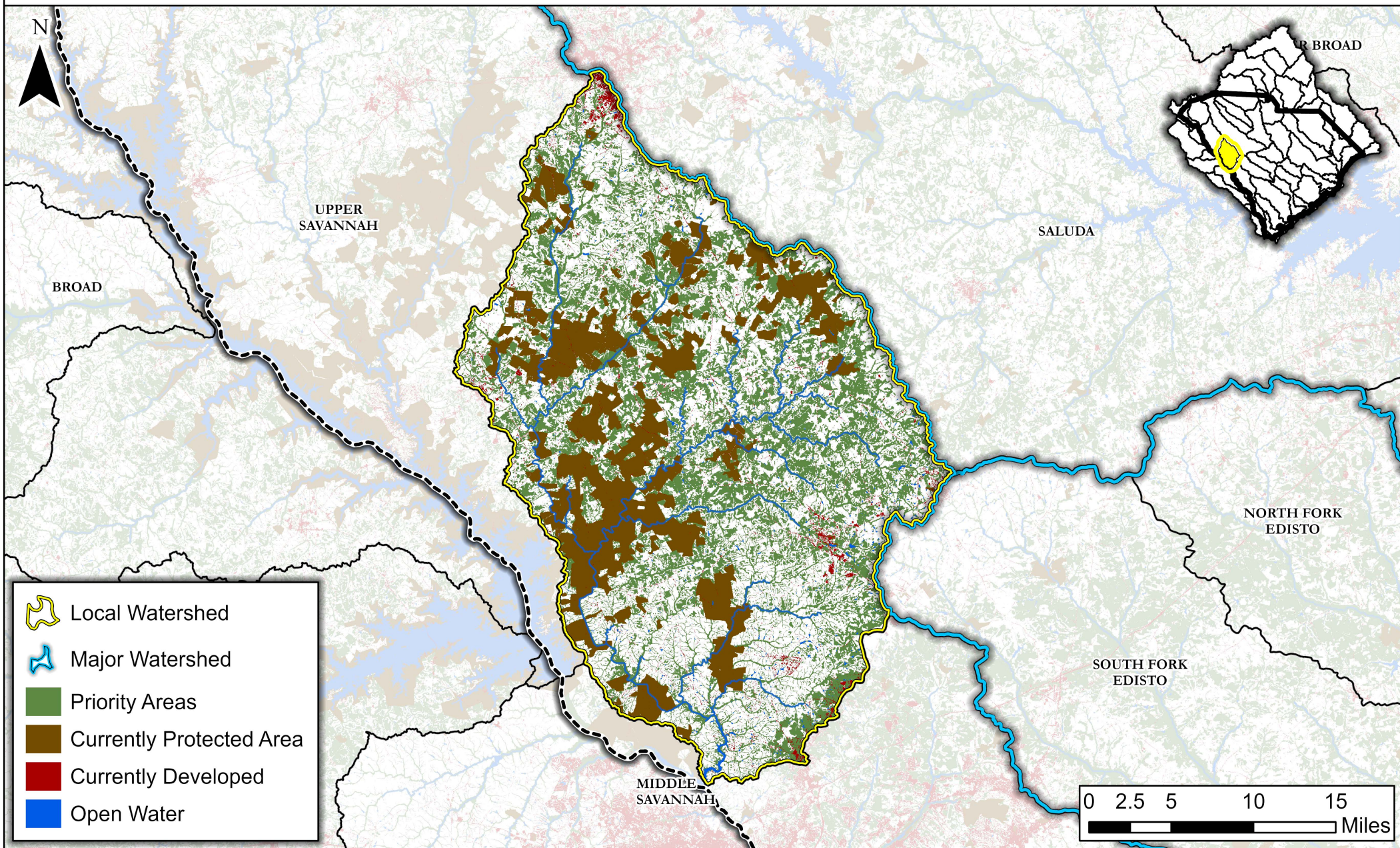
South Fork Edisto Watershed



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Stevens Watershed

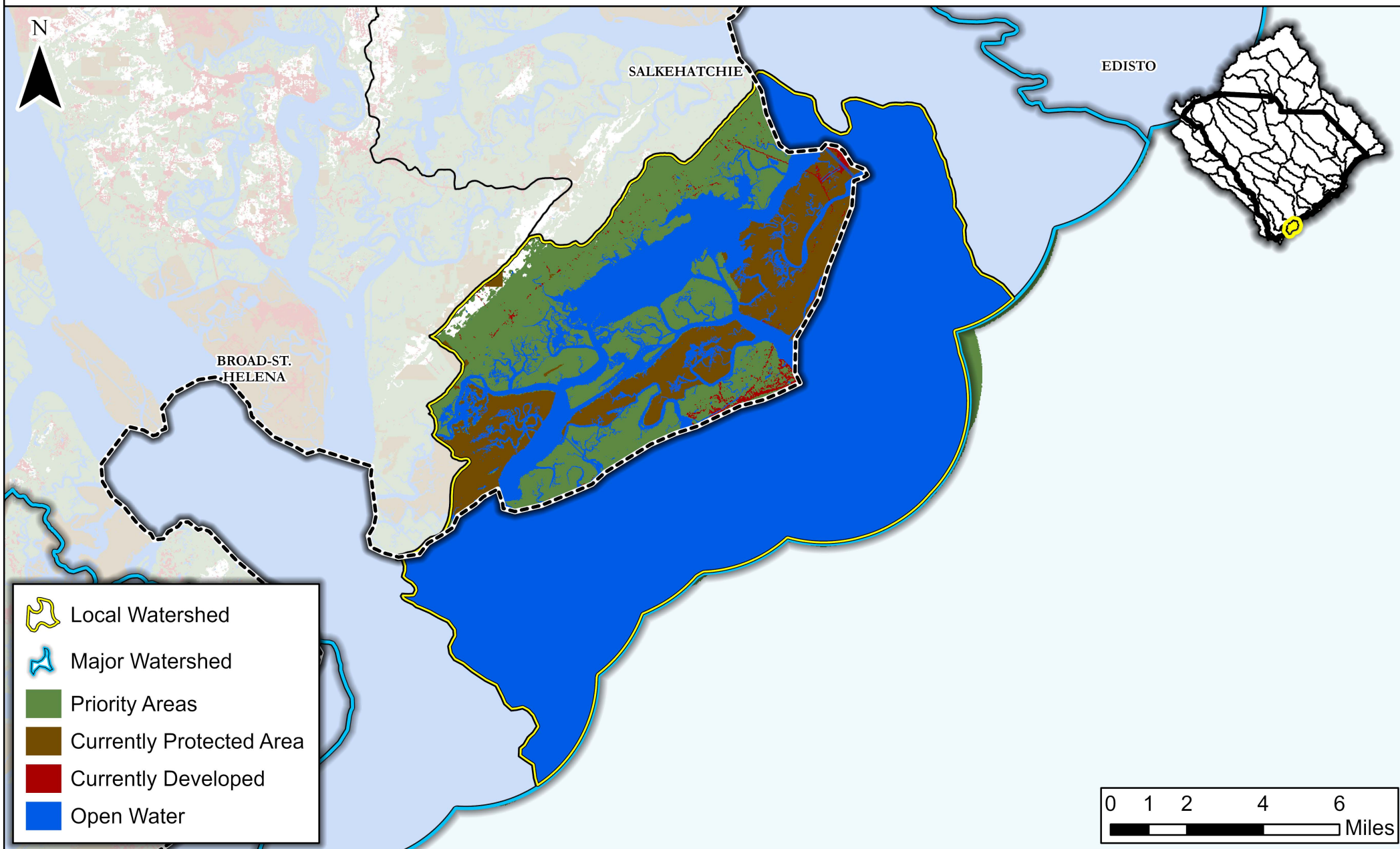


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St. Helena Island Watershed

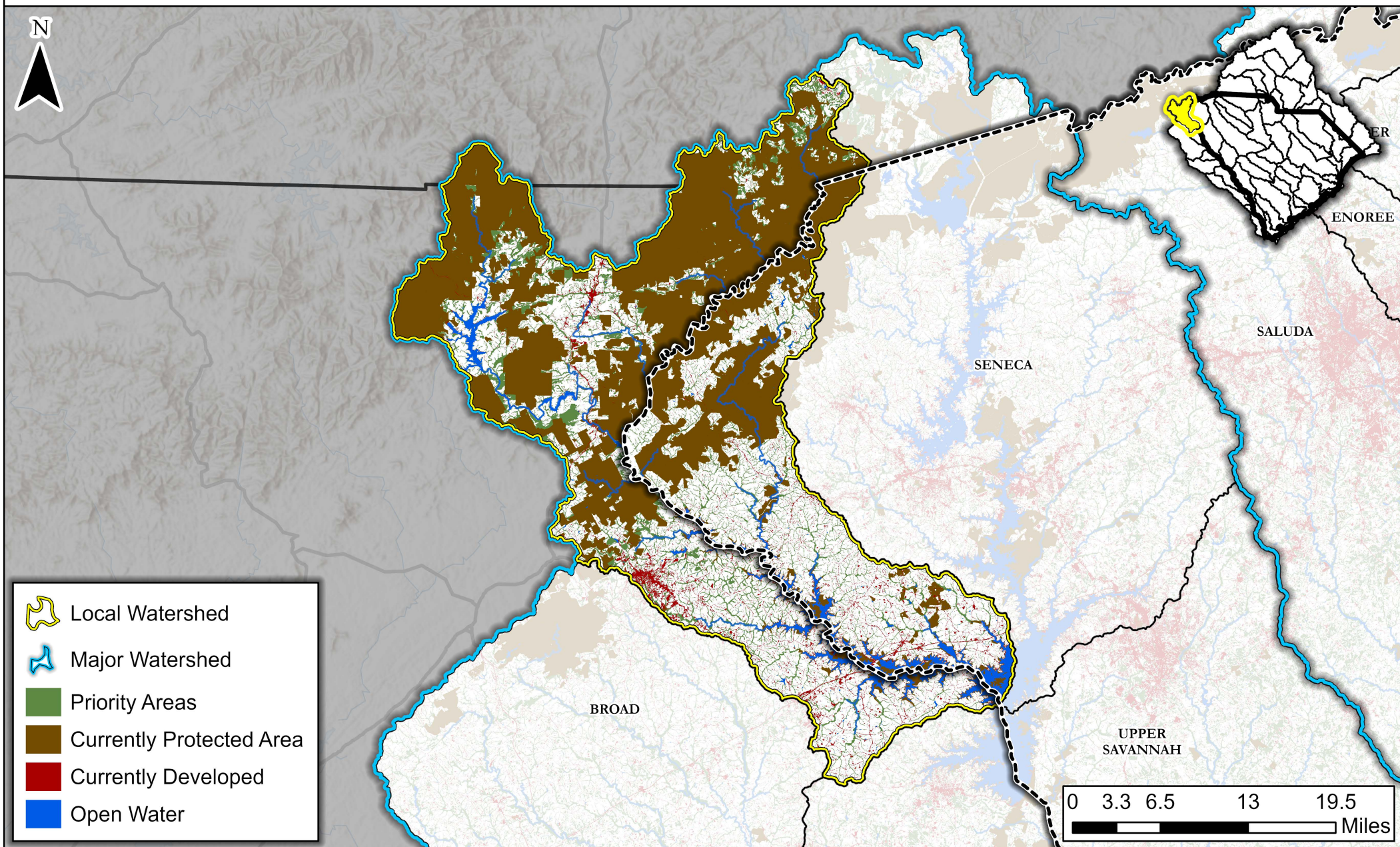


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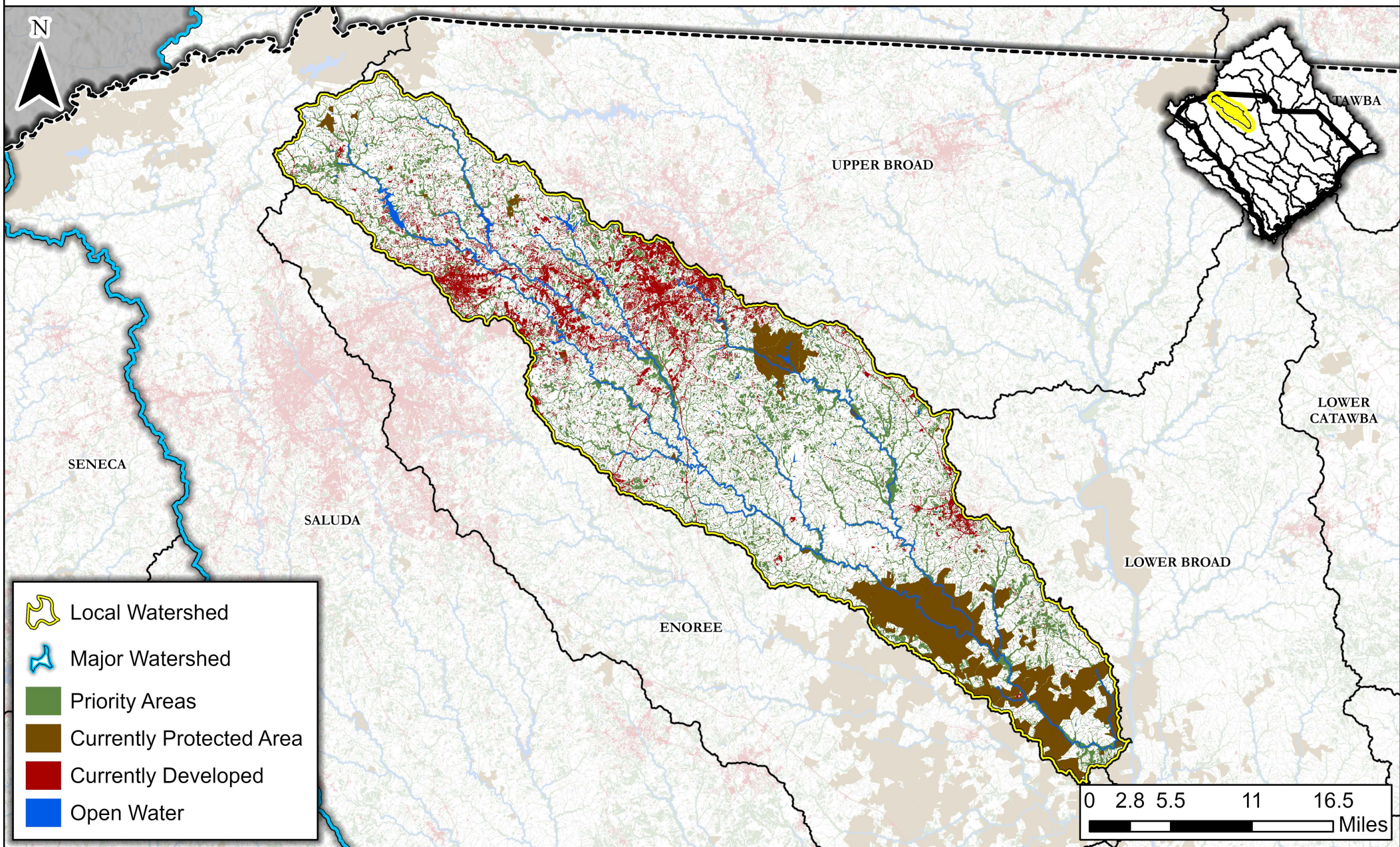
Tugaloo Watershed



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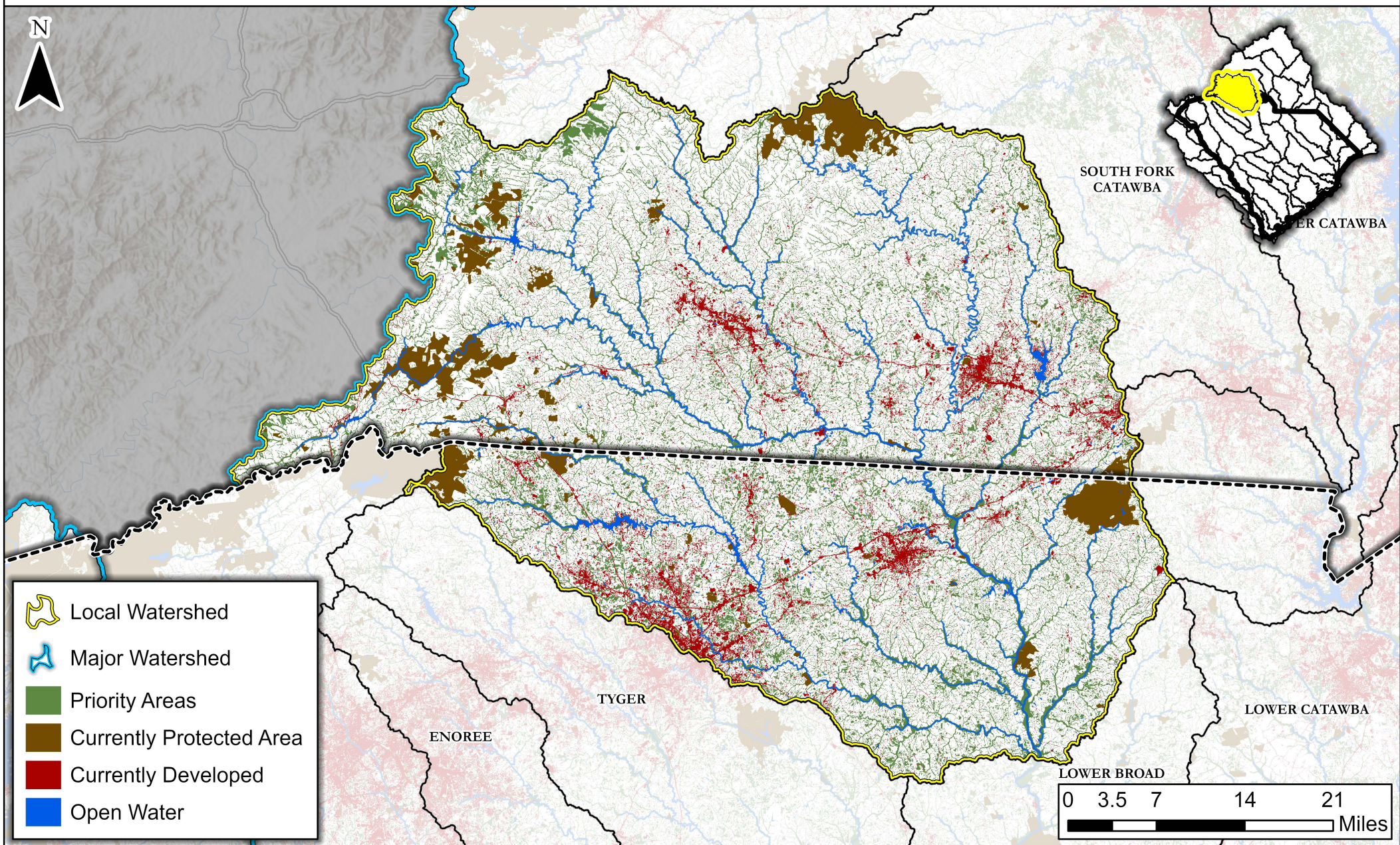
Tyger Watershed



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Upper Broad Watershed

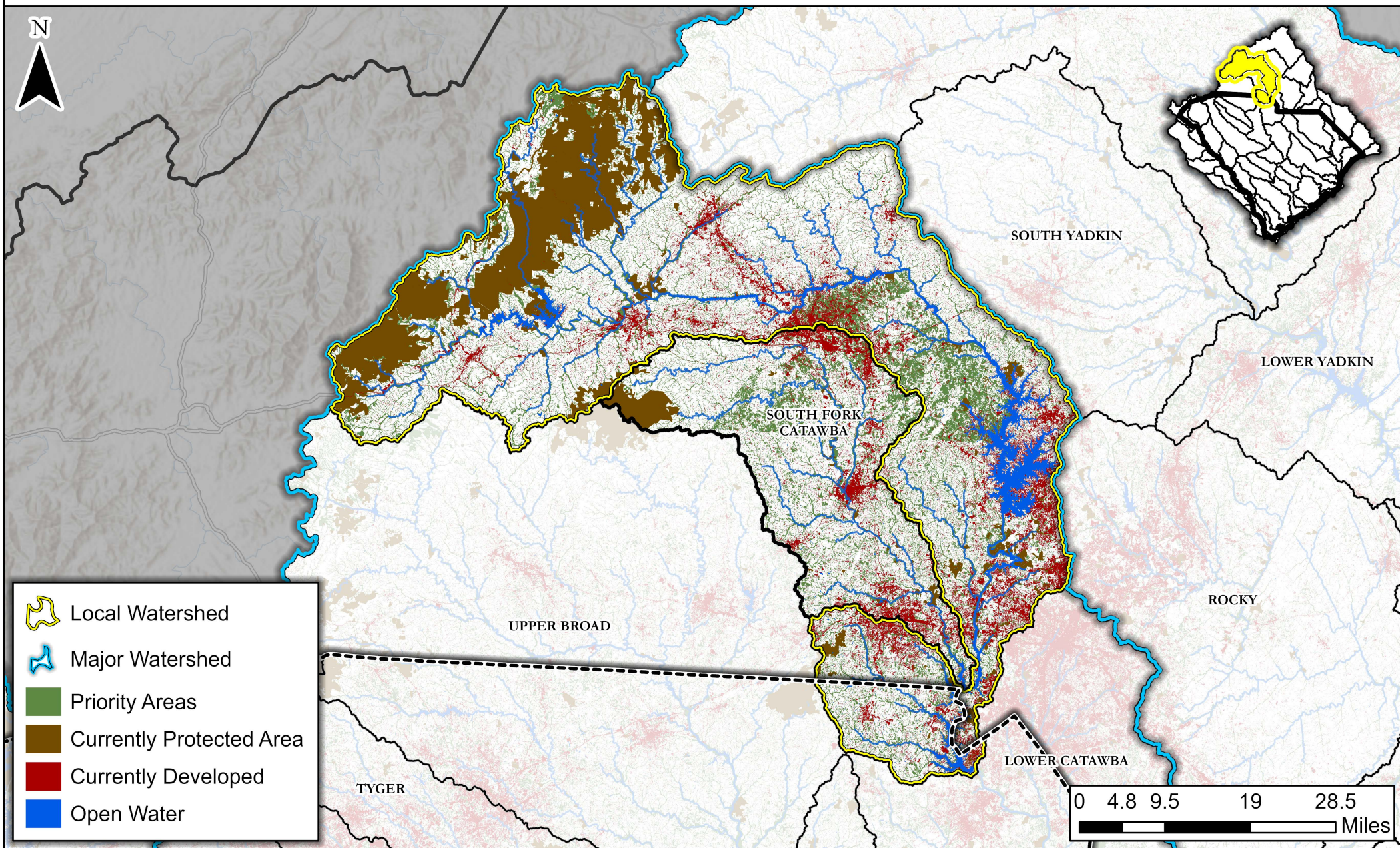


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Upper Catawba Watershed

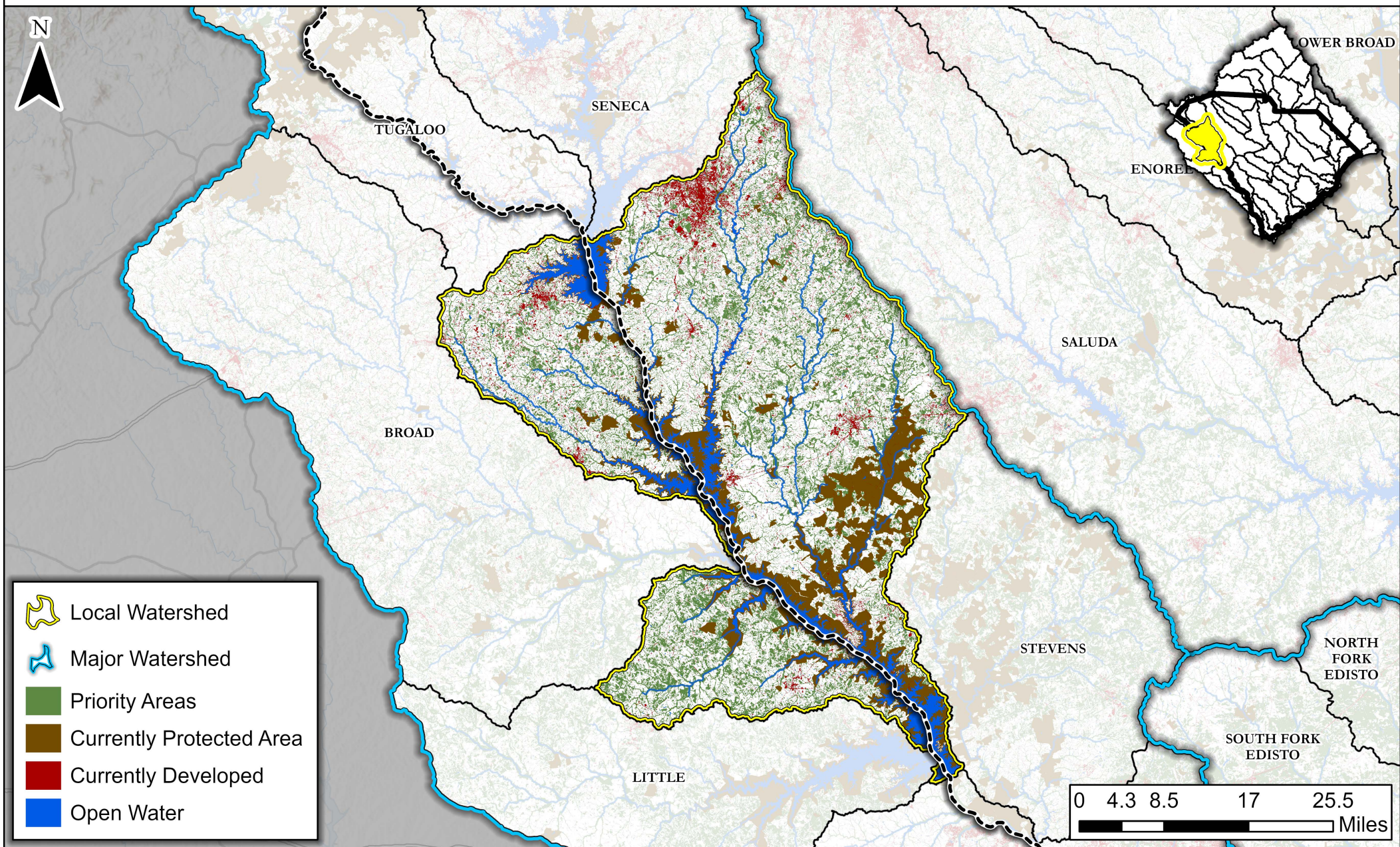


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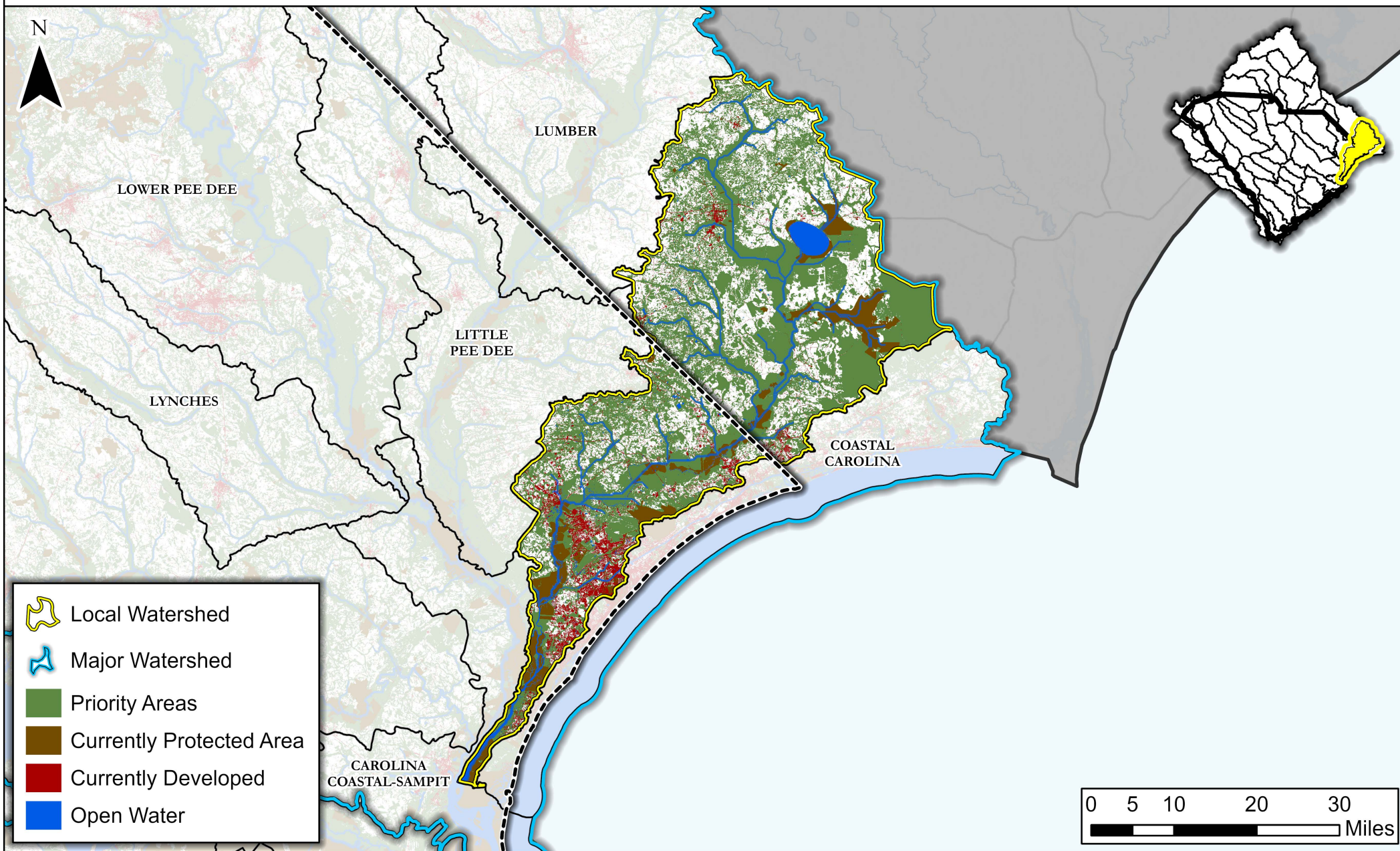
Upper Savannah Watershed



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Waccamaw Watershed

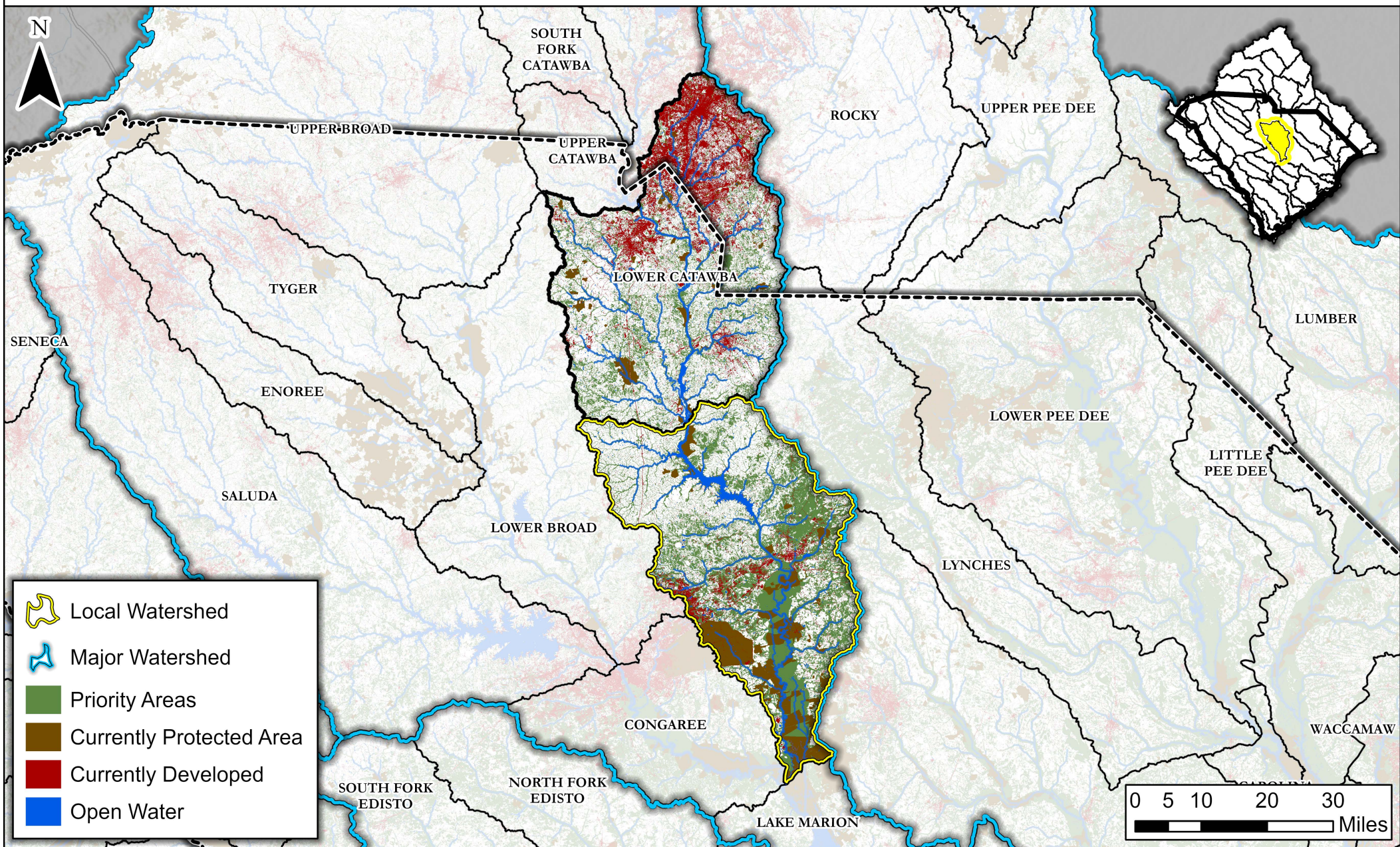


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Prioritized Flood Mitigation Areas

Wateree Watershed



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