

Ecosystem Services and Prioritizing Conservation of Wetland Forests

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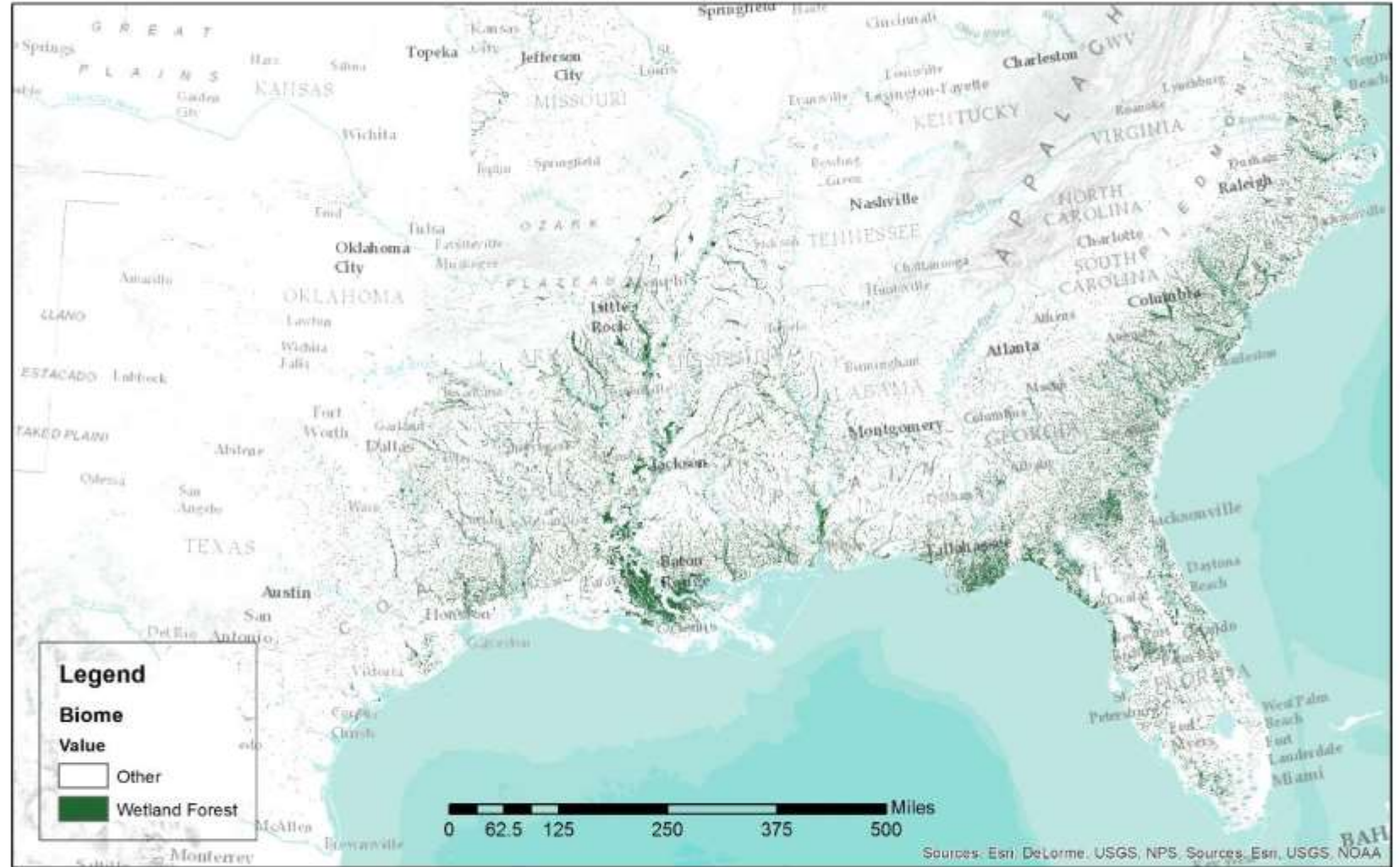
“Wetland Forests”
are identified as:

“Woody Wetlands”
(NLCD) that are also

“Forest & Woodland”
(GAP), and

“Tree-Dominated”
(LandFire)

Wetland Forests of the Southern United States



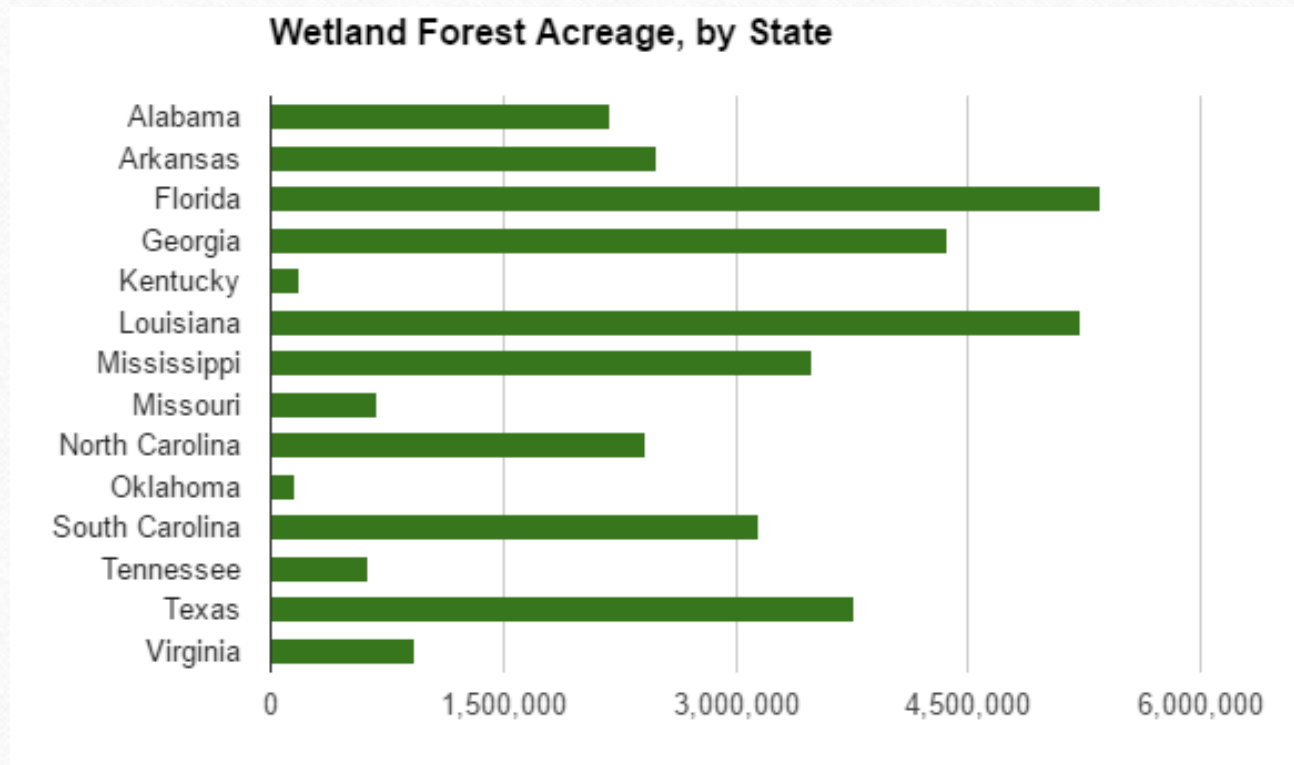
Wetland forests are defined here as those areas classified as “woody wetlands” in the USGS National Land Cover Database and also classified as both “Forest & Woodland” in the USGS GAP Analysis Program database and “Tree-dominated” in the USDA Landfire database.

Map prepared for the Dogwood Alliance, Asheville, NC. October 21, 2016.



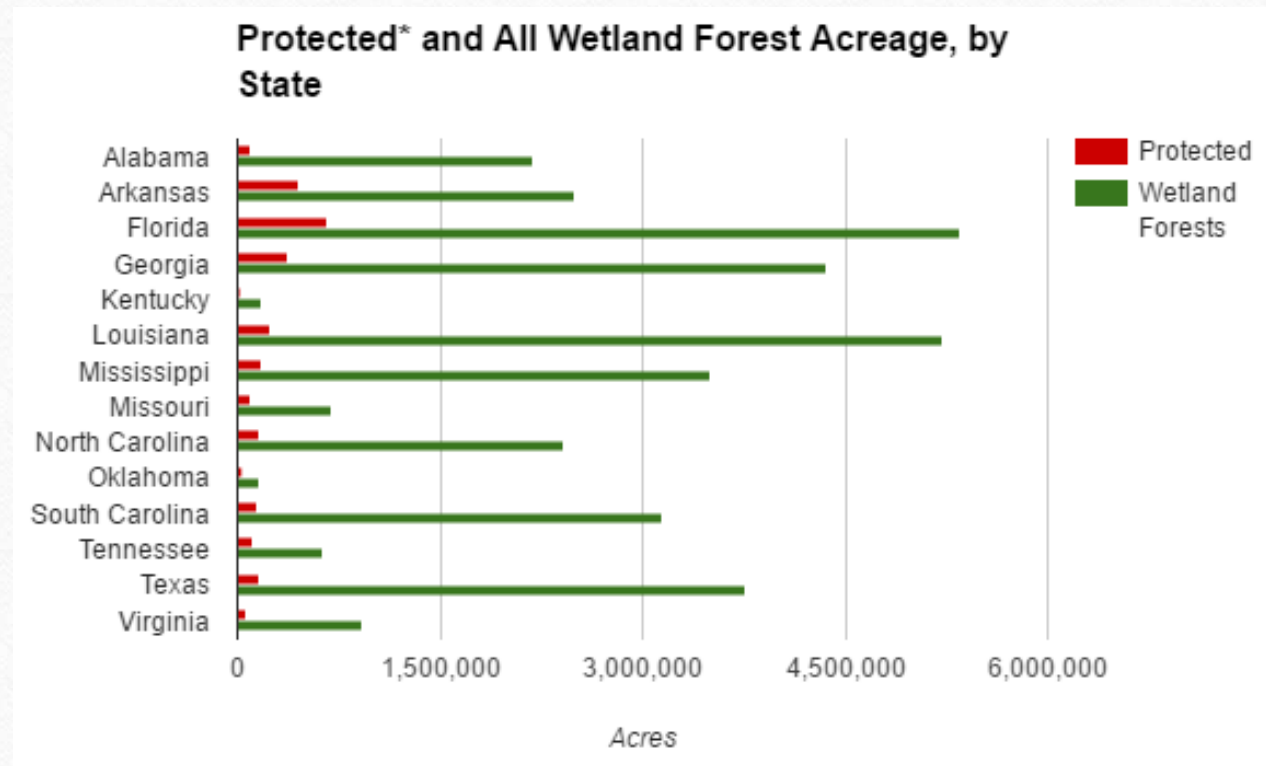
Distribution Across Southern States

- 35.1 mm acres total
- This is ~ 20% of the original extent of
- Florida, Louisiana, Georgia, Texas, and Mississippi account for 63%

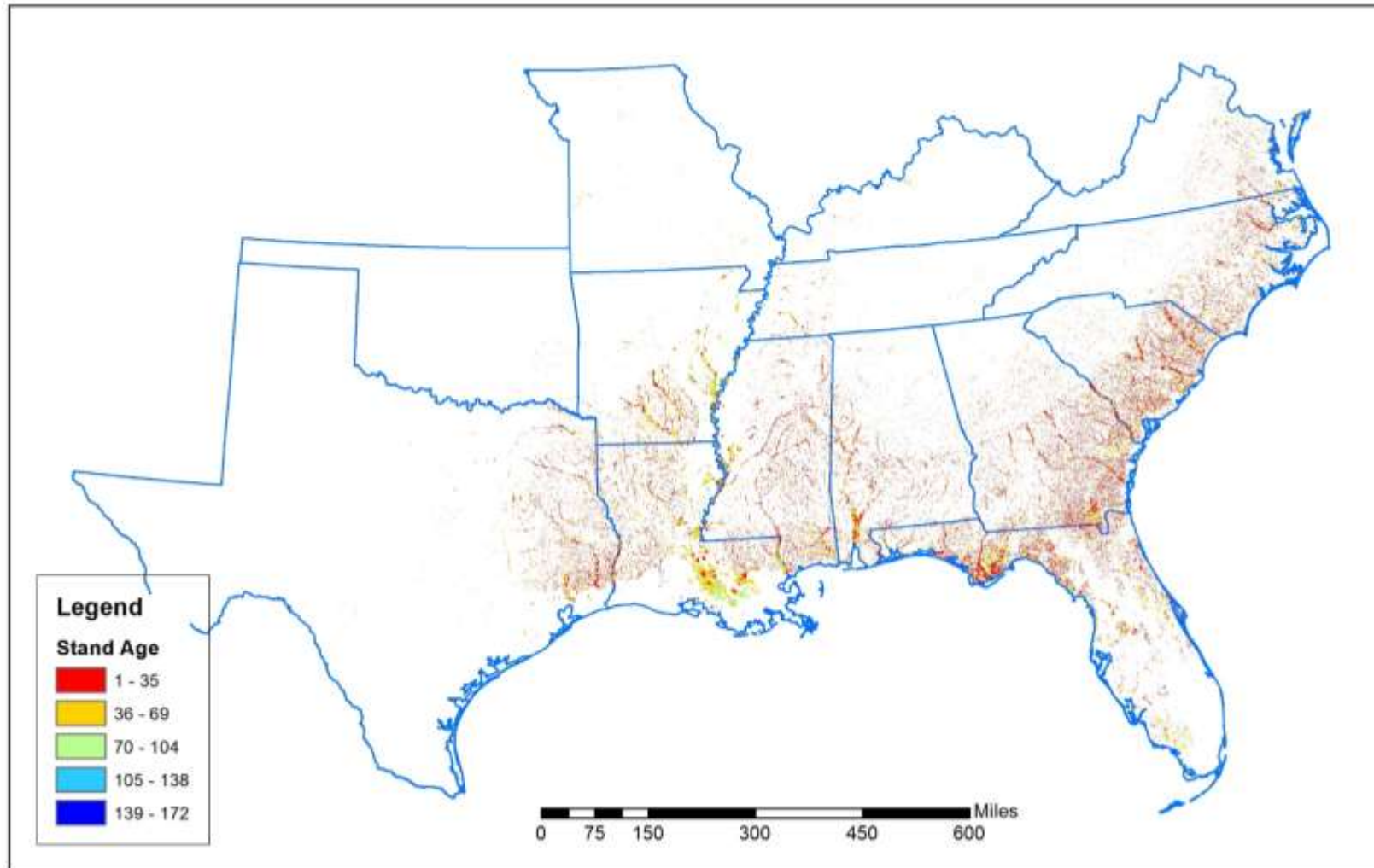


Existing Protection (GAP category 1 & 2)

- 2.8 million acres (8% of the total) are currently in areas managed for biodiversity and without extraction
- Oklahoma, Arkansas, Tennessee, Missouri, and Florida each have >10% of their wetland forests in protected areas.



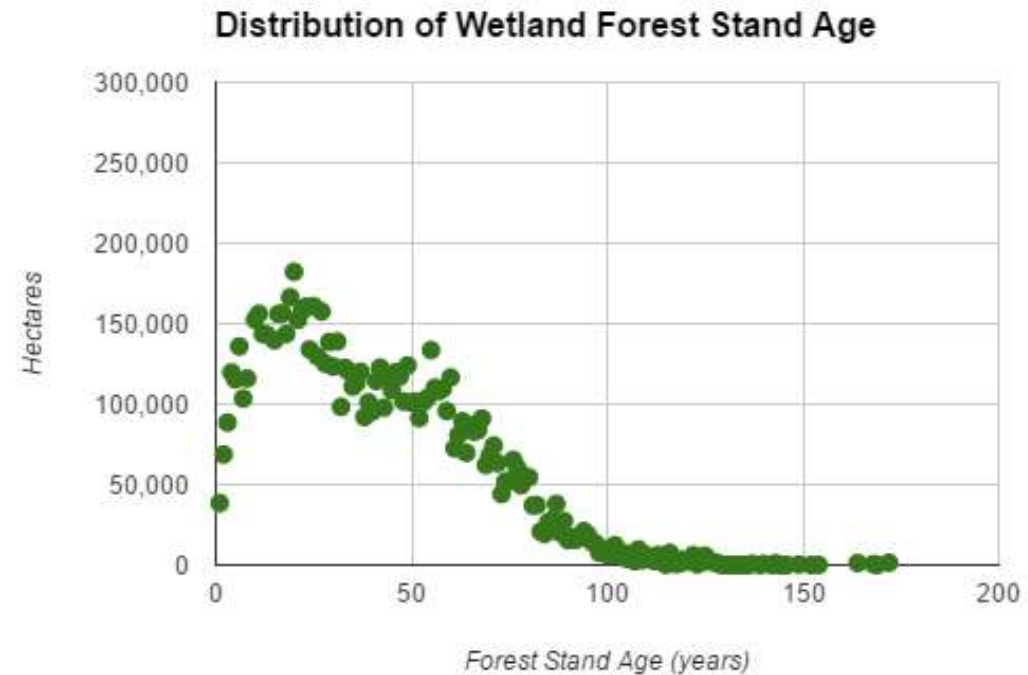
Stand Age in Southern Wetland Forests



Source: Pan, Y., Chen, J. M., Birdsey, R., McCullough, K., He, L., & Deng, F. (2012). NACP Forest Age Maps at 1-km Resolution for Canada (2004) and the U.S.A. (2006). ORNL Distributed Active Archive Center. Retrieved from <http://dx.doi.org/10.3334/ORNLDAAC/1096>

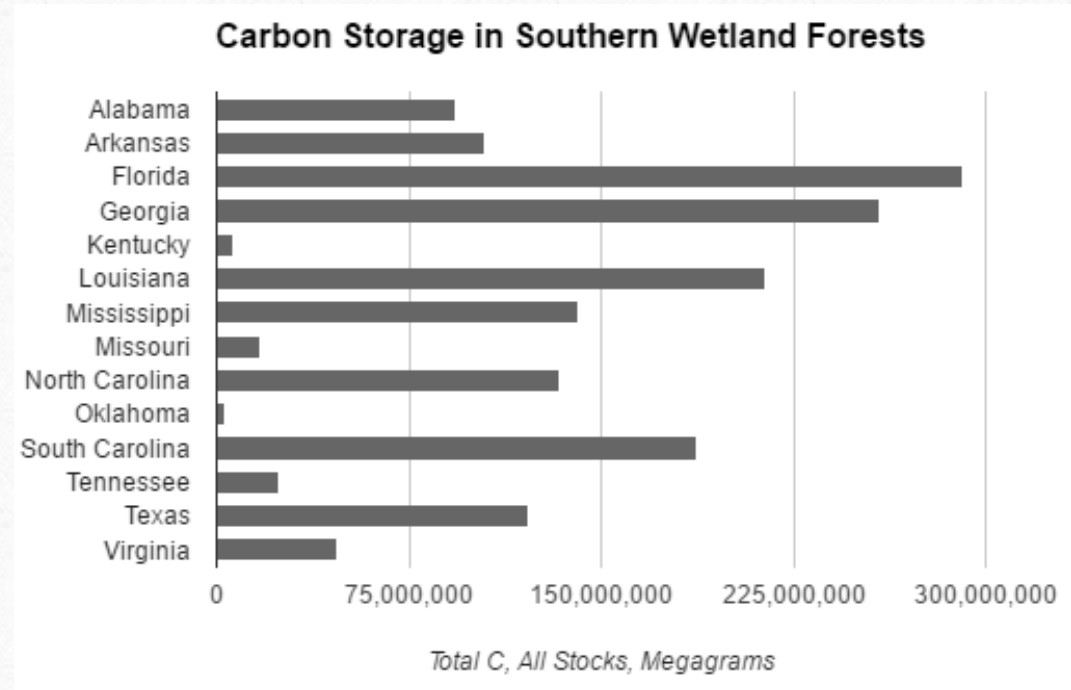
Stand Age

- Average is 35 years
- 33% are 16 years or younger
- Chart excludes 9 and 15 years (1mm and 800,000 HA, respectively)



Carbon Storage

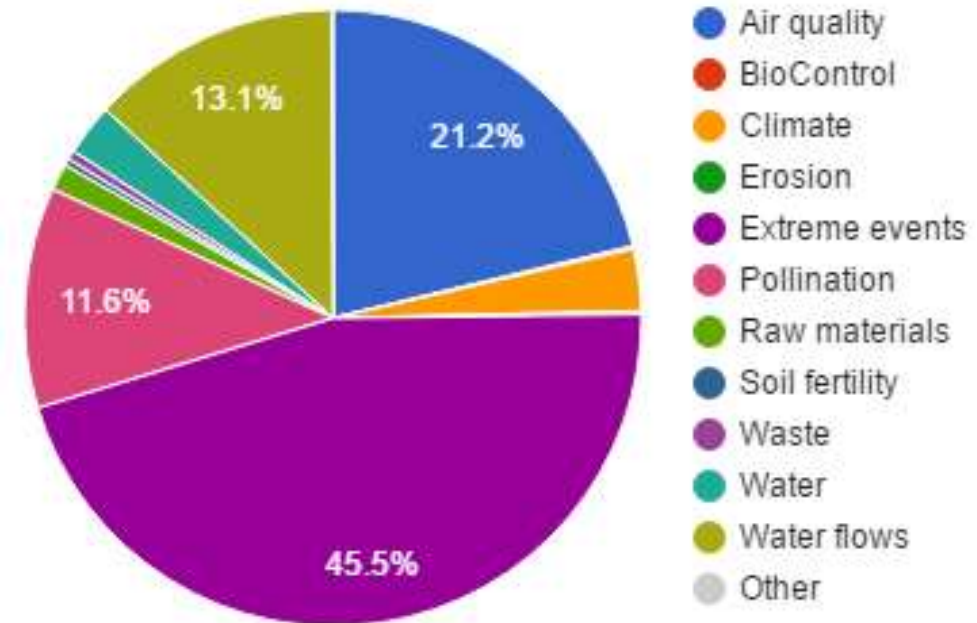
- Total Storage: 1.64 billion metric tons
- Includes all carbon stocks



Ecosystem Service Value of Southern Wetland Forests (BTM basis)

- Total of \$61.5 billion per year
- Protection from Extreme events, Air purification, and Water Supply account for more than 82% of the total

Ecosystem Service Value, by Service Type



Future Scenarios

- Business as Usual

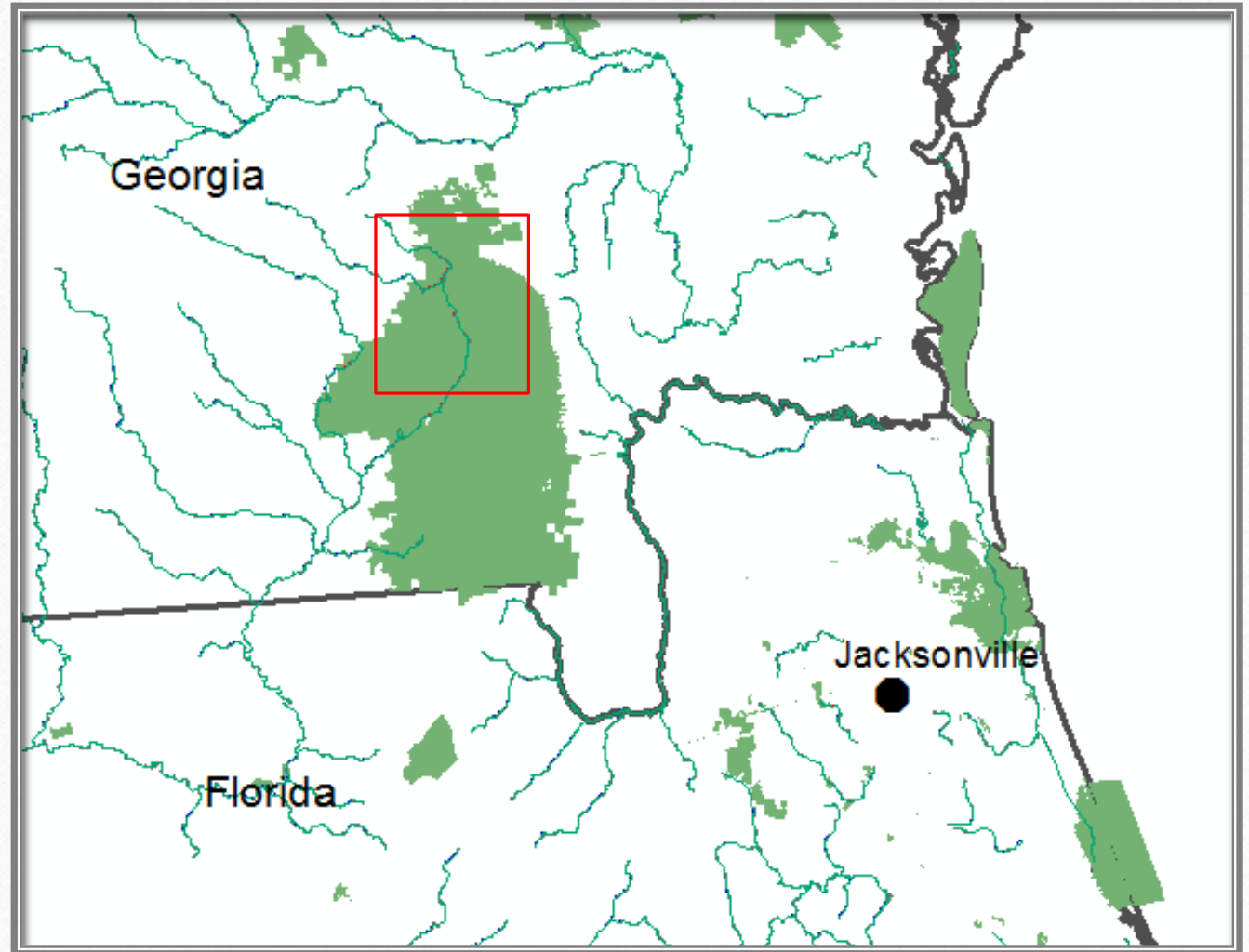
- Conversion to Developed Uses
- Conversion to plantation or other intensive forestry
- Spotty / inconsistent forest management regulation

- Conservation

- Increase GAP 1, 2 area by ~5mm acres (to 1/3 of total) focusing on LCC Blueprint older stands, higher carbon storage, and connectivity
- Expand Stream buffers to 100'
- Limit Canopy Openings to 30%

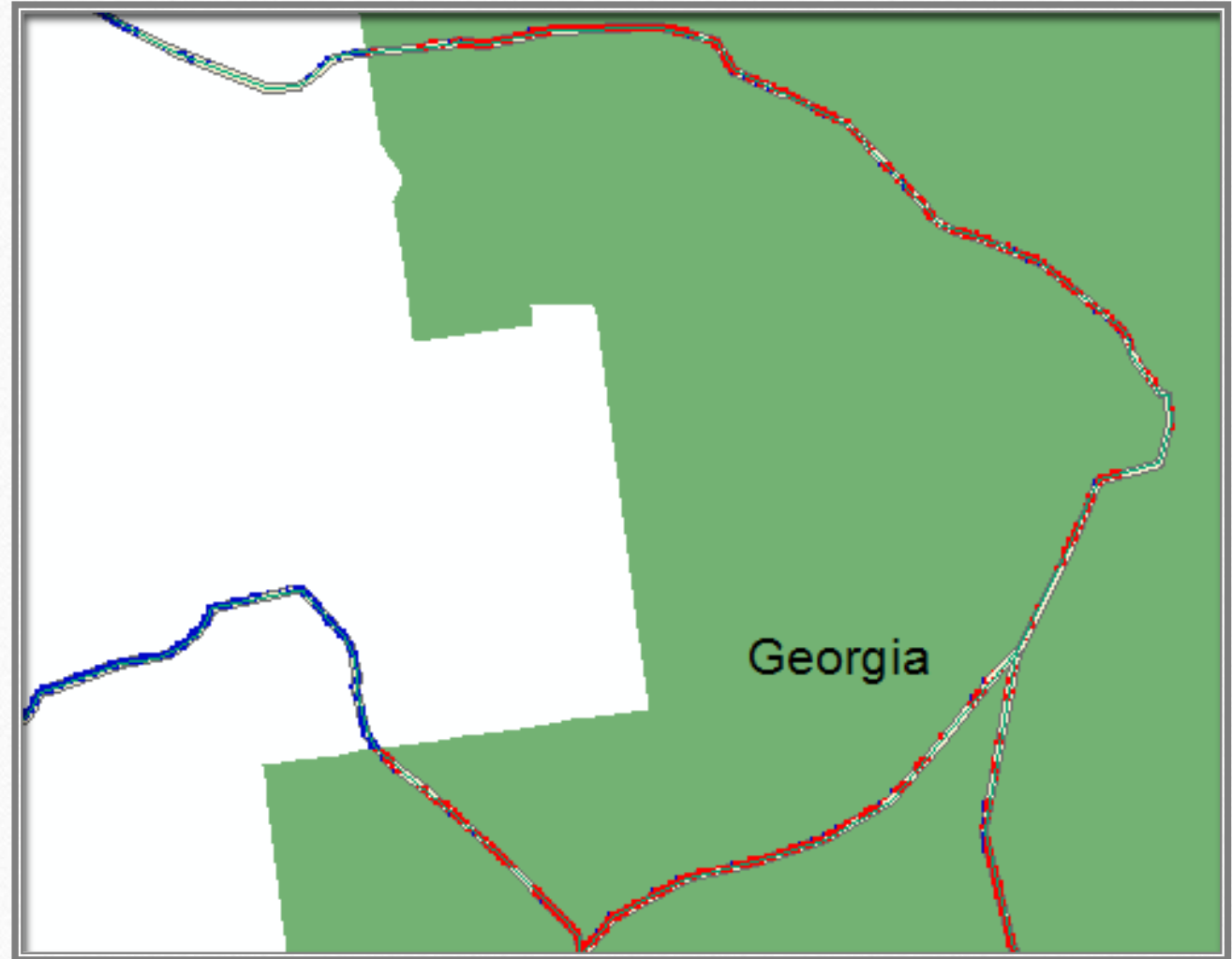
Stream Buffers (of 100')

- Takes in 3.3%
of wetland forests



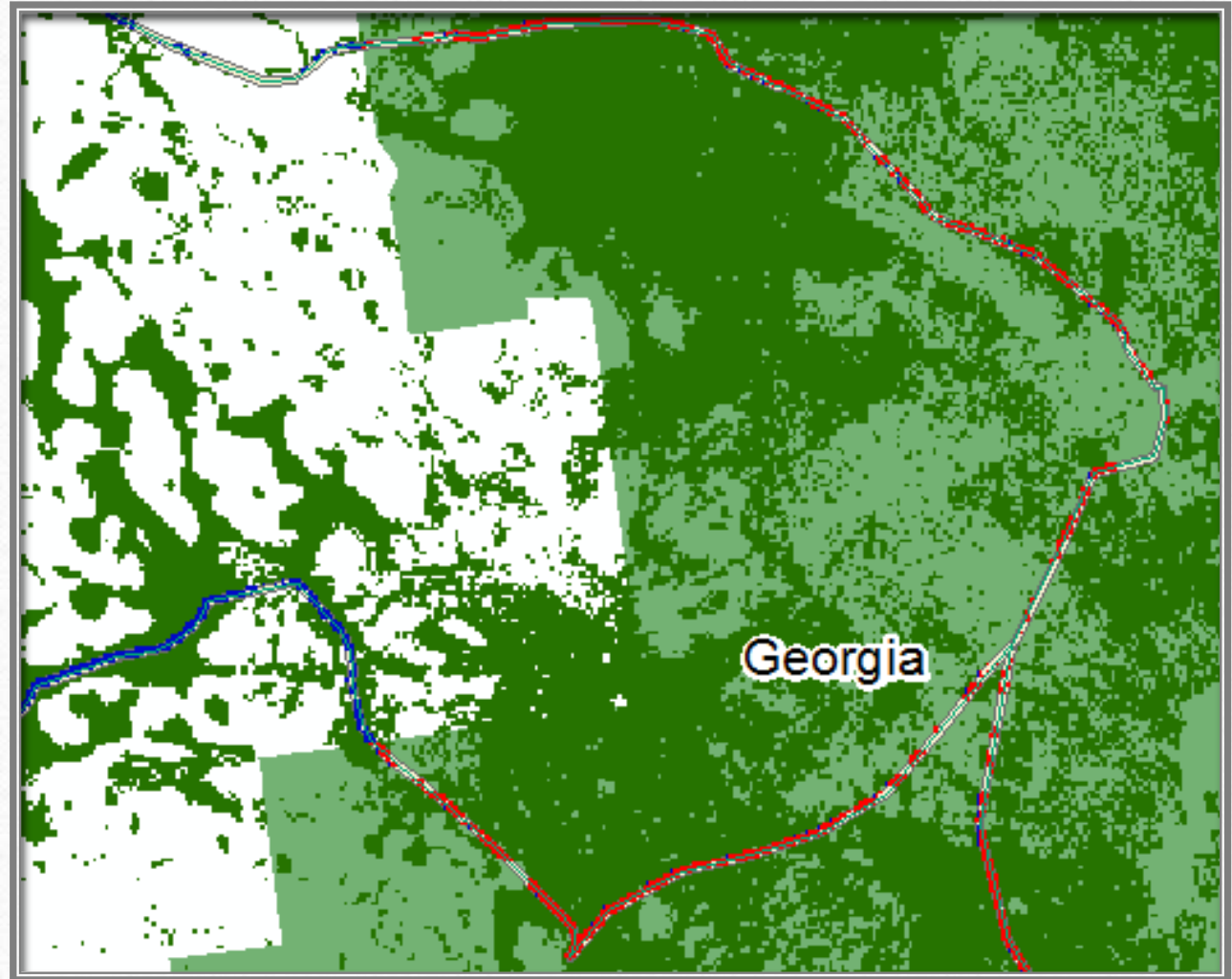
Stream Buffers and Protected Areas

- 4.1% of wetland forests in the buffer are already protected



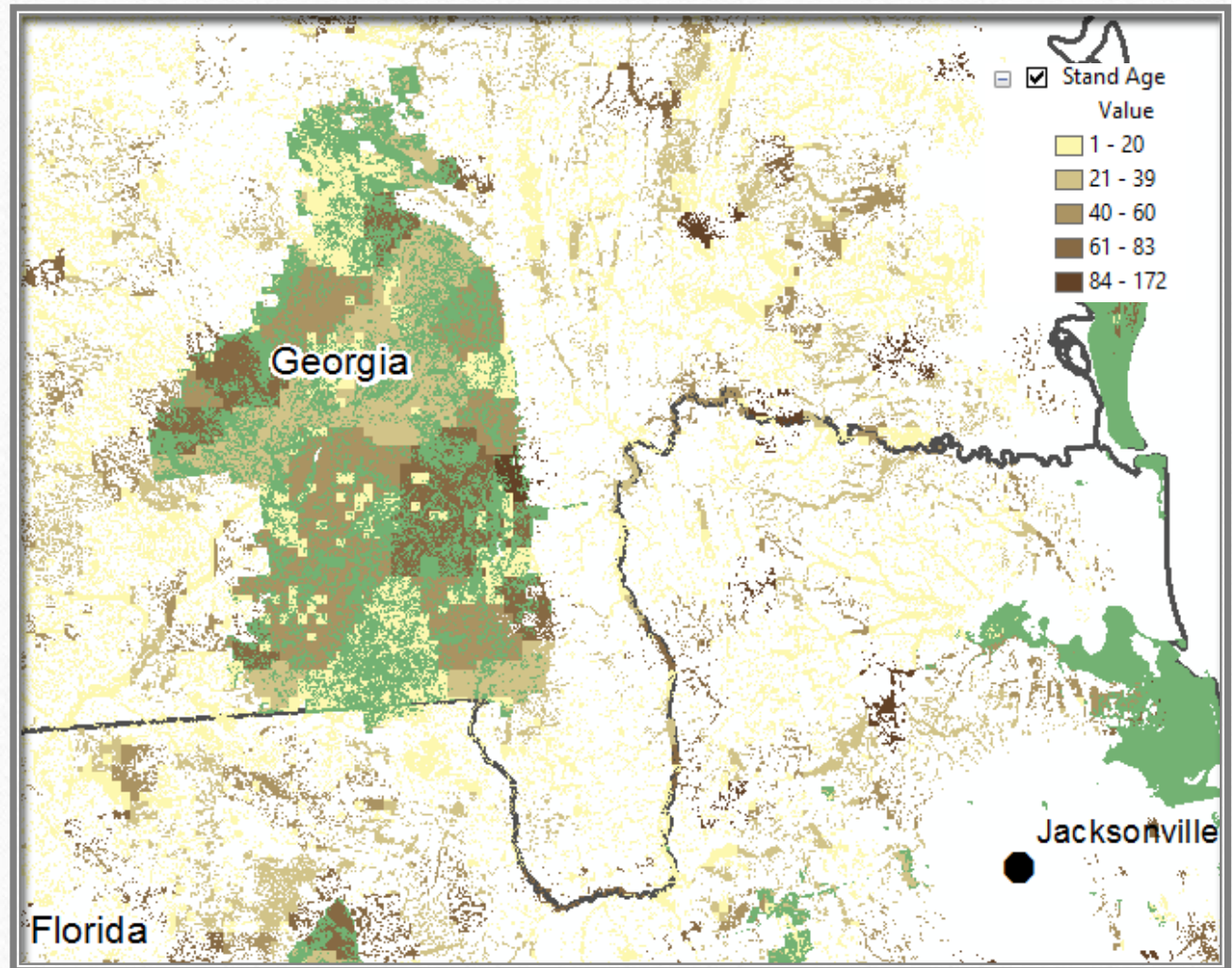
Stream Buffers and Protected Areas

- Only 0.1% of all wetland forests are both protected and in the buffer.



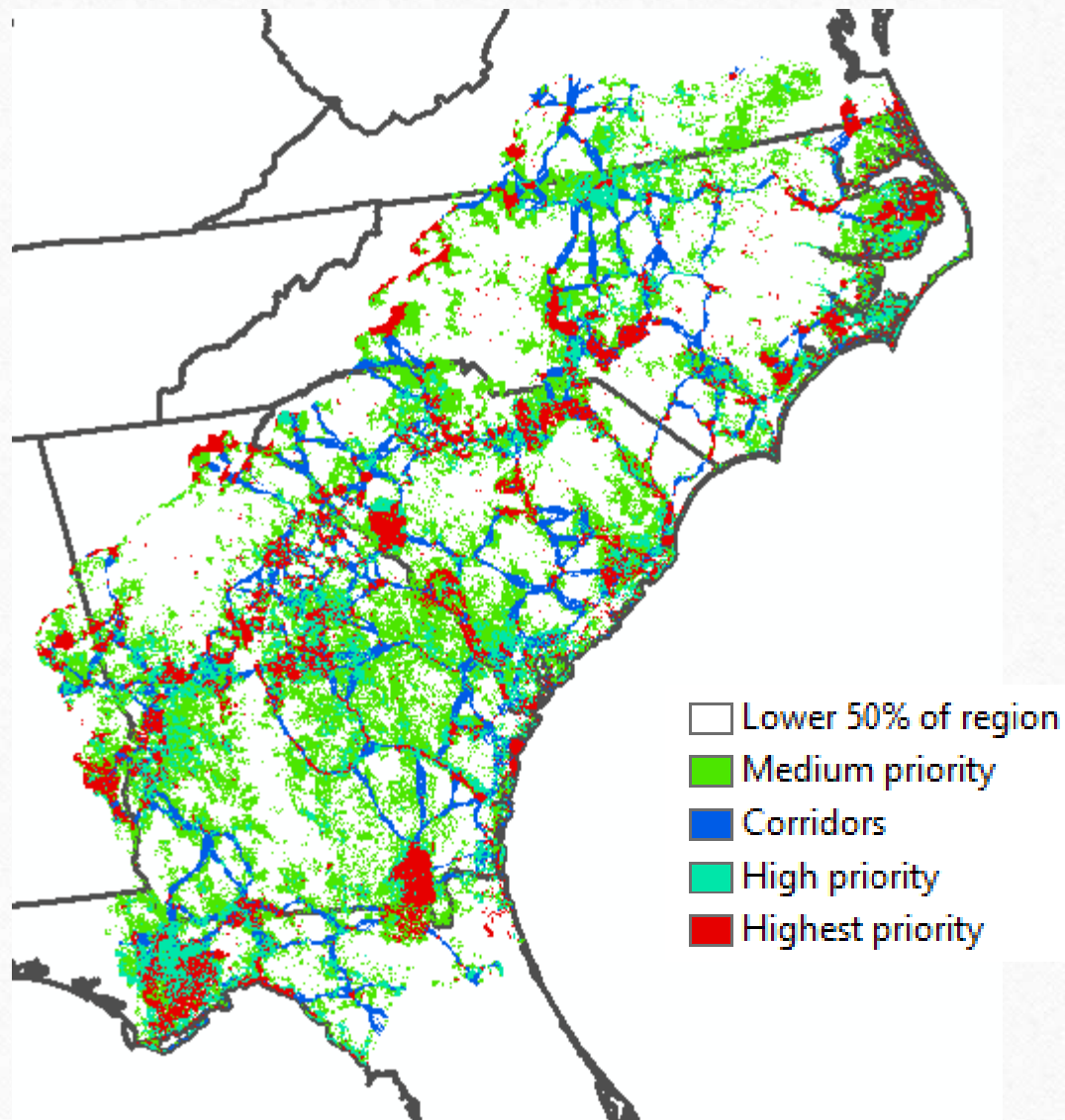
Tree Age

- Protected areas have a mix of ages.
- Much of the older wetland forest is outside protected areas.



Conservation Priority

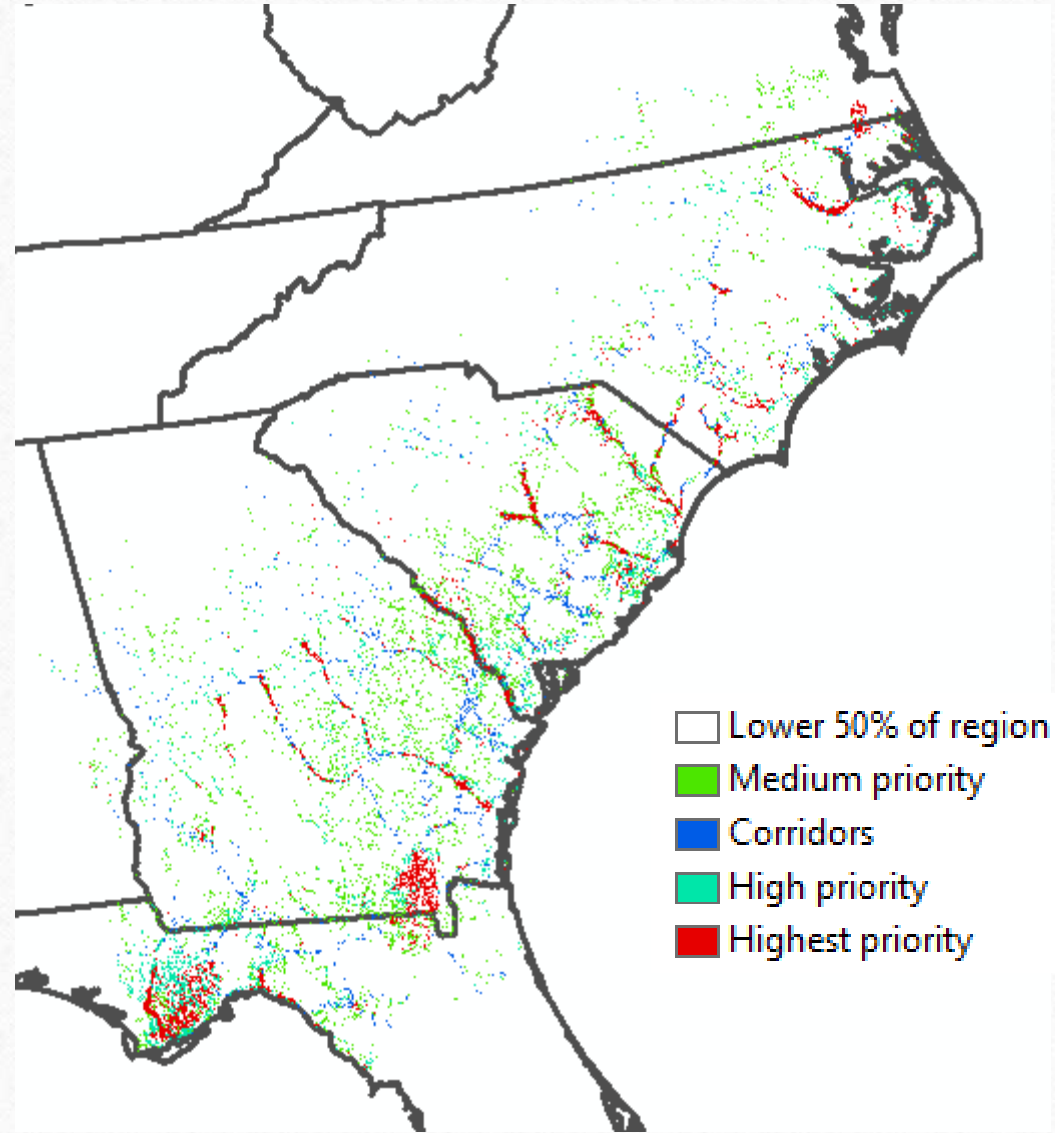
Per South Atlantic
LCC



Conservation Priority

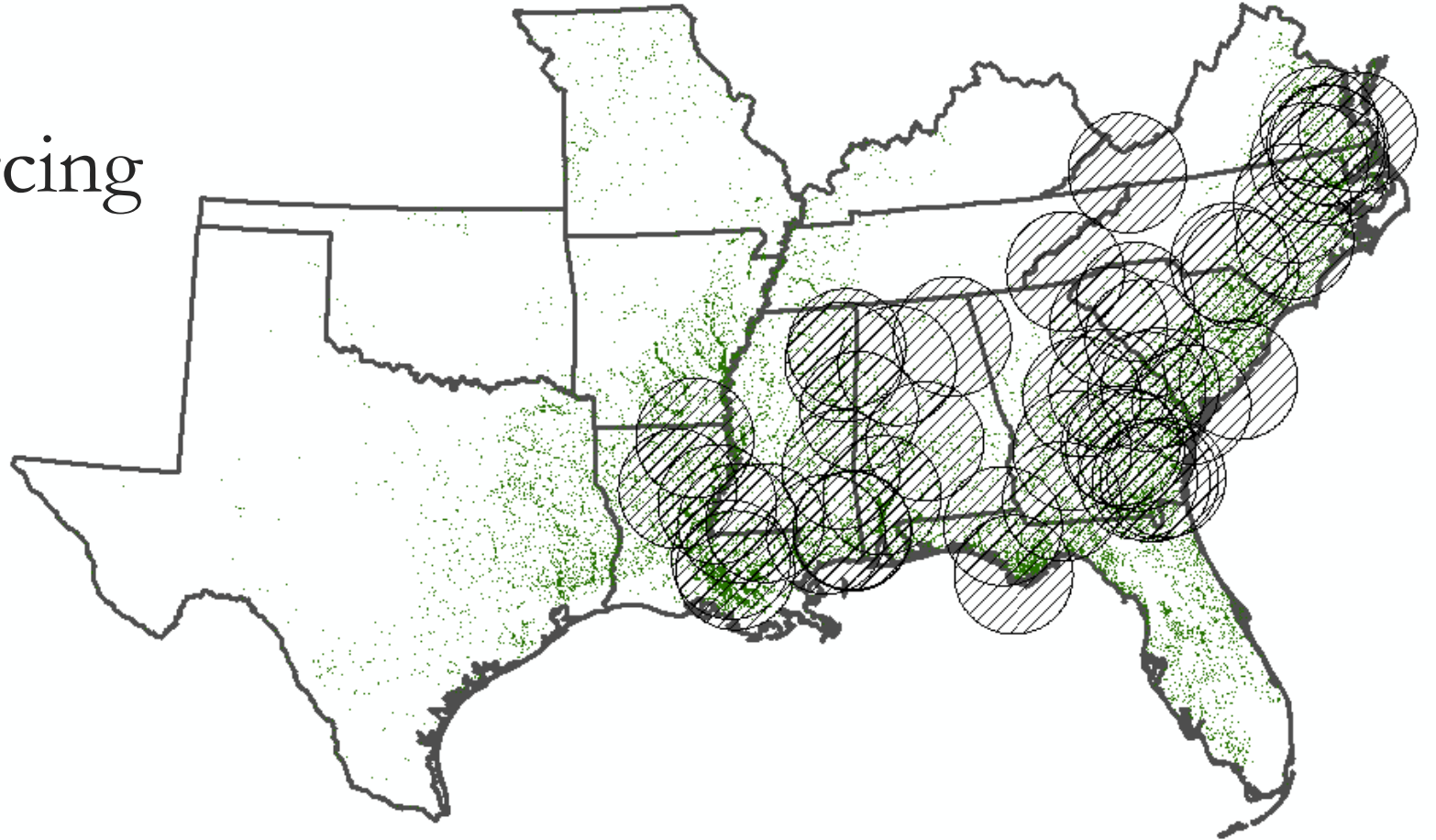
Wetland Forests are:

- 13% of the landscape, but
- 15% of Priority areas and
- 19% of Highest Priority areas



Stressors: Pellet Mill Sourcing

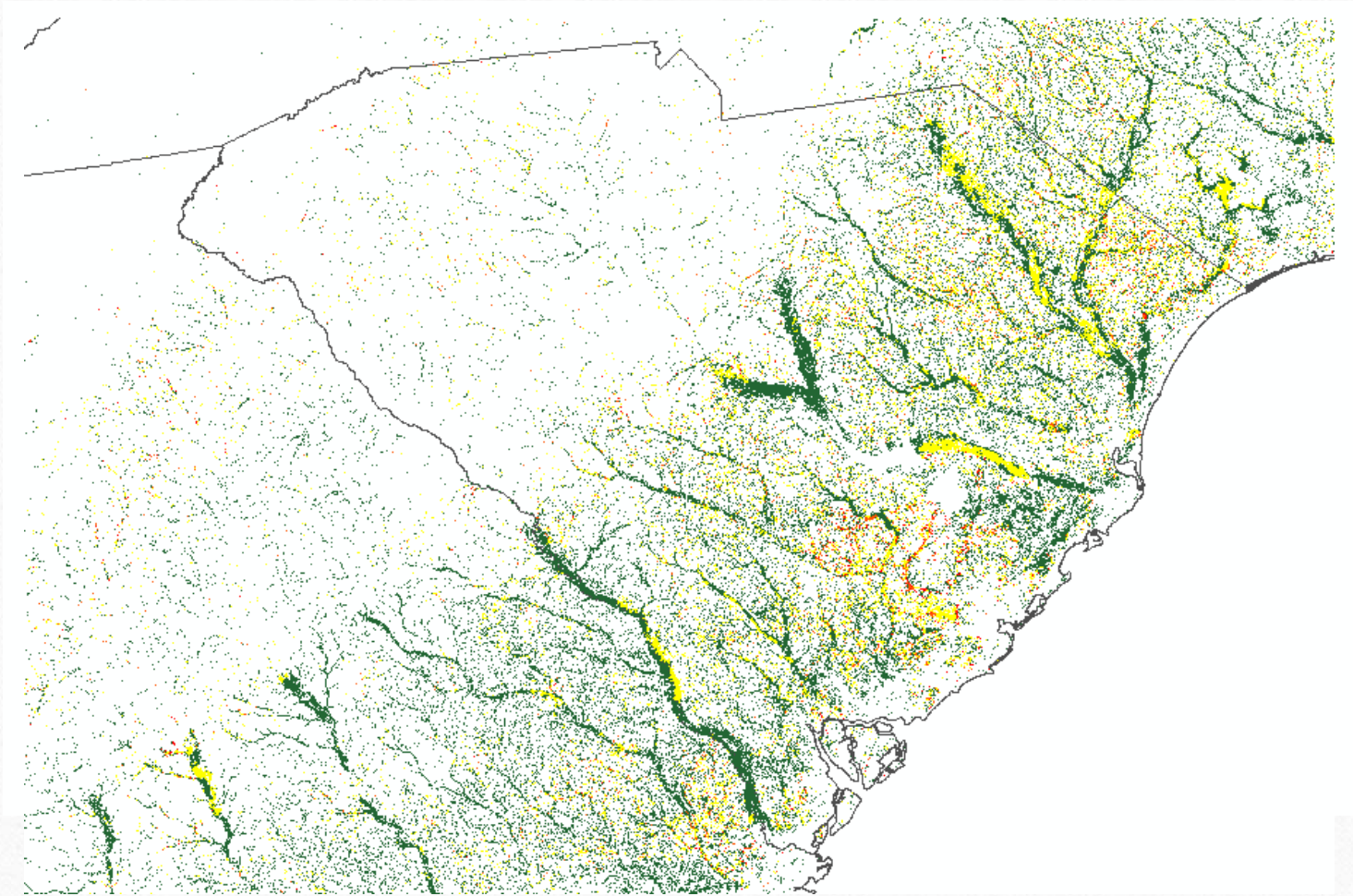
- 75 mile sourcing areas for existing and planned pellet mills
- (Does not include conventional wood products or paper mills.)



Stressors: Development

Yellow –Red

shows expected
increase in
development (housing
unit density) by 2030



Current Challenges (asking the audience)



-
- Identifying which wetland forest acreage IS at risk of conversion to development?
 - What about conversion to plantation or other intensive forestry?
 - **How does ES productivity change with conversion?**
 - Plantations 5x more productive for timber, but only 2x more productive for protection from extreme events and other values (Schmidt, Moore, & Alber, 2014)
 - **Adjusting baseline value for current conditions.**
 - **The usual BTM problems.**