

# Urban Forestry in the North Carolina Forest Resource Assessment

FORESTRY ISSUES FORUM  
URBAN FORESTRY EMERGING ISSUES  
JUNE 9, 2010

## NC Forest Resource Assessment

- <http://www.ncforestassessment.com/overview.htm>
- Planning for and protecting NC forest resources
  - Socio-economic Threats to Working Forests
  - Ecosystem Services
  - Forest Sustainability
  - Threats to Forest Health
  - Protecting Forests & Communities from Wildfire Risk
  - Maintaining Viable Urban Forests



UGA0013094

## What did the Assessment show about **urban forestry** in North Carolina?

- Primary goal – identify areas where forest loss would impact urban and community forests.
  1. Describe urban forest conditions
  2. Identify benefits and services
  3. Highlight trends and issues of concern
  4. Outline strategies for addressing issues



## What did the Assessment show about **urban forestry** in North Carolina?

- **Issue 1:** Changing land use patterns and increasing urbanization are threatening the health and viability of urban forests.
- **Issue 2:** Natural catastrophic events, including severe storms and floods, can threaten the health, value, and ecological integrity of urban forests.
- **Issue 3:** The rise in atmospheric concentrations of greenhouse gases, especially carbon dioxide, as a result of the burning of fossil fuel and conversion of forest to other land uses, has had and will continue to have an impact on climate, air quality, urban forest health, and quality of life.
- **Issue 4:** The urban tree canopy is underutilized as a tool in energy conservation efforts.
- **Issue 5:** Urban forestry information and education is not reaching the citizen level to generate support and advocacy at the local/municipal level needed to develop proactive urban forest management programs.

## What did the Assessment show about **urban forestry** in North Carolina?

- **Issue 1:** Changing land use patterns threaten our urban forests.
- **Issue 2:** Natural catastrophic events threaten our urban forests.
- **Issue 3:** The rise in greenhouse gases impacts our urban forests.
- **Issue 4:** Urban forests are underutilized in energy conservation.
- **Issue 5:** Too few urban forest management programs are proactive.



## Key Findings

- Urban areas within the Piedmont Crescent are high-priority areas for tree conservation and planting efforts to improve local air quality.
- Communities of all sizes and in all regions of North Carolina could reduce energy consumption with strategic tree planting efforts; the more densely populated areas are higher priority areas.
- North Carolina municipalities are predicted to lose approximately 6 percent of their current forestland between 2010 and 2030. A higher number of mountain communities will lose forestland; the greatest amount of change will occur in the piedmont.
- Natural disasters have the greatest impact on urban forests within the northern counties of the North Carolina piedmont and the southern counties of the North Carolina coastal plain.
- Only one out of every three communities has at least one of the four performance measures that lead to an active urban forestry management program.

## Key Findings

- Using trees to improve air quality in the Piedmont Crescent is a priority
- Trees planted to reduce energy use is a priority in densely populated areas
- In the next 20 years cities will lose about 6% of their current forestland
- Natural disasters impact urban forests most in north central and southeast
- Only  $\frac{1}{3}$  of cities have at least 1 of 4 parts to urban forestry management



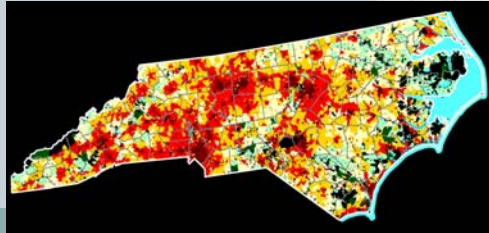
## How did we determine Key Findings?

- Use GIS
- Select relevant data layers
- Weighted overlay analysis



## Selecting Relevant Data Layers

- US Census data
- Southern Forest Land Assessment
- One NC Naturally Conservation Planning Tool
- National Oceanic and Atmospheric Administration
- Division of Air Quality
- National Land Cover Database
- more...



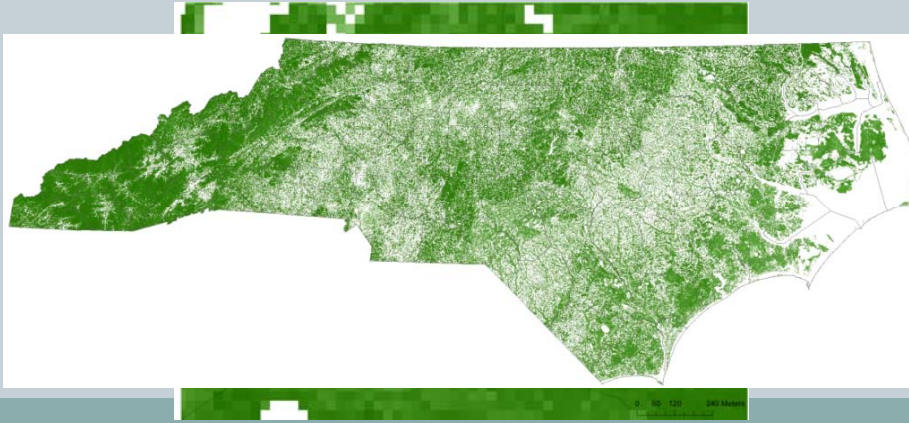
## Weighted Overlay Analysis

- Put every layer on same scale, i.e. 1 – 100
- Give a weight to each layer, i.e. 20%, 60%
- Make sure weights total 100%
- Value = (layer 1 \* weight) + (layer 2 \* weight) + ...

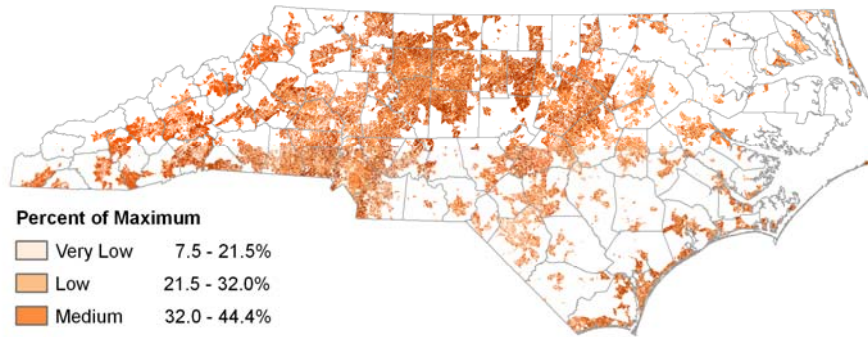
## Priority Areas and Priority Places

- **Priority Areas**

- 30 meter pixels with calculated value



## Priority Areas and Priority Places



**Percent of Maximum**

Very Low	7.5 - 21.5%
Low	21.5 - 32.0%
Medium	32.0 - 44.4%
High	44.4 - 53.4%
Very High	53.4 - 71.6%

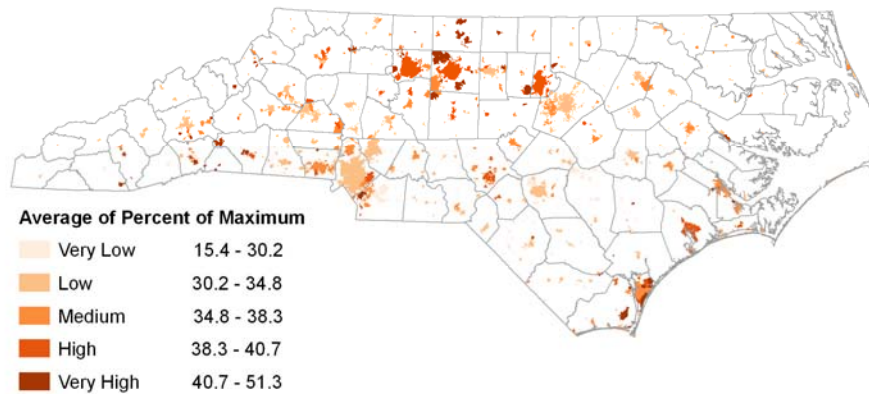
## Priority Areas and Priority Places

- **Priority Places**

- Average of all pixels within defined location



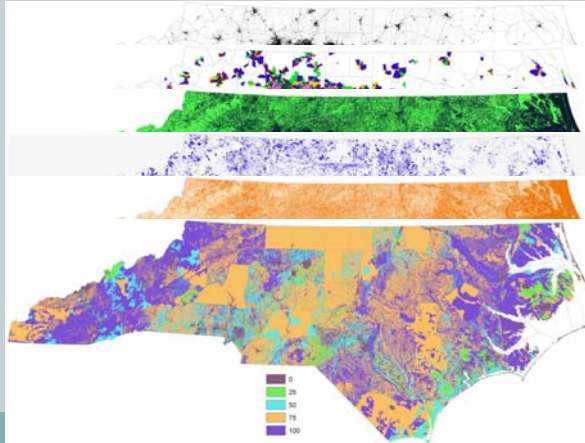
## Priority Areas and Priority Places



## Issue 4

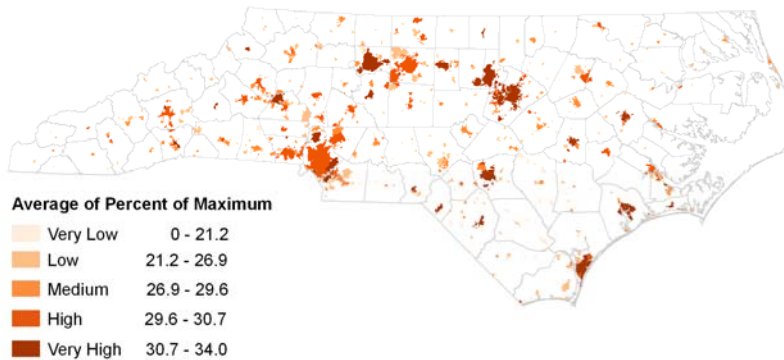
The urban tree canopy is underutilized as a tool in energy conservation efforts.

**6 Data layers used:**  
Imperviousness  
Population Density  
Forestland  
Urban Growth Score  
Plantable Space  
Site Productivity



## Issue 4

- Communities of all sizes and in all regions of North Carolina could reduce energy consumption with strategic tree planting efforts; the more densely populated areas are higher priority areas.



## Issue 5

Urban forestry information and education is not reaching the citizen level to generate support and advocacy at the local/municipal level needed to develop proactive urban forest management programs.

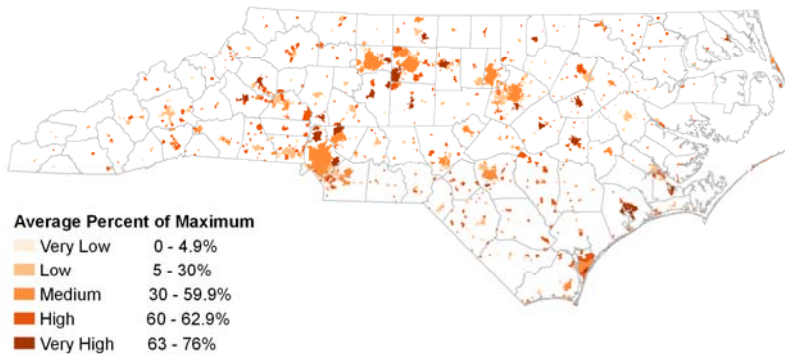
### 5 Data layers used:

- Total Population
- No Professional Staff
- No Management Plan
- No Tree Ordinance
- No Advocacy Group



## Issue 5

- Only one out of every three communities has at least one of the four performance measures that lead to an active urban forestry management program.



## What's in store for urban forestry?

- Emphasizing the functional benefits of trees over aesthetic appeal
- Follow that with necessity of proper maintenance
- Work with cities and towns for better and more professional tree population management



OR



## Questions?



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