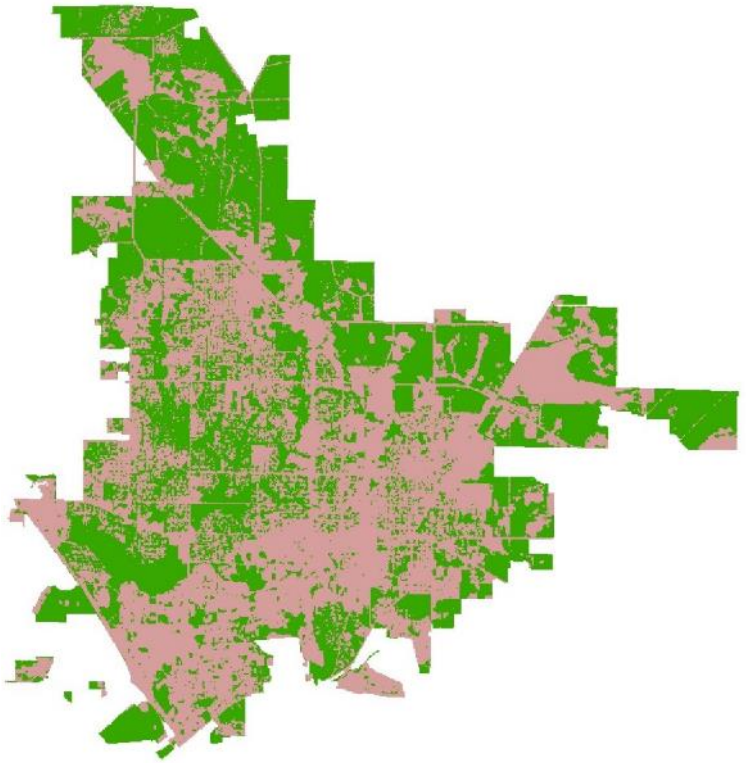
# Gainesville Urban Forest Ecological Analysis 2016



#170383C

Michael G. Andreu, David A. Fox, Shawn M. Landry, and Robert J. Northrop, and Caroline A. Hament

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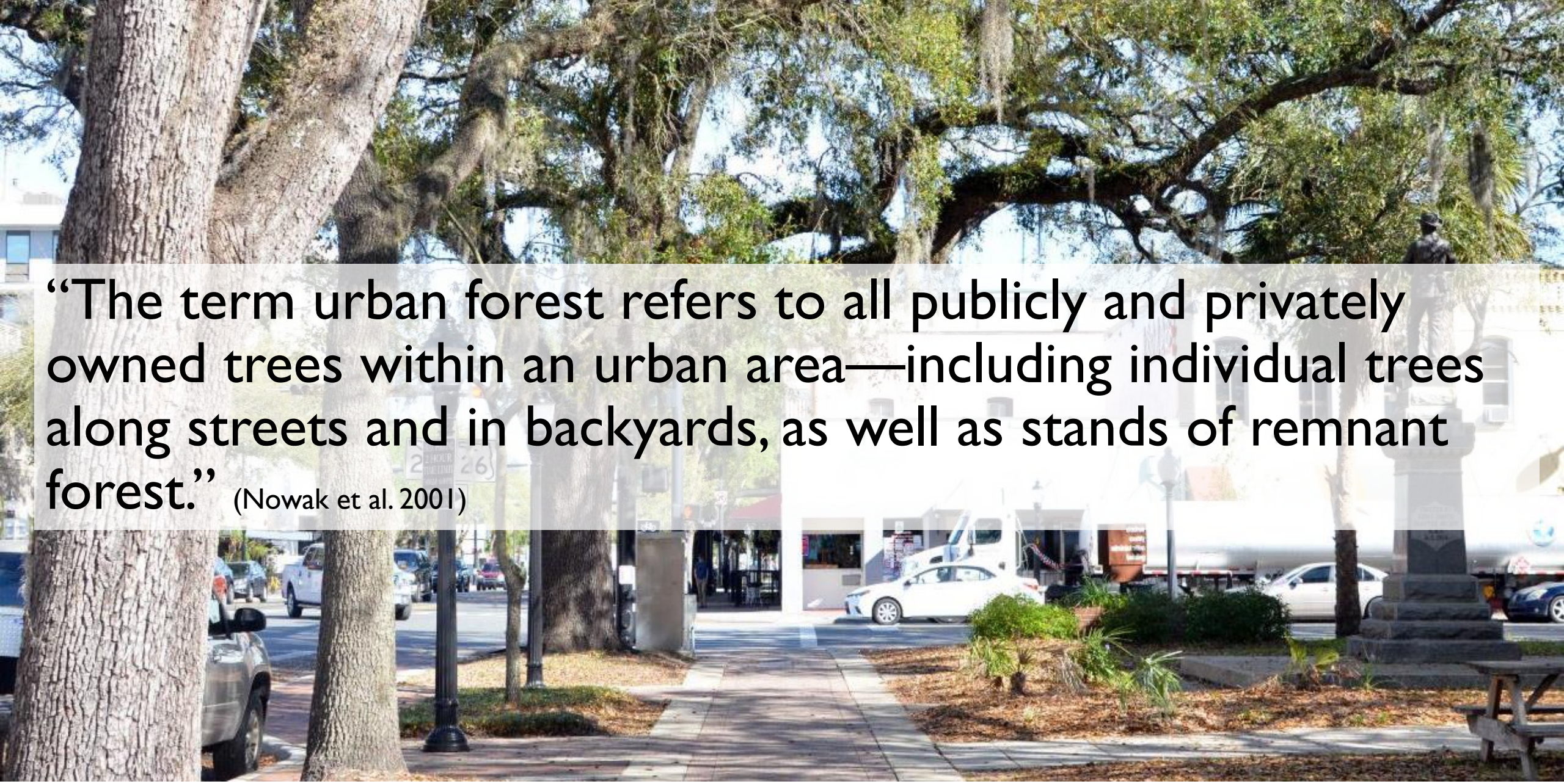

"The term urban forest refers to all publicly and privately owned trees within an urban area—including individual trees along streets and in backyards, as well as stands of remnant forest." (Nowak et al. 2001)

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*There are 7.2 million trees in GNV worth*

# $1.4 BILLION
# + $24.4 MILLION/YR

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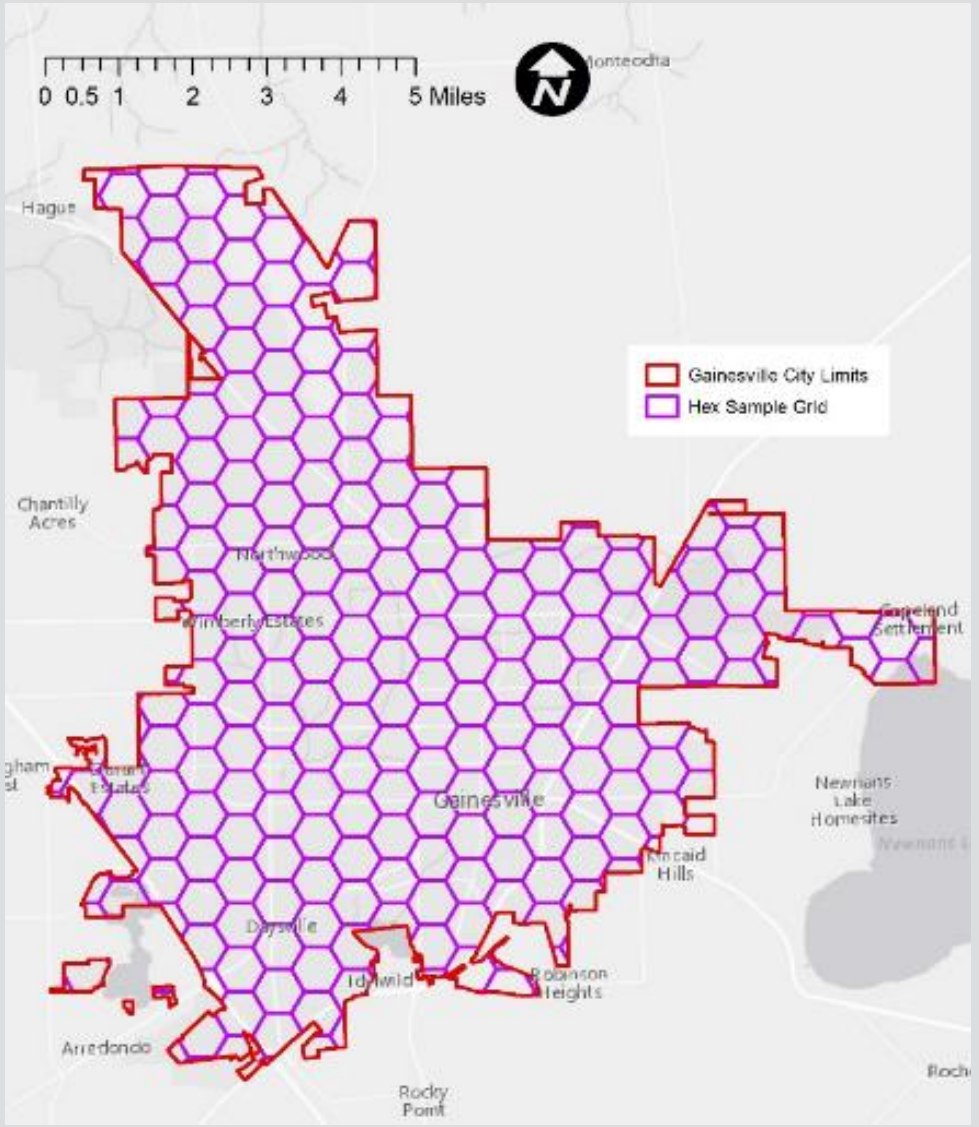
# 177 Randomly Selected Plots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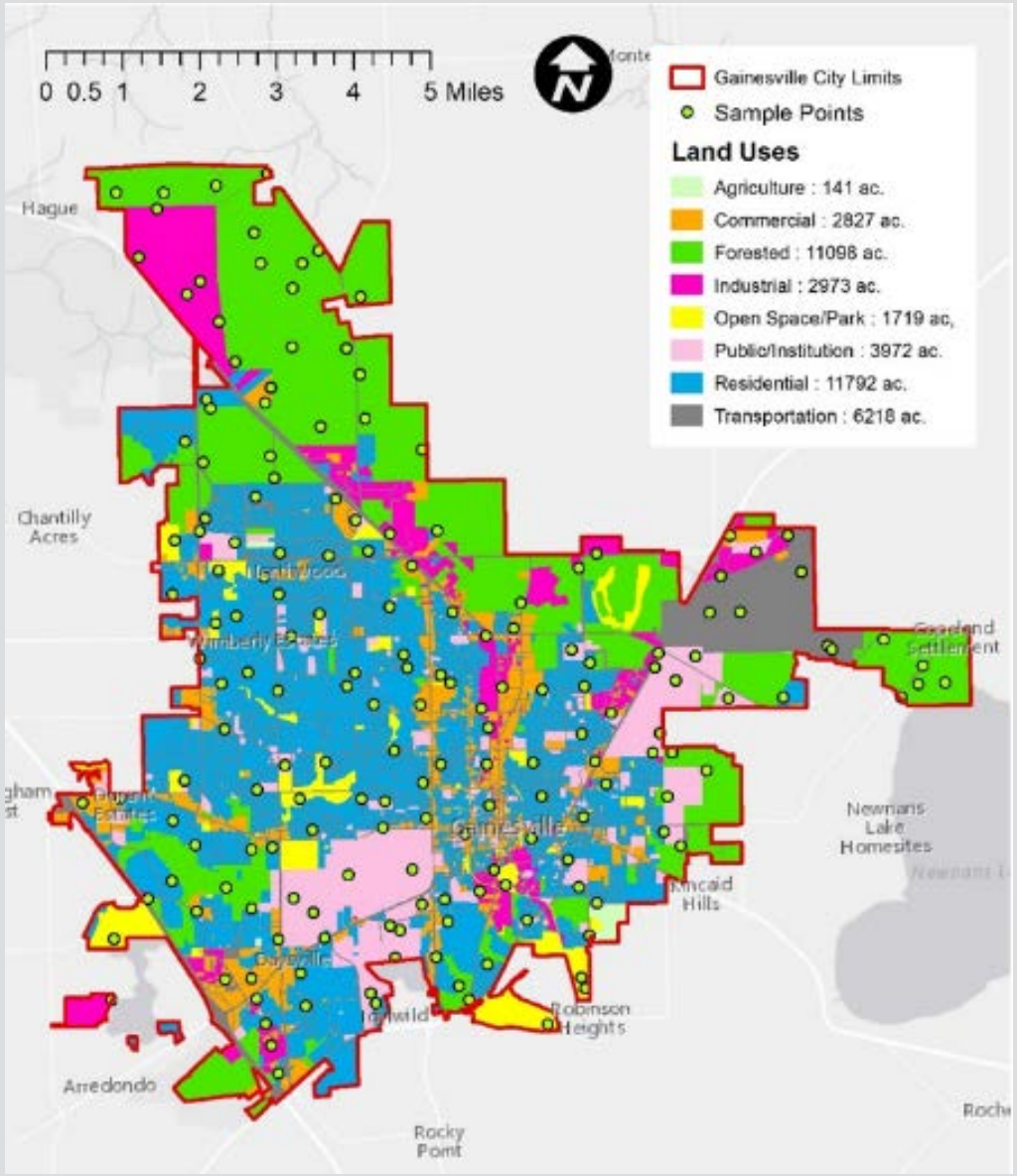
# Land Use Distribution

| Land Use | Area (acres) | Percent of City | Number of Plots |
|---|---|---|---|
| Residential | 11,792 | 28.9 | 48 |
| Forested | 11,098 | 27.2 | 35 |
| Transportation | 6,218 | 15.3 | 29 |
| Public/Institutional | 3,972 | 9.7 | 24 |
| Industrial | 2,973 | 7.3 | 13 |
| Commercial | 2,828 | 6.9 | 19 |
| Open Space/Park | 1,719 | 4.2 | 9 |
| Agriculture | 141 | 0.3 | 0 |
| **Gainesville** | **40,740** | **100** | **177** |

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# Results: Composition & Structure

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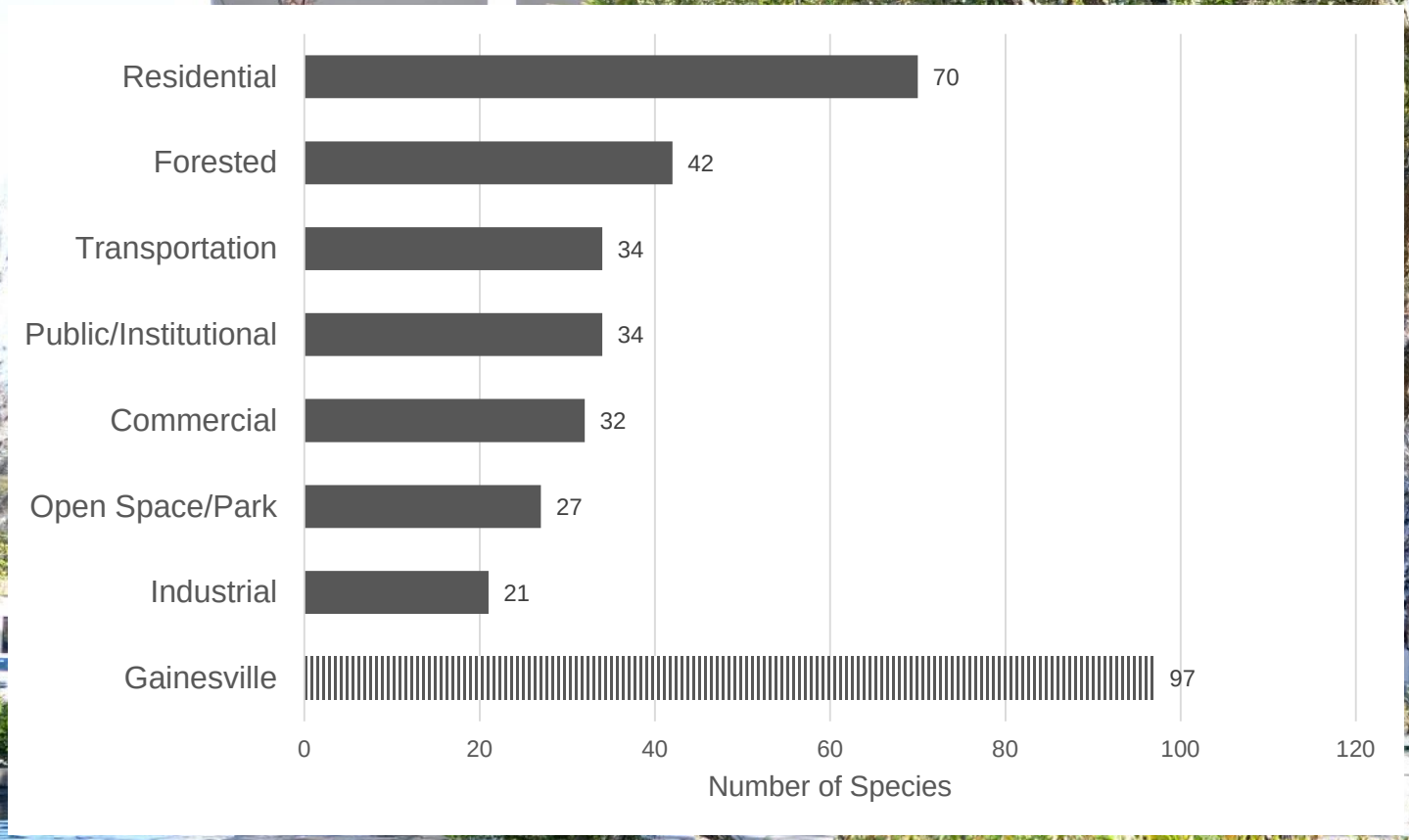
# Tree Diversity

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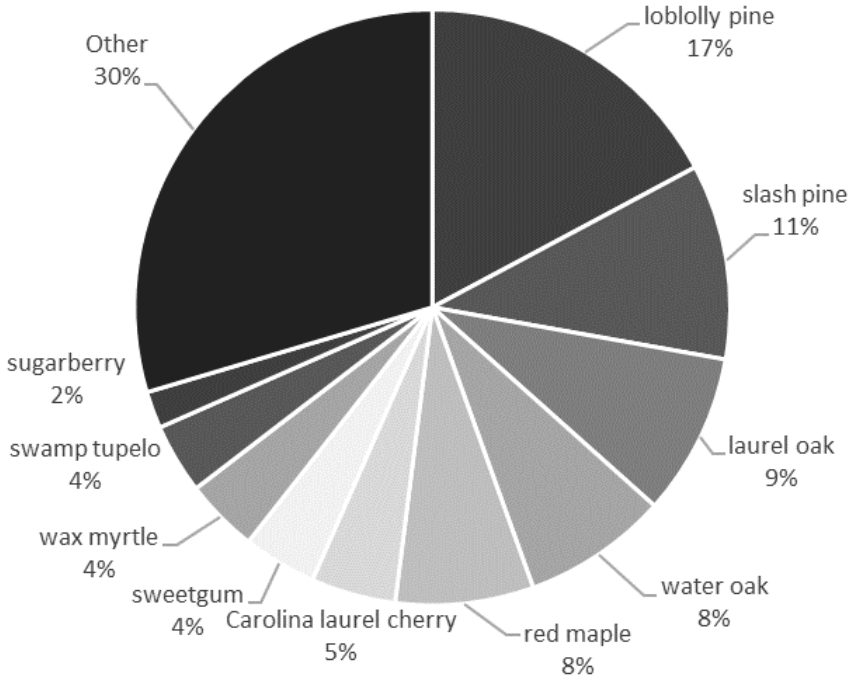
# Tree Population




**Loblolly Pine**
*Pinus taeda*
17%

**Slash Pine**
*Pinus elliottii*
11%

**Laurel Oak**
*Quercus laurifolia*
9%

**Water Oak**
*Quercus Nigra*
8%

**Red Maple**
*Acer rubrum*
8%

**Carolina Laurel Cherry**
*Prunus caroliniana*
5%

**Sweetgum**
*Liquidambar styraciflua*
4%

**Wax Myrtle**
*Morella cerifera*
4%

**Swamp Tupelo**
*Nyssa biflora*
4%

**Sugarberry**
*Celtis laevigata*
2%

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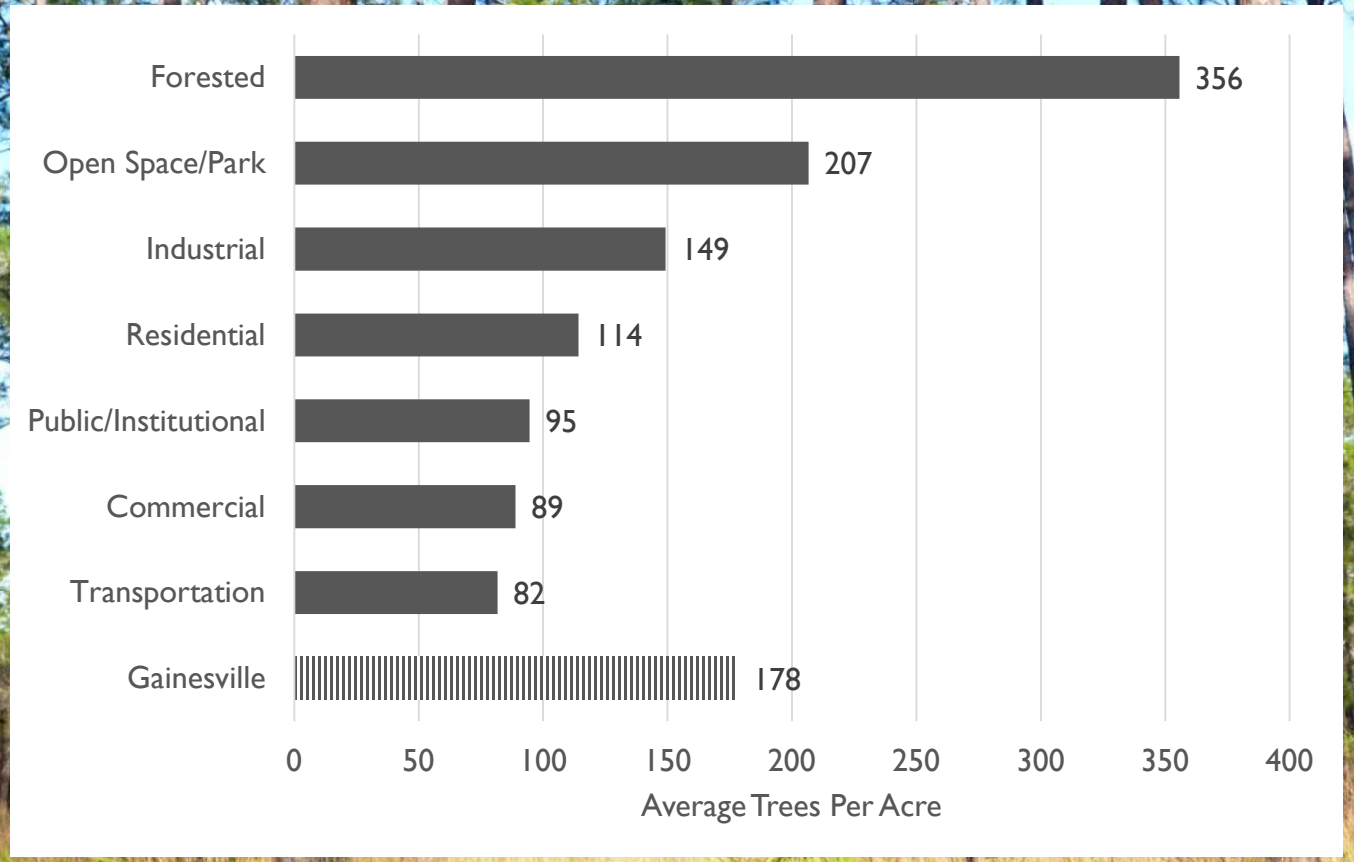
# Invasive Species

| Species | Common Name | Percent of Tree Population | Percent Leaf Area | Number of Plots Present |
|---|---|---|---|---|
| *Albizia julibrissin** | Mimosa | 0.14 | 0.16 | 3 |
| *Broussonetia papyrifera* | Paper mulberry | 0.24 | 0.06 | 1 |
| *Cinnamomum camphora** | Camphor tree | 0.91 | 1.05 | 9 |
| *Ligustrum lucidum** | Glossy privet | 0.19 | 0.14 | 4 |
| *Syxygium cumini** | Jambolan plum | 0.02 | <0.01 | 1 |
| *Triadica sebifera** | Chinese tallow | 0.16 | 0.06 | 5 |

*Category I Invasive Species

# Tree Density

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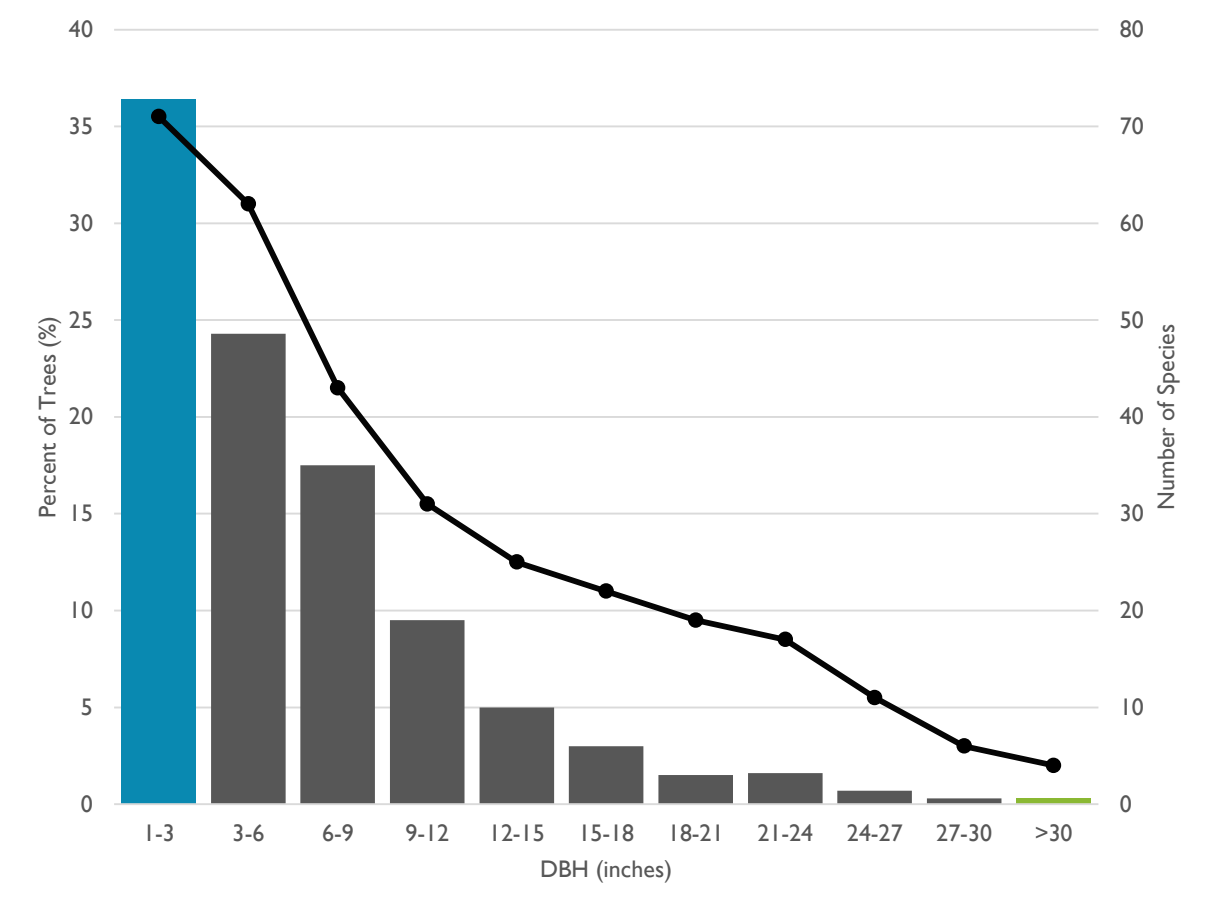
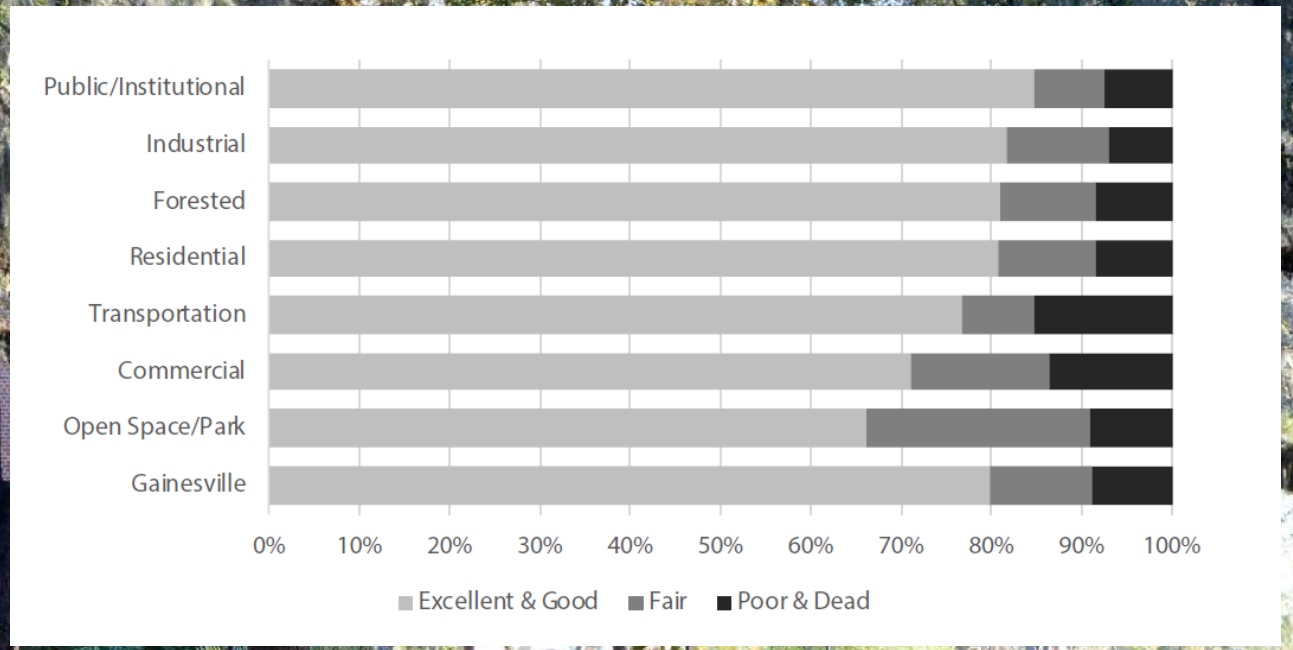
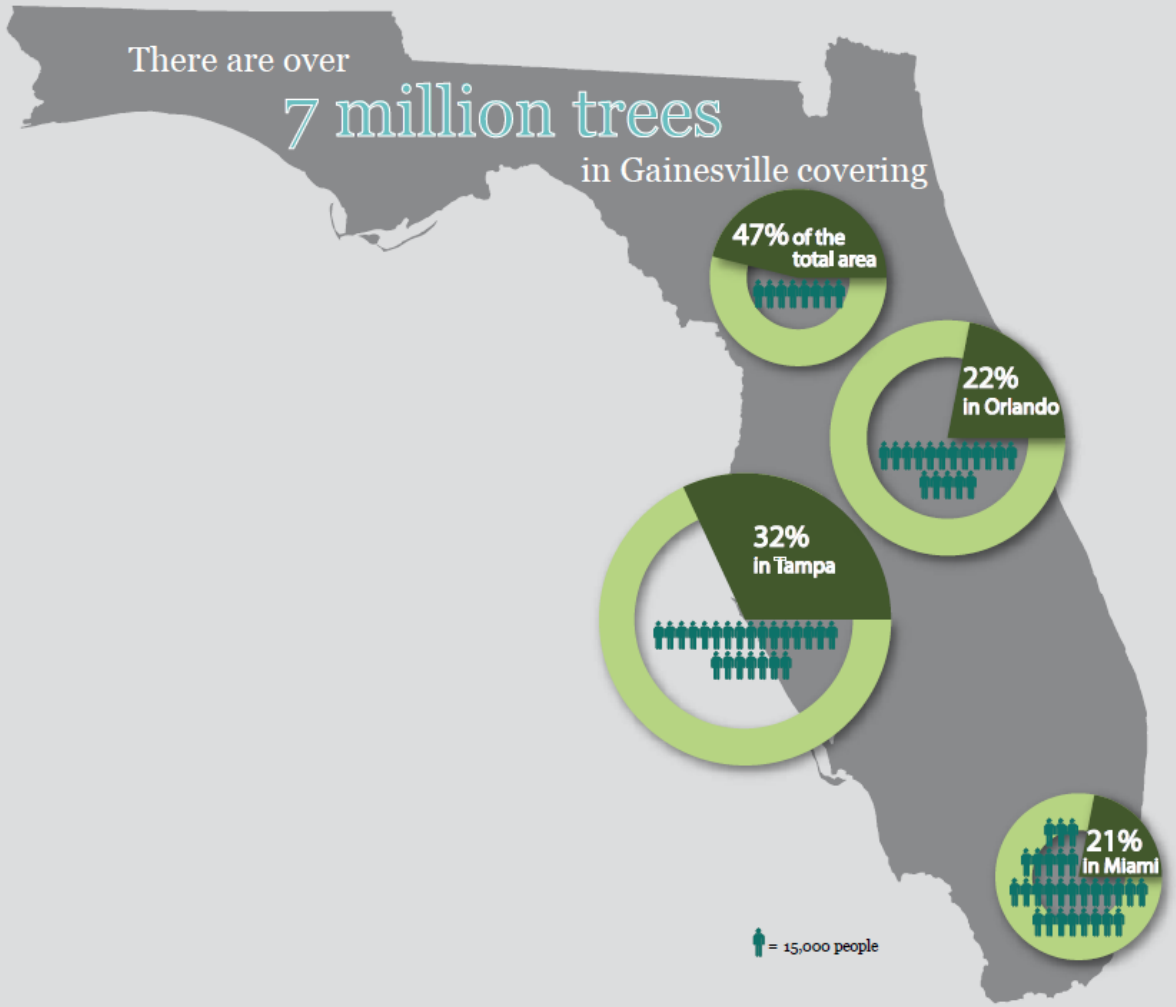
# Diameter Distribution

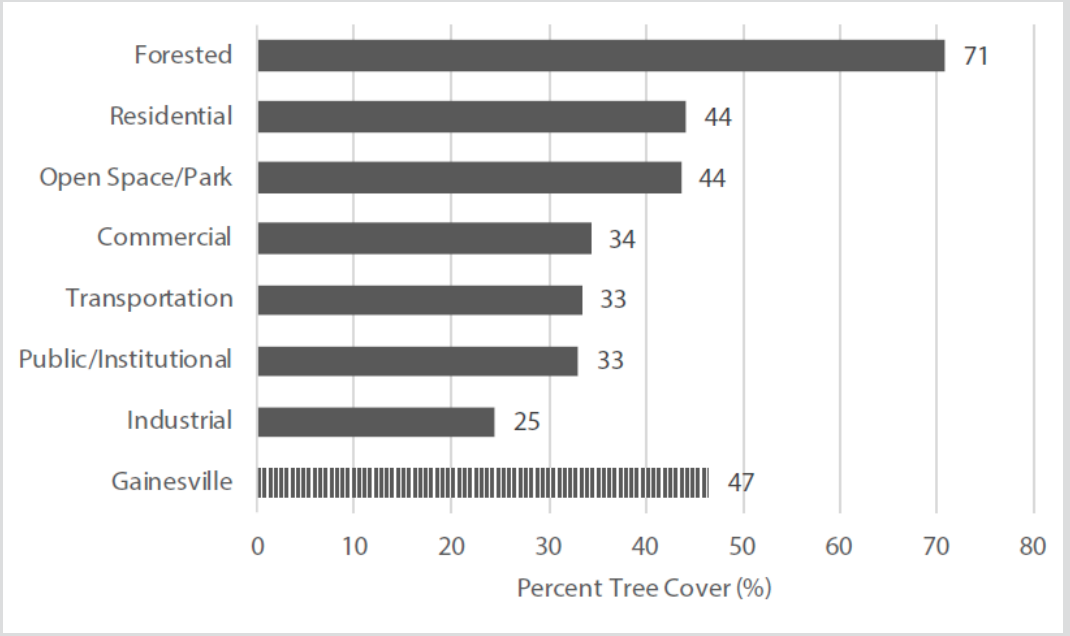



| Species | 1-3" DBH | Species | >30" DBH |
|---|---|---|---|
| Laurel oak | 12% | Bald cypress | 41% |
| Red Maple | 11% | Live oak | 25% |
| Water oak | 10% | Swamp tupelo | 23% |
| Wax myrtle | 10% | Sugarberry | 11% |
| Carolina laurel cherry | 9% | — | — |
| Loblolly pine | 5% | — | — |
| Sweetgum | 3% | — | — |
| Sugarberry | 3% | — | — |
| Elderberry | 2% | — | — |
| Dahoon | 2% | — | — |

# Forest Health



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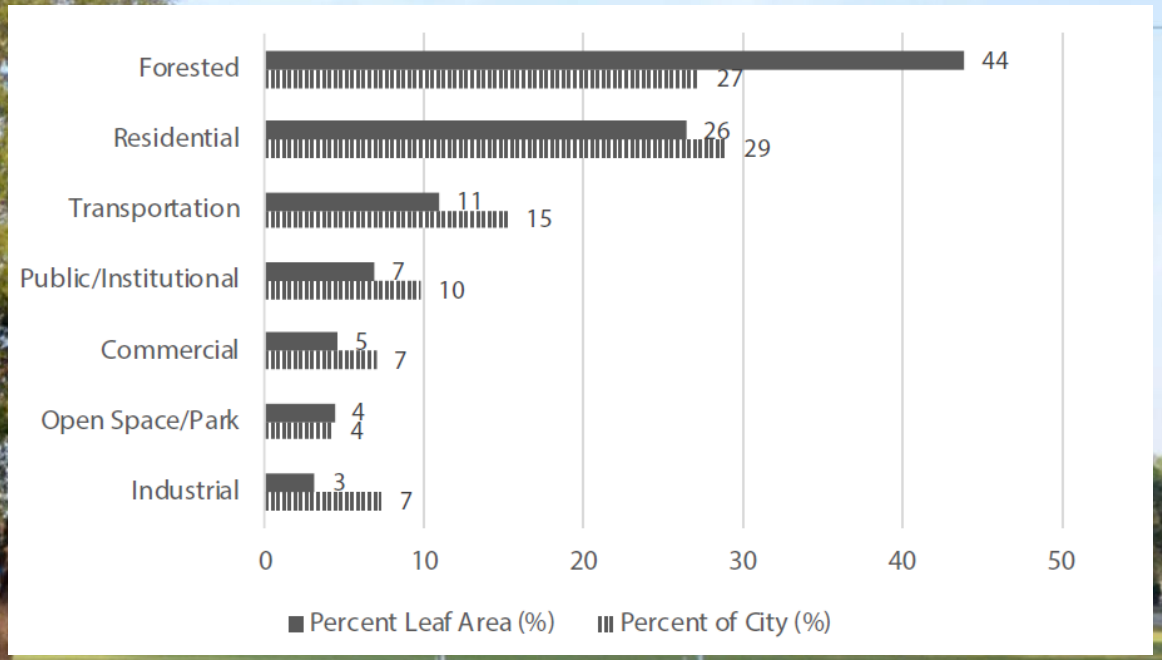
# Leaf Area

| Species | Leaf Area (%) |
|---|---|
| Loblolly pine | 20% |
| Slash pine | 15% |
| Water oak | 8% |
| Laurel oak | 7% |
| Red maple | 6% |
| Sweetgum | 5% |
| Live oak | 4% |
| Bald cypress | 4% |
| Swamp tupelo | 3% |
| Sugarberry | 3% |

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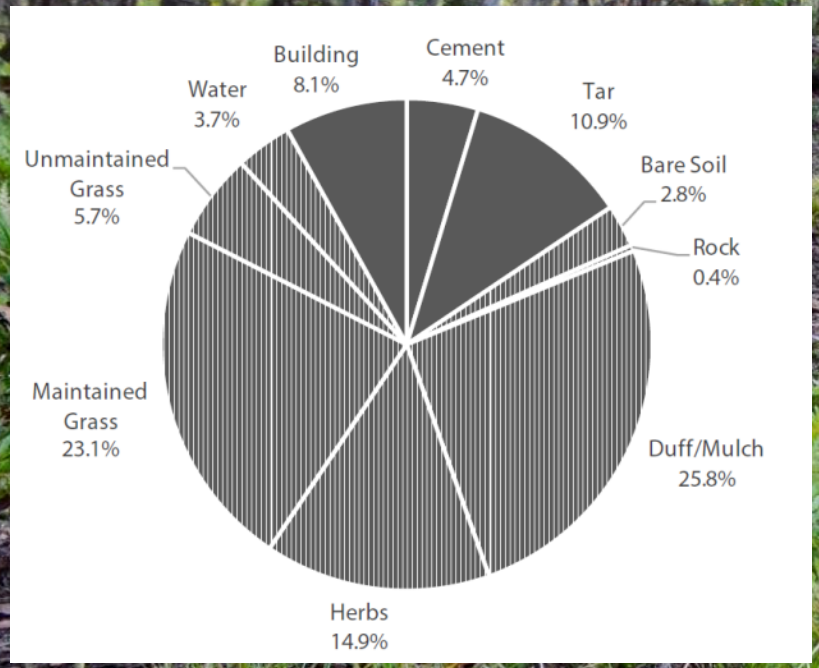
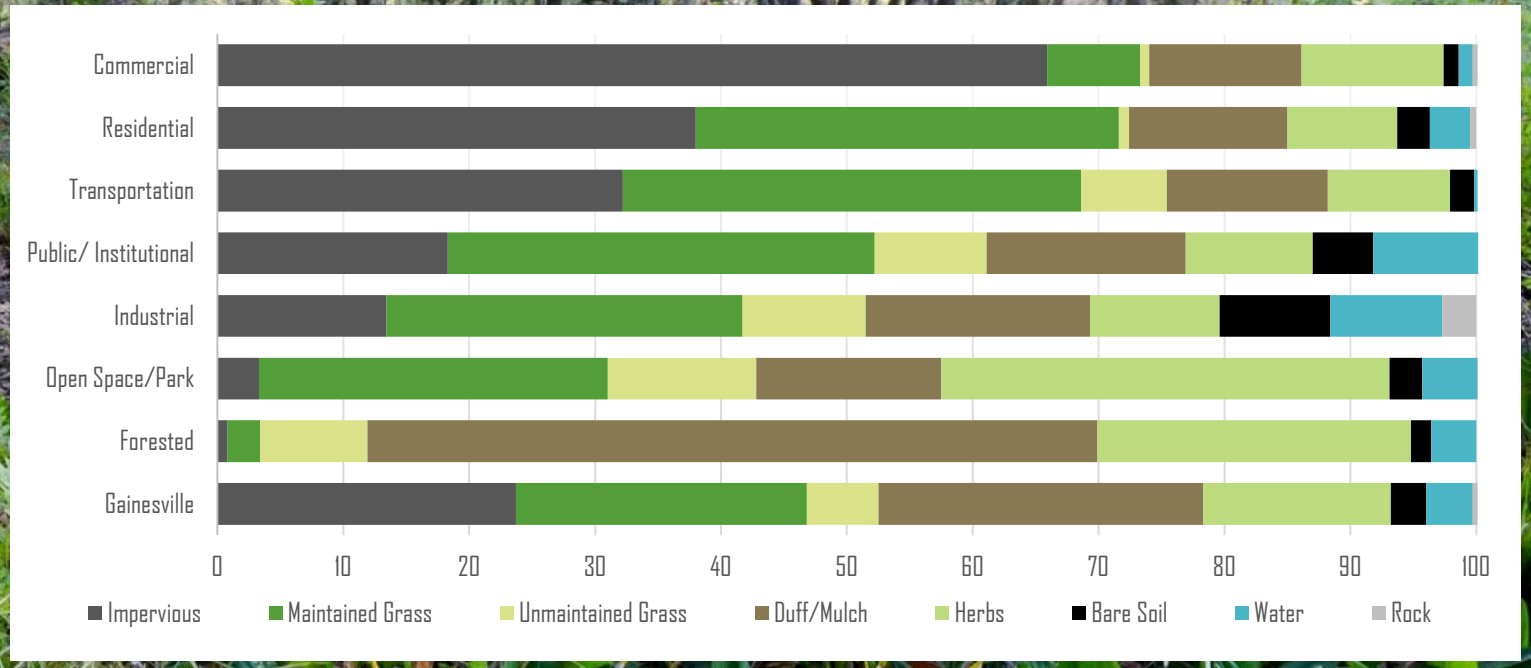
# Ground Cover

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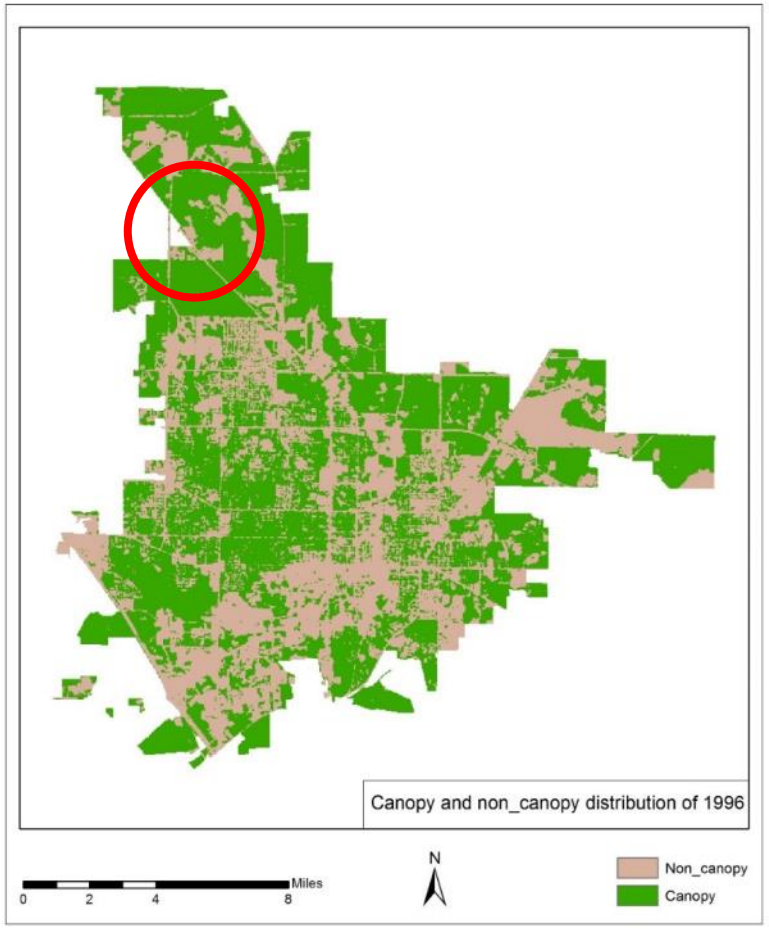


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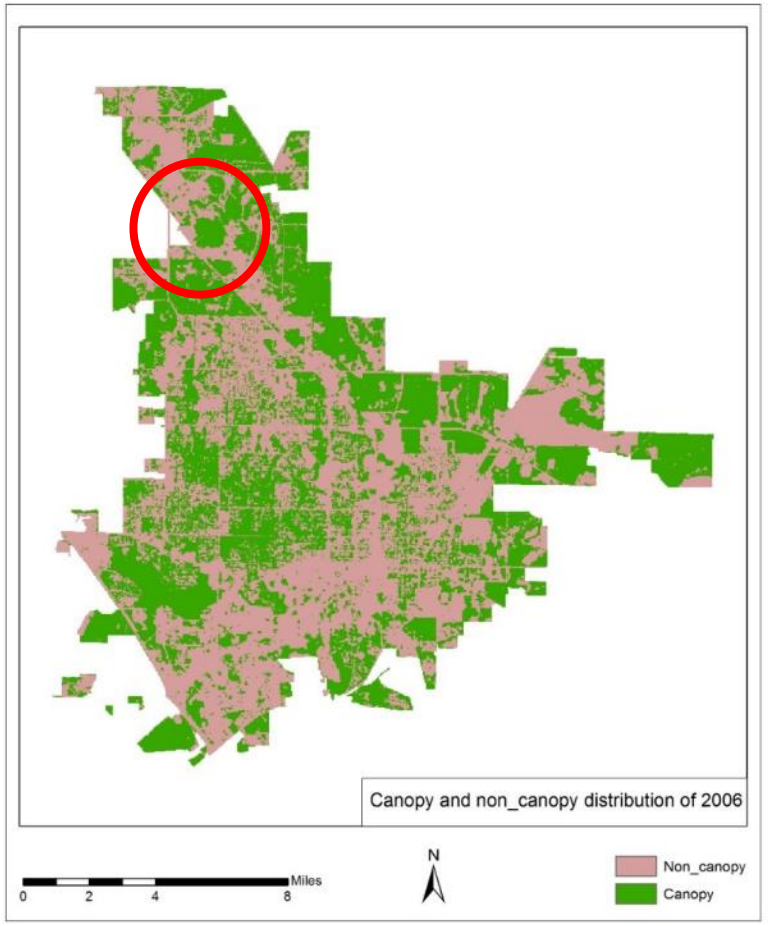


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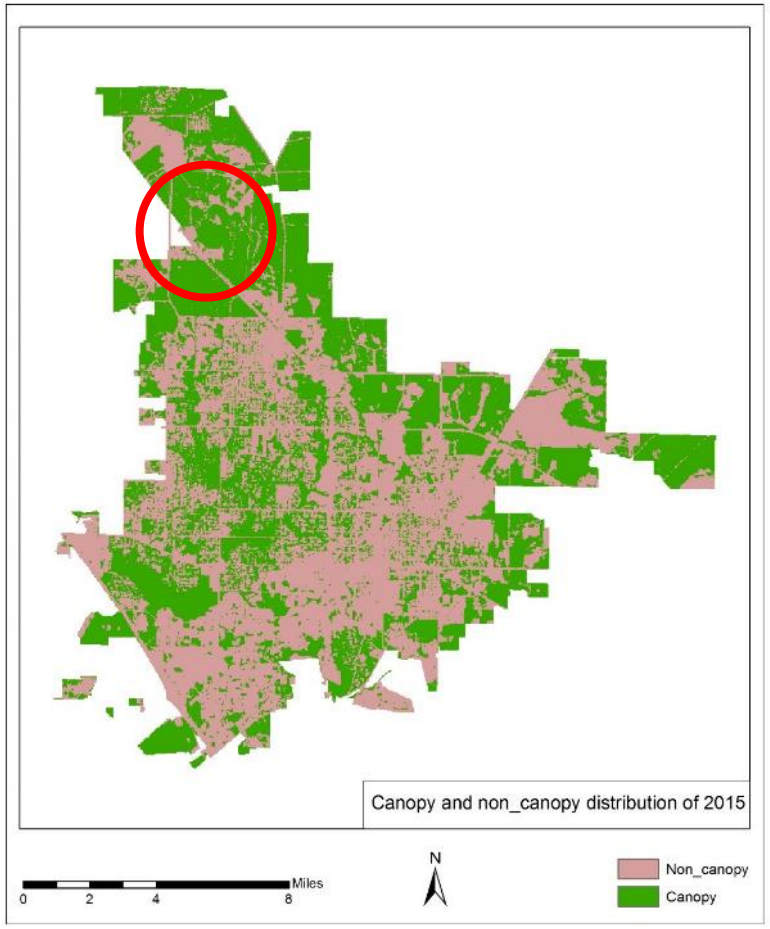


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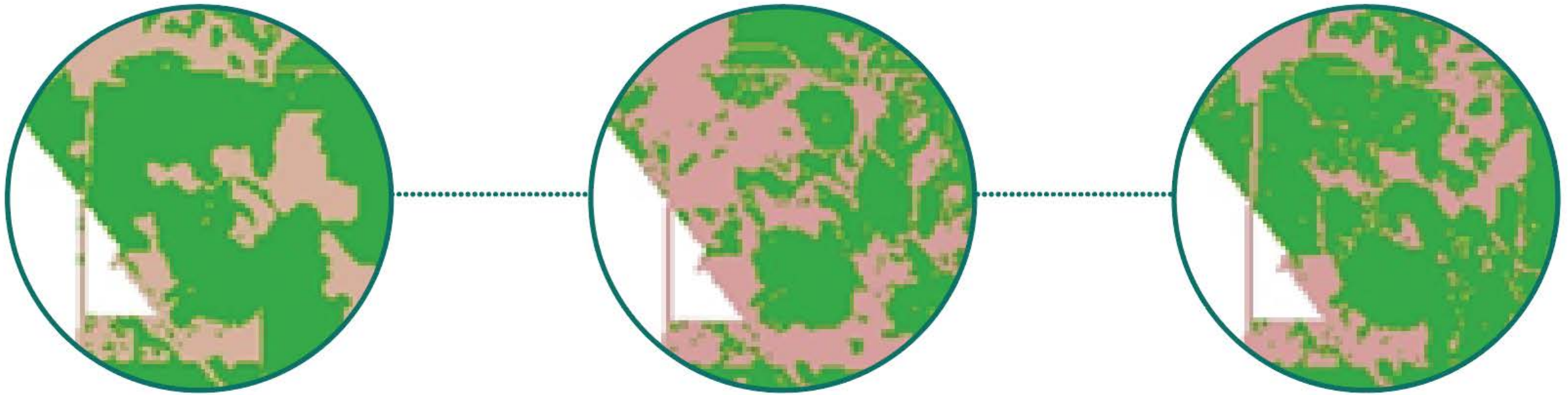

1996

2006

2015

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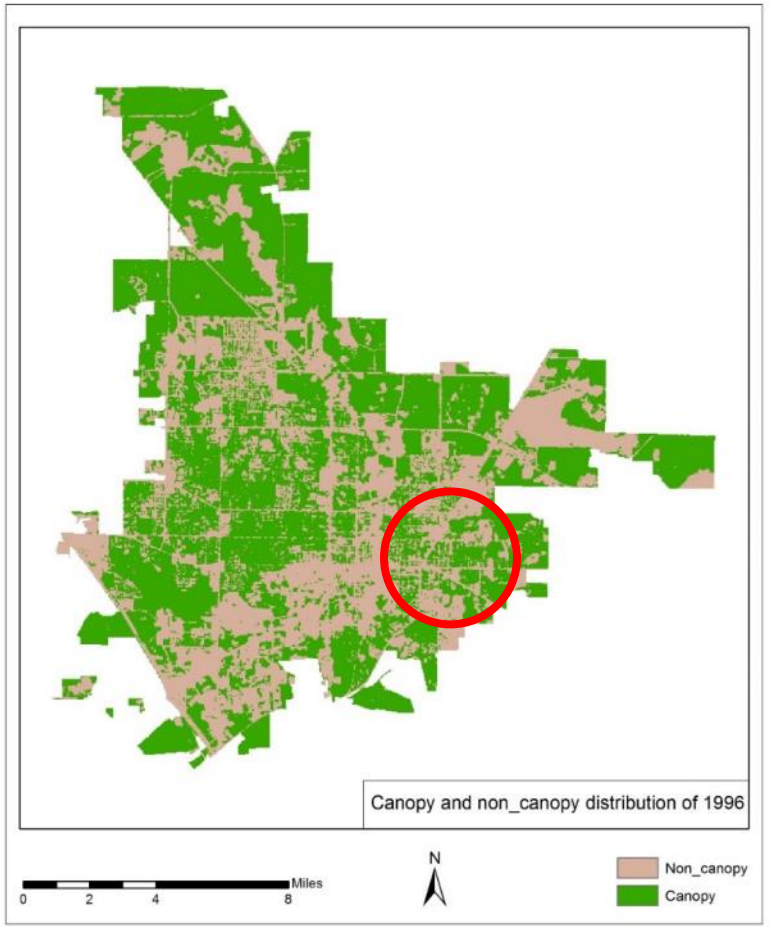


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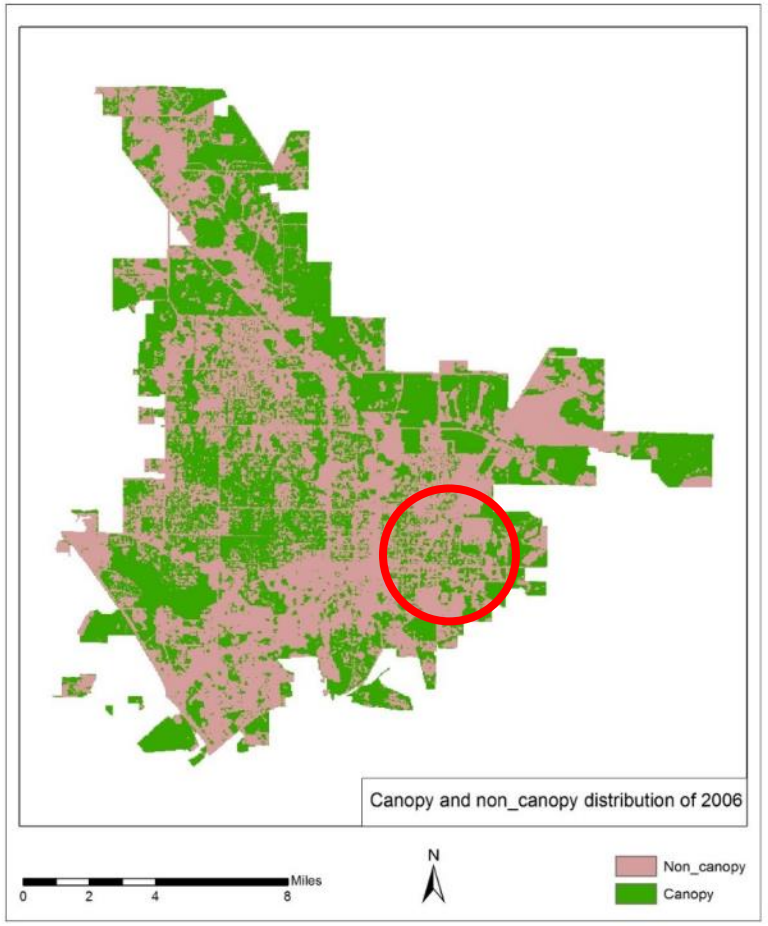


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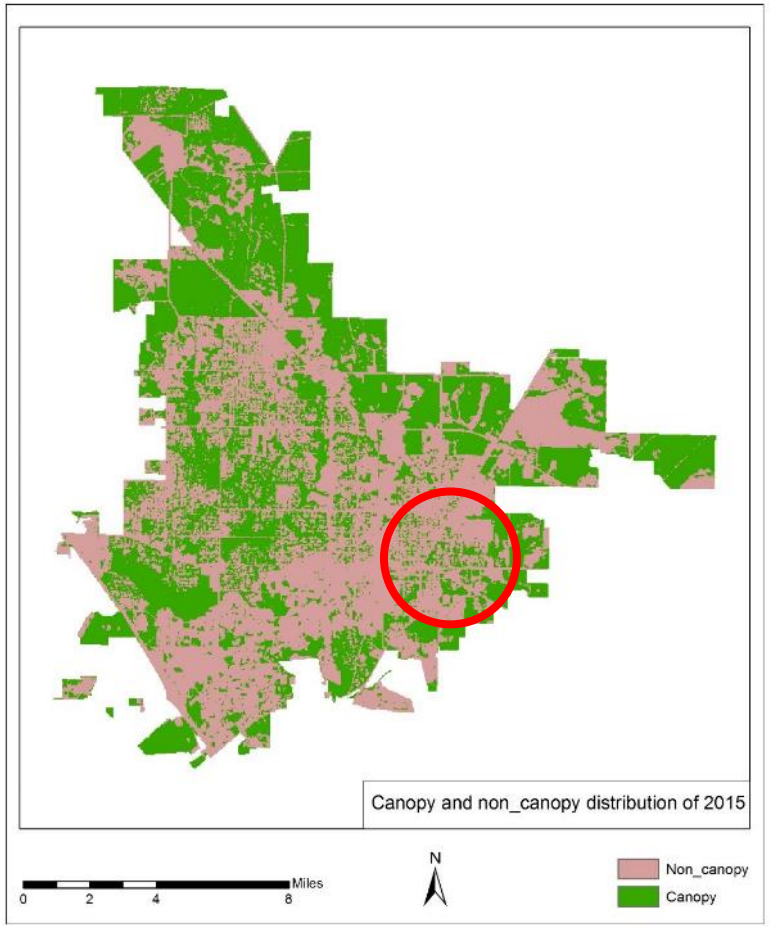


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# Results: Economic Values

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# Residential Energy Conservation
# $7.7 million/year

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# Air Pollution Removal
# $2.7 million/year

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# Avoided Stormwater Runoff
# $3.8 million/year

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# Carbon Sequestration
# $5.9 million/year

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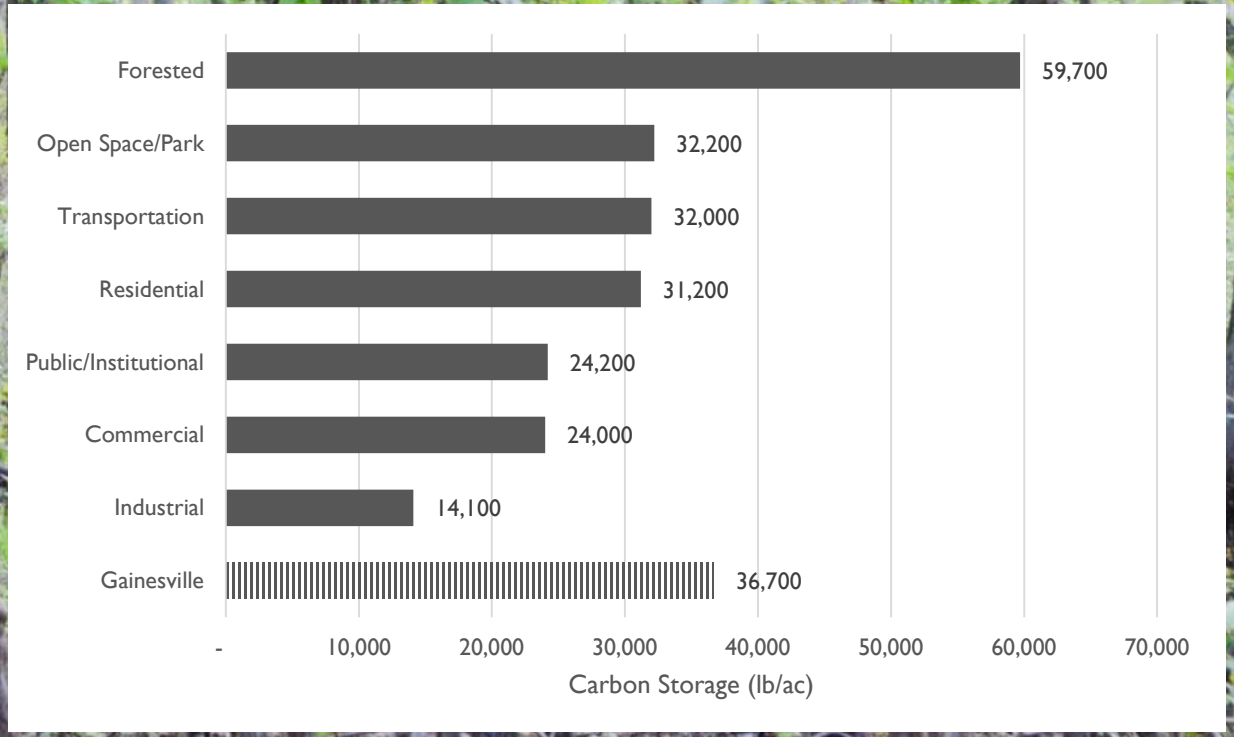
# Carbon Storage
# $99.2 million

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# Next Steps

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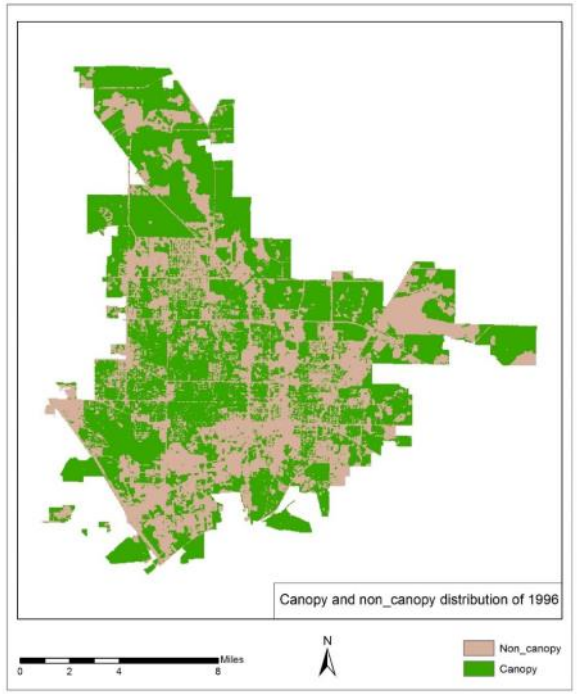


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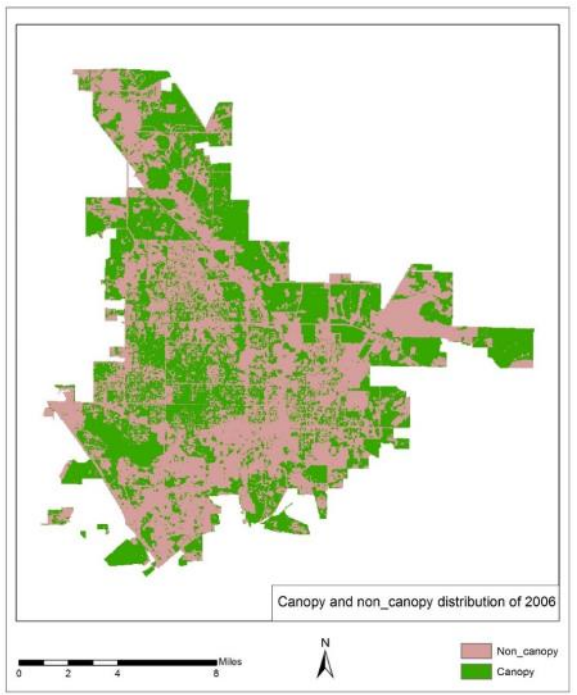


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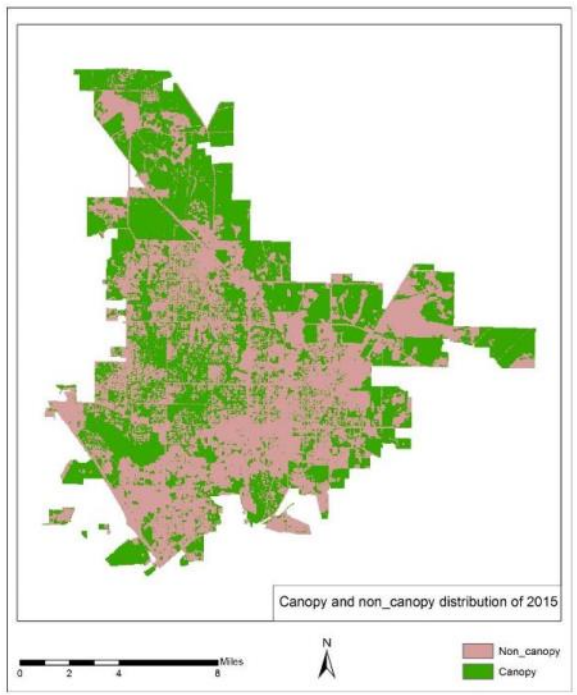


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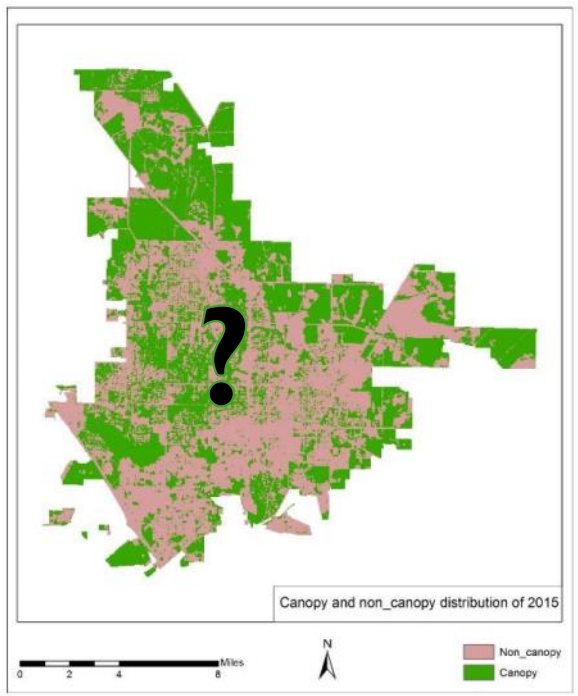


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