

# Urban Forests & Climate

**Forests are the most cost-effective tool to buffer North Carolina from the effects of climate change.**



**Extreme Weather Impacts**  
Climate change will primarily bring unpredictable weather, with hotter highs and colder lows. It also means that precipitation will be more extreme – including flash floods and droughts.

**Trees & Climate Resiliency**  
Trees are one of the most effective ways to mitigate the impacts of climate change. They absorb pollution, shade communities from heat, and physically buffer the impacts of extreme weather.

**Building a Climate-Resilient North Carolina**  
An increase in tree cover throughout the state - but especially cities - will have large benefits, reducing energy use, conserving water, and reducing greenhouse gas emissions, ensuring the region is a place families can call home for years to come.



North Carolina is home to 9.5 million people and will grow to 12.4 million in the next 20 years. Climate change will bring significant changes to the region, namely extreme weather events. By planning for these changes, North Carolina can build a resilient future.

# Using Forests to Create a Resilient State

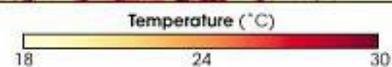
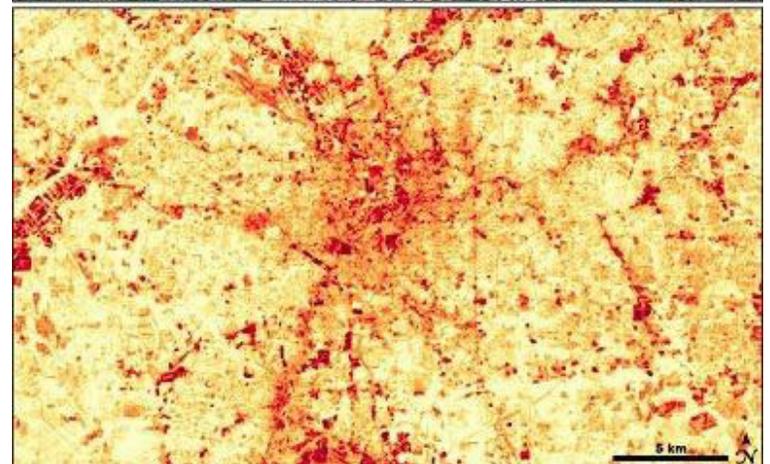
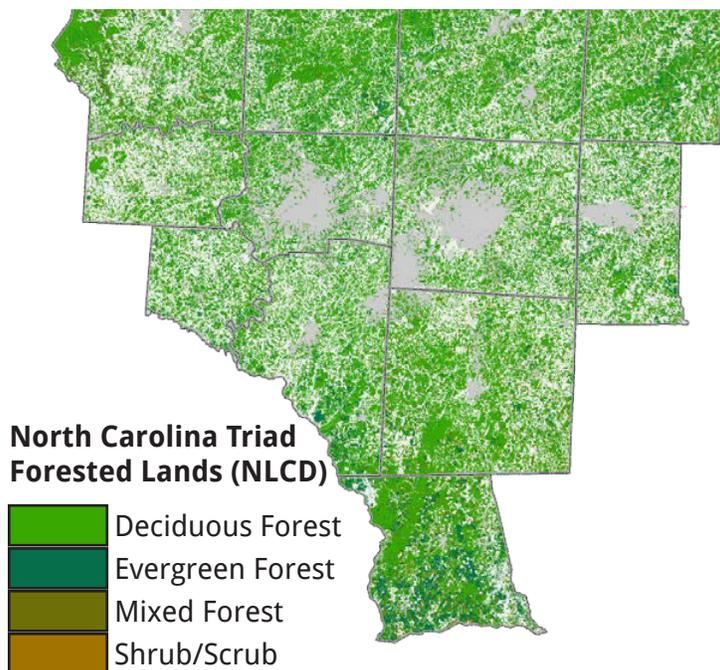
**North Carolina is growing quickly. Due to global climate change, its weather is also changing quickly. Trees are one of the most cost-effective ways to absorb these changes and ensure it is a healthy and appealing place for young families.**

North Carolina is projected to grow from about 9.5 million people in 2010 to 12.4 million in 2030. These people will all need homes and jobs that could stress our air, water, open spaces, and ecology. Market studies show that most of these new families want to move to towns and cities, straying from the historic trend in suburban lifestyles that made the state one of the most sprawling areas in the United States, consuming over 100,000 acres of land every year. This is great news for our forests and farms, but it makes the need to develop sustainable energy policies and practices imperative.

The Southeast is also going to experience many changes to local weather conditions due to global climate change. While the impacts of climate change to the region will not be as extreme as those seen in most of the world, they will establish a new normal of wetter years with drier summers and falls, more extreme and violent summer and winter storms, more regular droughts and heat waves, and less predictable seasons. These conditions will stress the

region's crops, ecosystems, and urban communities, as well as exacerbating the effects of air and water pollution.

Trees have been shown to reduce and prevent some of these impacts, absorbing water and air pollutants, providing shade cover to reduce the intensity of heat in urban centers, buffering the impacts of storms on farms and in homes, and reducing energy consumption and greenhouse gas emissions through shade cover. Through the thoughtful use of trees and forests in urban and rural communities, North Carolina can plan ahead for a future that can absorb these changes, building a resilient economic, environment, and society.



**NC'S FORESTS CONTRIBUTE NEARLY \$24 BILLION TO THE ECONOMY ANNUALLY, WITH >\$60 MILLION GENERATED EVERY YEAR IN THE TRIAD ALONE. HOWEVER, ALL OF THESE BENEFITS ARE RURAL: MOST NC TOWNS AND CITIES HAVE SLIM TO NO CANOPIES.**

**THE URBAN HEAT ISLAND EFFECT IS ONE OF THE BIGGEST HEALTH RISKS FACING URBAN RESIDENTS.**



Using shade trees to reduce energy consumption will better ensure sustainable water supplies.



Forested buffers of all sizes provide enormous value for streams and rivers.

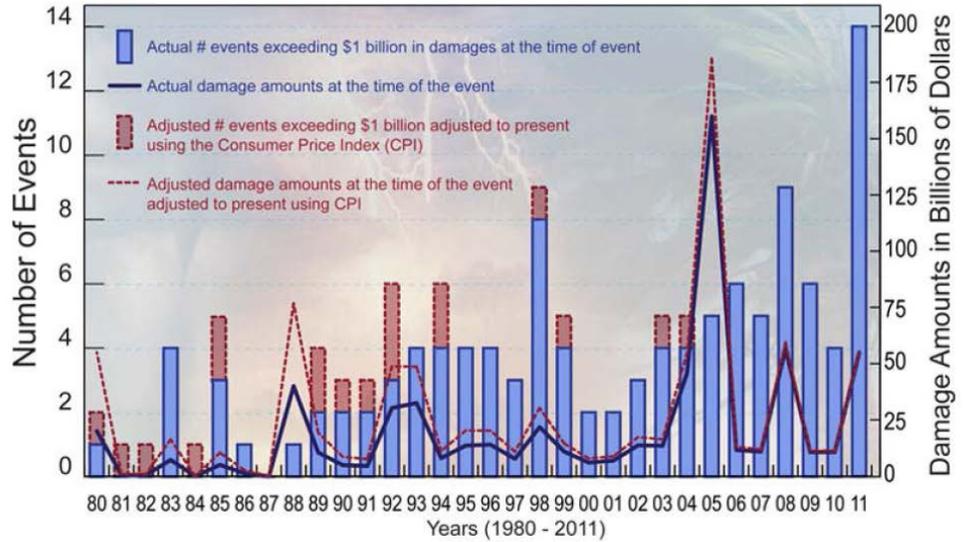


Urban trees reduce air and water pollution, as well as cool cities and increase property values. Charlotte's most valuable urban trees return \$150 in services for every \$1 spent.

## Billion Dollar Weather/Climate Disasters

1980-2011

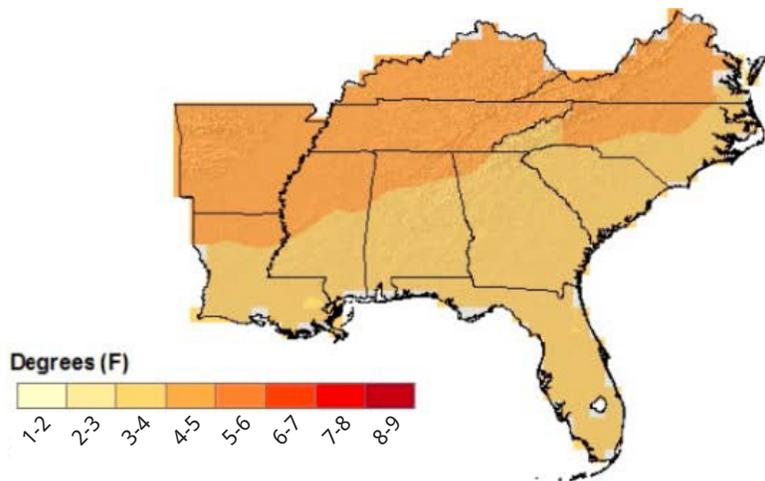
NOAA/NESDIS/NCDC



INGRAM, ET AL, 2013

Climate change will transform the North Carolina's weather. Trees already protect communities from intense weather events and can continue to do so in the future if invested in now.

## Projected Change in Annual Temperatures for US Southeast



PROJECTED INCREASE IN AVERAGE ANNUAL TEMPERATURE CHANGE, INGRAM, ET AL., 2013

The region is likely to get warmer year-round, with hotter summers and falls and fewer days with freezing temperatures. The map above shows the difference between the average annual temperature of 1971-2000 and the projected annual temperature from of 2041-2070. Increases in the frequency and severity of regional heatwaves will affect the state's quality of life, including fundamental concerns like health care costs.



## PIEDMONT together

Community Choices. Regional Solutions.

In 2011, the Piedmont Triad Regional Council and the Piedmont Authority for Regional Transportation received a \$1.6 million grant from the US Department of Housing and Urban Development. With key support from agencies such as the NCFS, they produced Piedmont Together, a sustainable communities plan for the twelve-county Triad region. It features all of the information in this booklet and more. Please visit us at: [www.piedmonttogether.org](http://www.piedmonttogether.org).

## Building a Climate Resilient North Carolina

North Carolina is growing and changing in many ways: it is getting older and more diverse with increasingly unpredictable weather. The investments we make today will impact how these weather events will change our way of life. Urban forestry practices in our rural and urban communities are one of the most cost-effective investments these communities can make. We can shade our homes and business, reducing energy use and lowering bills; have street trees that add to property values and absorb water and air pollutants; mitigate weather events such as ice storms and flash floods; and provide rural communities with

economic engines in ecotourism and forest products like biofuels. Perhaps the most effective investment is using local ordinances to protect existing trees and incentivize new tree plantings.

### Top Recommendations:

- Create local ordinances that protect and incentivize trees for new development.
- Address air and water quality issues with forest canopies of at least 40% in every North Carolina town and city.



PIEDMONT TRIAD  
REGIONAL COUNCIL

Funding for this project was provided in part through the Urban & Community Forestry Program of the North Carolina Forest Service, Department of Agriculture and Consumer Services, in cooperation with the USDA Forest Service, Southern Region.

*The North Carolina Forest Service is an equal opportunity employer. Its programs, activities and employment practices are available to all people regardless of race, color, religion, sex, age, national origin, disabilities, or political affiliation.*