

CHAPTER 7: FORESTRY LANDS ASSESSMENT

Introduction

“North Carolina’s Forest Resources Assessment: a statewide analysis of the past, current and projected future conditions of North Carolina’s forest resources,” also known as the [Forest Action Plan](#), was completed in 2010 by the North Carolina Forest Service and partners.

- The forest resource assessment and accompanying strategic plan and priority maps constitute a coordinated plan for moving North Carolina forests into the future.
- The priority landscape and program maps supplement the document by illustrating areas within the state that will best be served by the strategic efforts detailed in the plan.
- The maps reflect the conservation, protection and enhancement themes that were the focus of the assessment document and federal directives.
- The priority landscape and program maps were developed to educate and inform stakeholders about forest resources and to assist resource professionals with focused implementation of plan goals, strategies and objectives..

The seven goals identified for North Carolina are:

Goal 1: Increase the sustainable management and conservation of forest lands in NC.

Goal 2: Reduce negative impacts from forest threats.

Goal 3: Increase the restoration, maintenance, and management of fire adapted species and ecosystems.)

Goal 4: Maintain or increase the viability and sustainability of existing and emerging markets.

Goal 5: Increase and enhance fish and wildlife habitat on North Carolina’s forests

Goal 6: Manage, conserve, restore, and enhance forestlands important to current and future supplies of clean water for economic, social, and ecological uses.

Goal 7: Enhance the benefits and sustainable management of urban forests.

The complete assessment report is available at: <http://www.ncforestassessment.com/>

Forest Action Plan Priority Layers, Maps, and Viewer

The attached excerpt from the full assessment, “Priority Map Development,” provides an overview of the development and recommended use of the Forest Action Plan Priority Layers. See Figure 1b-1 shows data input layers that were used to construct these priority maps. Figure 1b-2 through 1b-7 show each of the priority maps, which are listed below:

Programmatic Priority Maps

- Conserving Working Forest Lands
- Protecting Forests and Communities from Wildfire Risk
- Threats to Forest Health
- Maintaining Viable Urban Forests

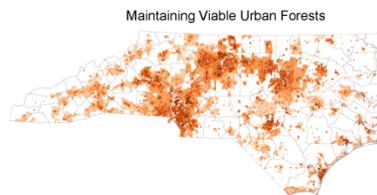
Priority Landscape Maps

- Rural Forest Priority Landscapes
- Urban Forest Priority Landscapes

NCFS has developed an online map viewer to display six thematic analyses to show statewide forest resource priorities. To access the Forest Action Plan Priority Layers map viewer, go to <http://www.ncmhtd.com/ForestActionPlanPriorityLayers/>.

Data used to develop these maps are also available at NC One Map <http://www.nconemap.org/>. Click on Geospatial portal and enter the name of the dataset (as listed above) in the Search box.

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Priority Map Development

Mapping Rationale

The identification of urban and rural priority areas is a requirement of all statewide assessments of forest resources, as specified in the S&PF Redesign guidance developed by the USDA Forest Service:

“State forest resource assessments will identify, describe, and spatially define forest landscape areas where forestry program outreach and activity will be emphasized and coordinated. Establishment of these priority areas is intended to (1) enable the efficient, strategic, and focused use of limited program resources; (2) address current state and national resource management priorities; and (3) produce the most benefit in terms of critical forest resource values and public benefits. This component of a state’s assessment should be geospatially based.”

Mapped priority areas provide a method for focusing on areas where federal investment can most effectively stimulate or leverage desired action and engage multiple partners. Mapping must enable the discovery of multistate areas in which collaboration can lead to stronger outcomes.

Accomplishments using federal funds may be evaluated against priority areas to determine the effectiveness of S&PF program implementation.

Mapping Approach

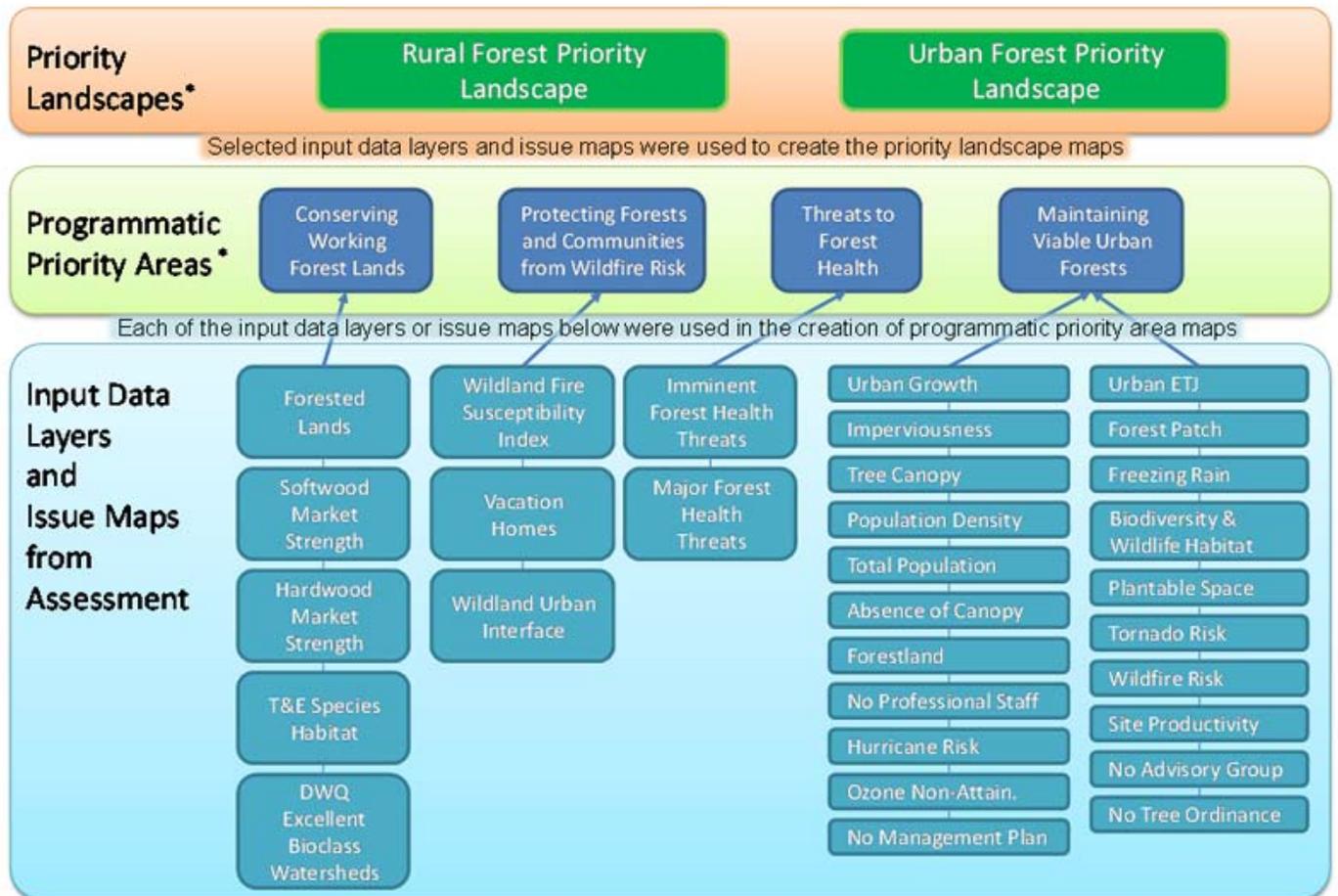
Two sets of priority maps were developed for North Carolina. The first set (1) shows areas of specific emphasis in North Carolina according to themes identified during the

assessment process and (2) aligns with programmatic funding available from USDA Forest Service S&PF. These maps show areas of emphasis for these assessment themes: Conserving Working Forestlands, Protecting Forests and Communities from Wildfire Risk, Threats to Forest Health, and Maintaining Viable Urban Forests. The second set of maps shows overall urban and rural forest priority landscapes.

Each map is the result of overlay analysis, which is achieved by adding data layers with particular relevance to the map topic. Wherever possible, the input layers were straightforward datasets rather than complex models; this results in maps that are easier to interpret. Input layers were chosen based on their importance in the assessment and their ability to clearly represent a component of interest. The rural and urban landscape priority maps are not simple stacks of the thematic priority maps, but are the result of a separate consideration of layers relevant to urban and rural forested landscapes. FIGURE 1b-1 shows the relationships between each priority map and the data layers that were used for creating the map. Layer weights, if used, are noted in the bottom right corner of the layer’s box.

Wherever possible, existing datasets were used, including datasets developed for the Forest Stewardship Spatial Analysis Project, Forest Legacy Assessment of Need, and *NC Wildlife Action Plan*. North Carolina has several statewide datasets surpassing anything available at a national level that were incorporated as part of the mapping process, including the NCDENR One NC Naturally project and NC Natural Heritage

FIGURE 1b-1. Relationship between the *Statewide Forest Resource Assessment*, the goals/objectives/strategies, and the priority maps.



* For details on input layers and weighting (if any), see the individual maps. Further details can also be found in the mapping and GIS analysis appendix.

Program database. Certain other environmental and social factors, such as cultural resources, demographic data, poverty, public health, recreation, and air quality were included as needed. Certainly, there are datasets that could benefit from improvement, and there are datasets that do not exist at the extent and scale necessary for use in a comprehensive assessment. Where these data gaps were encountered, they were documented to help focus future data development work at the state, regional, and national level.

Programmatic Maps

Conserving Working Forest Lands (FIGURE 1b-2)

The Conserving Working Forest Lands map shows areas of North Carolina that should be targeted to prevent the loss of working forestlands from development and conversion to other nonforestry uses. These lands have high values for connectivity with other forestlands, water quality protection in existing high-quality waters, habitat for wildlife, and strong markets for hardwood and softwood products. The final component in the map is development risk. With active and informed forest management, these

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lands can provide economic and ecosystem benefits; in the absence of involved and informed management, they are at higher risk of succumbing to development pressure.

Protecting Forests and Communities from Wildfire Risk (FIGURE 1b-3)

The Protecting Forests and Communities from Wildfire Risk map shows areas of North Carolina where wildfire mitigation and preparedness efforts can reduce loss of life and property, and prevent degradation of the forest resource due to intense fires typical of southern forests. These lands rank high for wildfire susceptibility in the Southern Wildfire Risk Assessment System (ArcGIS software). Many of these areas are considered to be within the wildland-urban interface, and many are owned by individuals who may be unfamiliar with the role of fire in southern forests and firewise building principles.

Threats to Forest Health

(FIGURE 1b-4)

The Forest Health Priority map shows areas of North Carolina currently at a moderate to high risk of damage from insects and diseases, both native and/or established and imminent invasive threats. The specific pests used to develop this map are as follows: southern pine beetle, littleleaf disease, annosus root rot, fusiform rust, hemlock woolly adelgid, balsam woolly adelgid, beech bark disease, redbay ambrosia beetle–laurel wilt, emerald ash borer, Asian longhorned beetle, and sirex woodwasp. As the map shows, both rural and urban landscapes across the state will likely see negative impacts from these pests. Although climate change is an important factor in modeling future impacts to forest health, much of the data is very coarse and was consequently left out of this analysis.

Maintaining Viable Urban Forests

(FIGURE 1b-5)

The Maintaining Viable Urban Forests map shows areas of North Carolina that are essential for restoring, conserving, and maintaining healthy urban trees and forests. These lands are experiencing rapid urbanization, increased amounts of impervious surface, and a higher number of catastrophic storm events, while also having tree canopy potential to offset the negative impacts of land-use change. These urban forestlands also have high values for energy conservation and improved air quality. Many municipalities within the priority areas manage their urban forests with limited resources and lack one or more of the components necessary for a sustained community forestry program. Coordinated planning and management of urban forests across jurisdictional boundaries will require new partnerships and initiatives at municipal, county, and statewide levels.

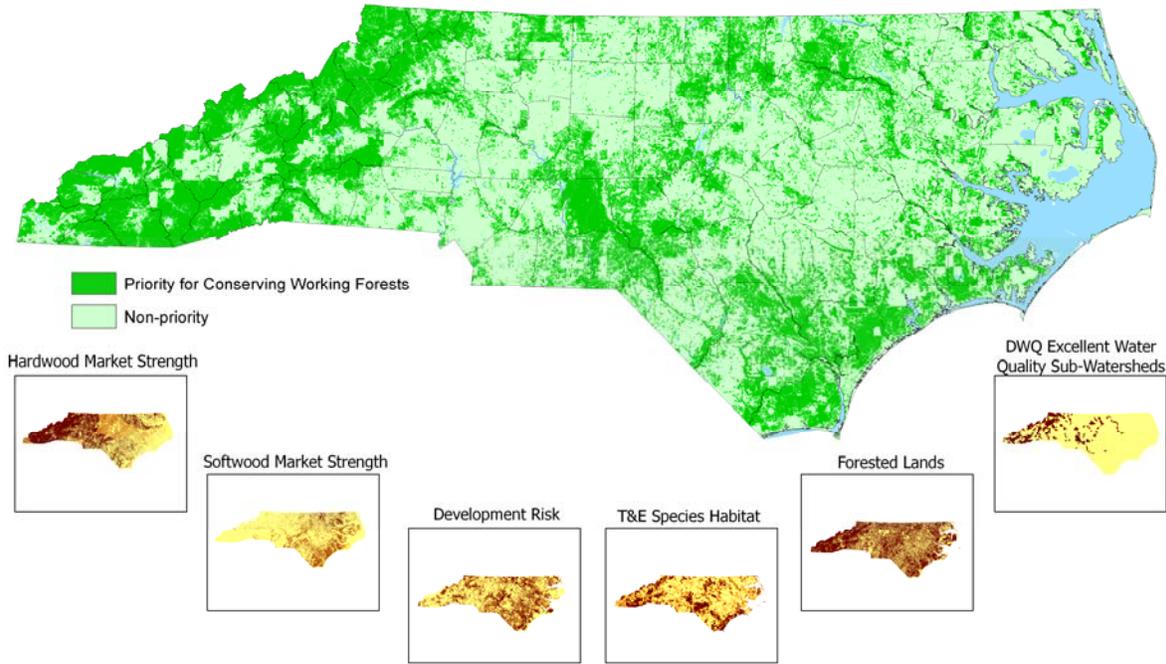
Landscape Maps

Rural Forest Priority Landscapes

(FIGURE 1b-6)

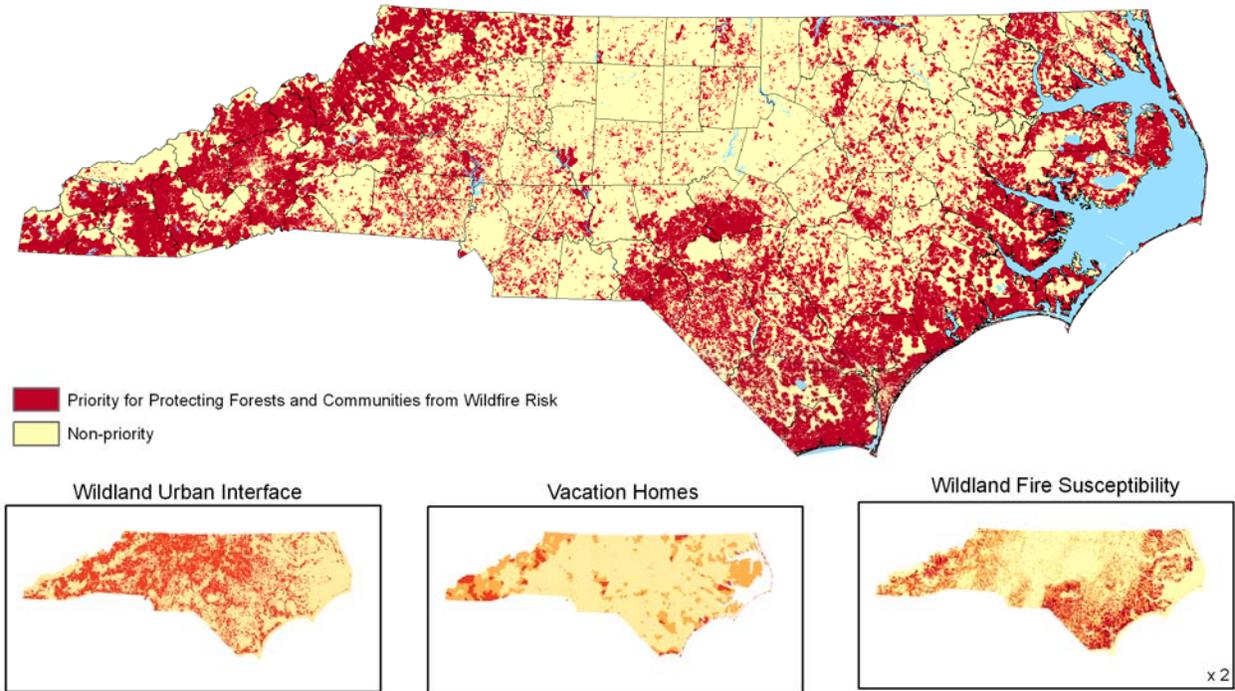
The “Rural Forest Priority Landscapes” map shows areas of North Carolina where forestry is an especially significant part of the rural landscape. Forestlands in these areas provide valuable benefits, such as the protection of critical water quality resources, wildlife habitat for threatened and endangered species, and viable economic options for landowners. Threats to forest health and productivity through insect and disease pests and wildfire are especially significant in these areas. Threats here have the potential to disrupt ecological systems depended upon by all NC inhabitants. Much of the priority rural forest acreage is in the NC coastal plain and mountains, though significant priority area exists in the Uwharrie Mountains, sandhills, and “northern tier” areas of the piedmont.

FIGURE 1b-2. Conserving Working Forestlands map.



Created by: A. Bailey, NC DFR, 2010

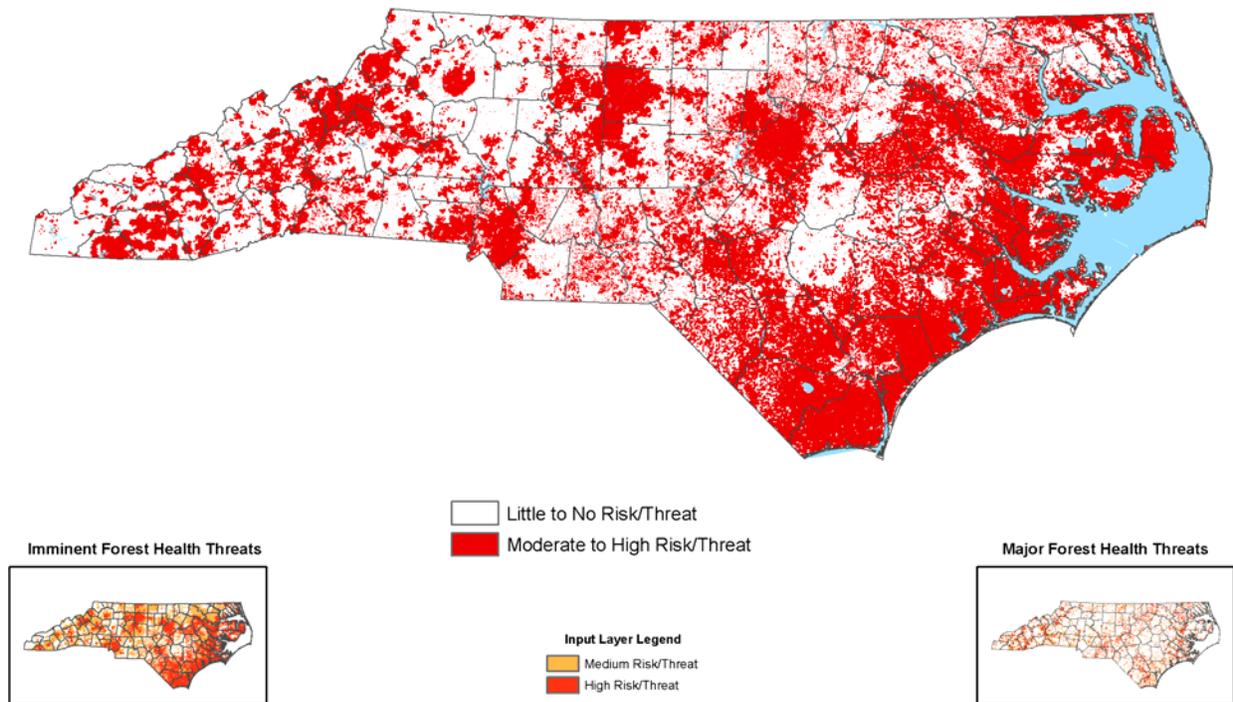
FIGURE 1b-3. Protecting Forests and Communities from Wildfire Risk map.



Created by: A. Bailey, NC DFR, 2010

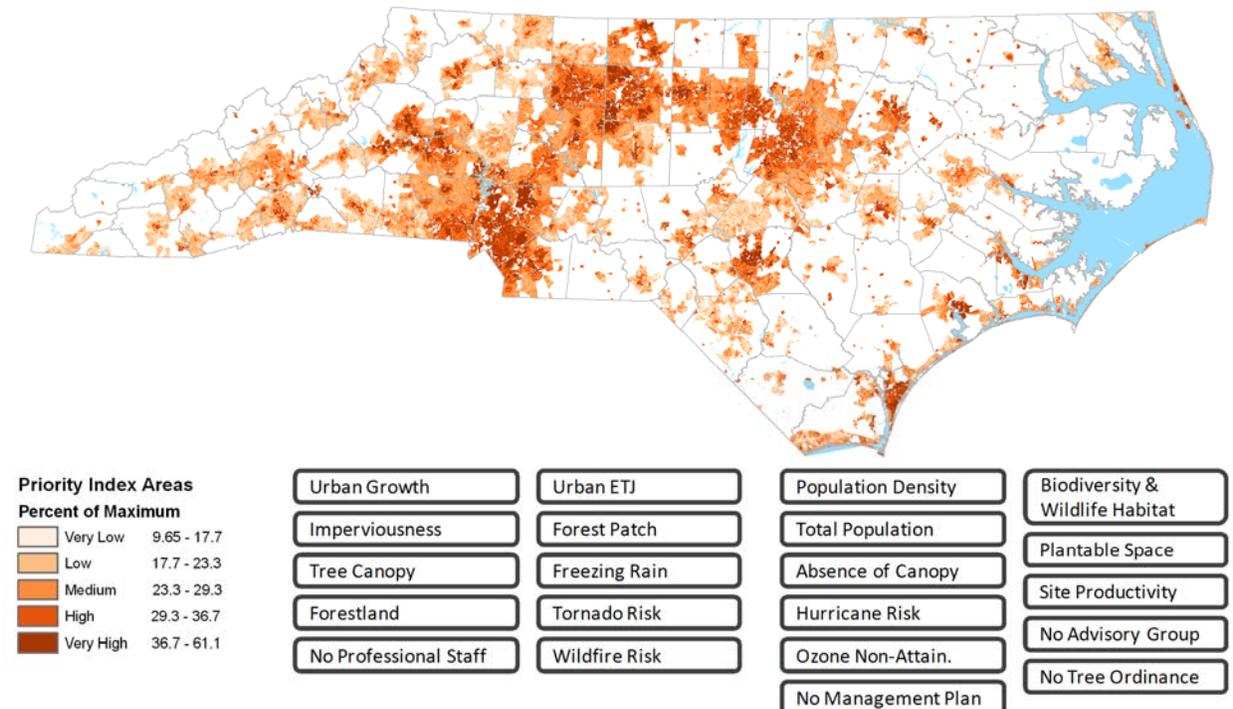
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FIGURE 1b-4. Forest Health Priority map.



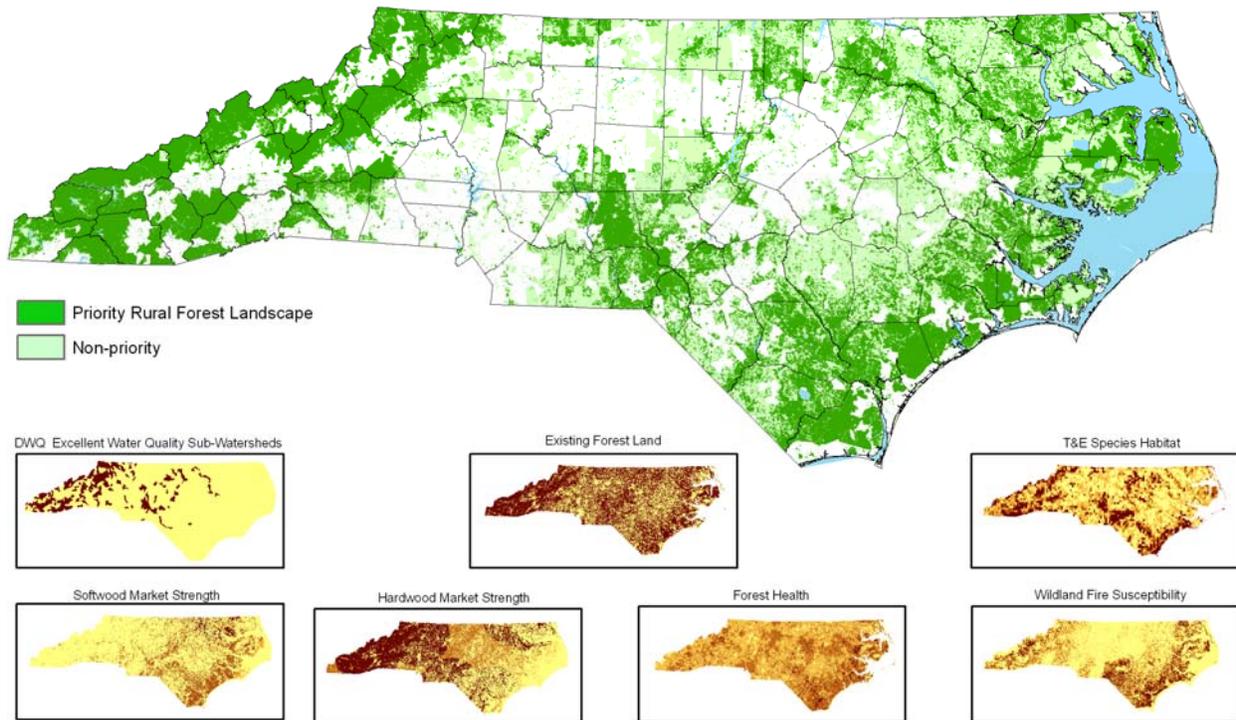
Created by: J Moan, NC DFR, 2010

FIGURE 1b-5. Maintaining Viable Urban Forests map.



Created by: A. Bailey, NC DFR, 2010

FIGURE 1b-6. Rural Forest Priority Landscapes map.



Created by: A. Bailey, NC DFR, 2010

Urban Forest Landscape Priority
(FIGURE 1b-7)

The Urban Forest Landscape Priority map complements the Maintaining Viable Urban Forests map (FIGURE 1b-5) by adding layers from these maps that have an urban component: Conserving Working Forestlands (FIGURE 1b-2), Protecting Forests and Communities from Wildfire Risk (FIGURE 1b-3), and Forest Health Priority (FIGURE 1b-4). Wildland-urban interface areas have inherent urban components, and many of these areas need intervention to reduce wildfire risk. Improving water quality is a commonly cited reason for maintaining urban tree canopy. Forest insects and diseases spread regardless of what is urban forest and what is rural; indeed, many invasive pests become established first in urban areas due to the easy movement afforded by dense

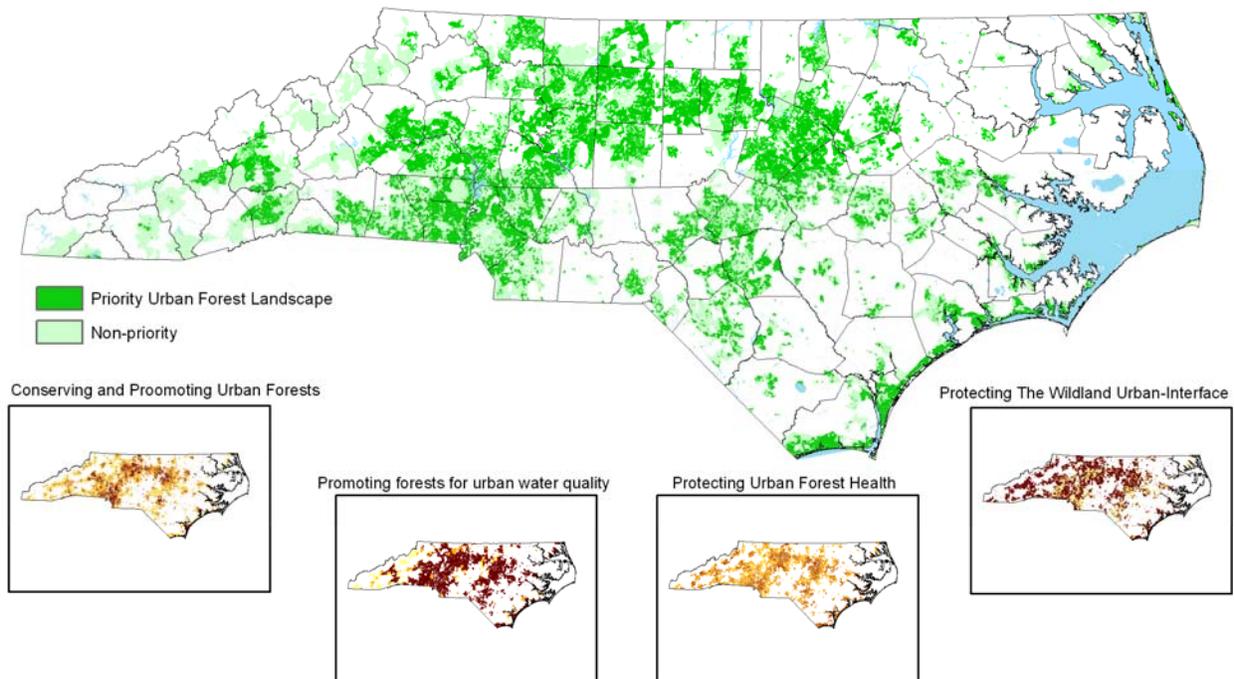
transportation networks. Much of the forestland delineated as priority in this map are tracts of less than 14 acres. Parcelization and fragmentation are issues that must be addressed to effectively manage these forests.

How Priority Maps Can Be Used

These maps were developed to meet the needs of the NC statewide assessment of forest resources, to facilitate the effective implementation of the USDA Forest Service S&PF programs, and to provide a foundation for interagency partnerships. Priority areas are expected to be used for accomplishment reporting between the NC Division of Forest Resources and the USDA Forest Service, as well as for the formation of multistate partnerships to pursue funding. Priority areas provide a way to tell the story of forests in North Carolina, to educate and

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FIGURE 1b-7. Urban Forest Priority Landscapes map.



Created by: A. Bailey, NC DFR, 2010

inform, and to build constituencies to effect positive change. Priority areas are not intended to restrict the delivery of certain programs or to exclude citizens from state-provided services. Certain functions, such as firefighting and response to insect and disease outbreaks, do not lend themselves to prioritization—imminent threats to life and property will always take precedent. The delivery of forestry programs and services will ideally strike a balance between activities conducted in priority areas and maintaining program access to all citizens of the state.

Wherever possible, existing datasets were used, including datasets developed for the Forest Stewardship Spatial Analysis Project, Forest Legacy Assessment of Need, and *NC Wildlife Action Plan*. North Carolina has several statewide datasets surpassing anything available at a national level that were incorporated as part of the mapping

process, including the NC DENR One NC Naturally project and NC Natural Heritage Program database. Certain other environmental and social factors, such as cultural resources, demographic data, poverty, public health, recreation, and air quality were included as needed. Certainly, there are datasets that could benefit from improvement, and there are datasets that do not exist at the extent and scale necessary for use in a comprehensive assessment. Where these data gaps were encountered, they were documented to help focus future data development work at the state, regional, and national levels. Further explanation of the GIS process and data sources used in development of the maps can be found in the Appendix B.