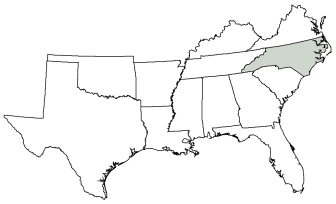
Forest Health Monitoring
Southern Regional Program

Fact Sheet Series

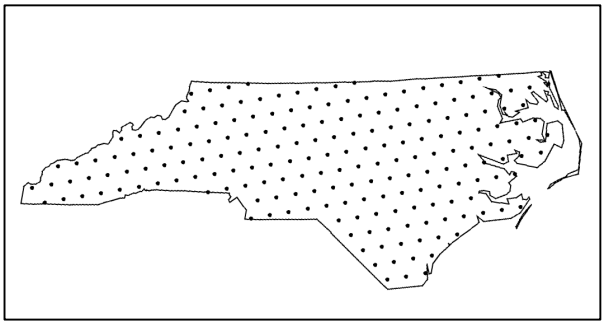
North Carolina (1998)



Sampled Forest Conditions

North Carolina has 19.3 million acres of forest land (based on the most recent inventory data from the 1990 survey). Healthy forests are important to the citizens of North Carolina.

Forest Health Monitoring Sites, 1998



Sampled Year	Number of Sites
● 1998	196
○ Previous	0

Land Use	%
Forested	58
Non-forested	42

The first year for Forest Health Monitoring in North Carolina was 1998. During the first year of implementation all plots are installed in a state (see above). The distribution of the plots by various descriptors of forest stands is listed below.

How Forest Stands are Distributed

Forest Type Groups	%
Loblolly-Shortleaf Pine	22
Longleaf-Slash Pine	2
All Softwood Types	**24**
Oak-Pine Types	**12**
Oak-Hickory	34
Oak-Gum-Cypress	9
Other Hardwood Types	21
All Hardwood Types	**64**

Origin	%
Natural	88
Planted	12

Age (years)	%
0-20	21
21-40	30
41-60	21
60+	28

Oak type groups (Oak-Pine, Oak-Hickory, and Oak-Gum-Cypress) accounted for greater than 50% of the forest type groups in the state. The age class distribution was relatively evenly distributed throughout the state. Planted stands accounted for only 12% of all stands within the state.

Although forest type groups with softwoods as a major component only accounted for 36% of the forest types, loblolly pine was the most abundant sapling, live tree (≥ 5.0 in. in diameter), and dead tree in North Carolina.

How Trees Rank in Abundance

Tree Species	Seed-lings	Sap-lings	Live Trees	Dead Trees	Cut Trees
	----------	----------	*rank*	----------	----------
Eastern White Pine	*	*	9	*	---
Loblolly Pine	*	**1**	**1**	**1**	---
Redcedars	*	*	*	10	---
Shortleaf Pine	*	*	*	**3**	---
Virginia Pine	*	**4**	7	**2**	---
American Holly	9	*	*	*	---
Ashes	*	*	10	*	---
Birches	*	*	*	9	---
Blackgum	6	7	*	6	---
Elms	*	*	*	7	---
Flowering Dogwood	7	8	*	*	---
Hickories	8	9	8	*	---
Oaks, Red	**2**	6	**2**	8	---
Oaks, White	**3**	10	**3**	**4**	---
Red Maple	**1**	**2**	**4**	*	---
Sourwood	10	*	*	*	---
Sweetgum	**4**	**3**	**5**	**5**	---
Yellow-poplar	**5**	**5**	6	*	---

* Not among the top ten species.

Cut trees can not be determined until a second measurement (after the 1999 field season). Red and white oaks were numbers two and three for live trees, respectively, which is expected due the large proportion of oak forest type groups in the state. The high abundance for red maple is primarily due to its high shade tolerance, absence of any major insect or disease pests, and low cutting rate due to its low timber value. The high abundance of dead elms is partially due to the presence of Dutch elm disease which killed many of the

American elms in North Carolina in the 1960's.

Crown Conditions of Living Trees

Selected Tree Species *	Crown Dieback	Crown Density	Foliage Trans-parency
	percent of trees in poor condition		
Eastern White Pine	0.0	3.5	6.9
Loblolly Pine	0.8	1.1	3.7
Virginia Pine	0.0	2.5	17.5
Ashes	1.2	6.2	13.6
Hickories	0.0	1.1	1.1
Oaks, Red	2.4	2.9	6.7
Oaks, White	0.6	0.6	2.9
Red Maple	1.3	2.6	7.0
Sweetgum	4.1	7.0	4.1
Yellow-poplar	0.8	0.8	0.8

* Species among the top ten in abundance of live trees.

Crown dieback was generally good across the state with Sweetgum having the highest proportion of tree in the poor dieback class. Virginia pine and ashes had the highest percent of the sample in the poor foliage transparency class, which is generally indicative of reduced foliar biomass. Loblolly pine, yellow-poplar, and hickories generally had the lowest percent of the sample in the poor crown condition classes.

Frequency of Damage on Living Trees

Selected Tree Species *	Trees with any Damage	Most Frequently Observed Damage	
	percent	*type*	*percent*
Eastern White Pine	6.9	Cracks/seams	1.7
Loblolly Pine	6.9	Vines in crown	3.5
Virginia Pine	15.6	Cankers	8.1
Ashes	16.1	Decay	6.2
Hickories	13.3	Decay	8.9
Oaks, Red	17.7	Decay	8.1
Oaks, White	16.5	Decay	5.3
Red Maple	23.8	Decay	16.3
Sweetgum	16.4	Decay	6.4
Yellow-poplar	15.5	Vines in crown	4.9

* Species among the top ten in abundance of live trees.

Eastern white pine and loblolly pine had the lowest percentage of the sample with any recordable damage; while red maple had the highest. Generally, decay was the most common damage in hardwoods and this is expected due the many decay causing organisms that impact hardwood tree species.

Forest Influences

Insect Pests and Diseases

A very wide range of stressors significantly affected North Carolina's forests in 1998. Losses by oak decline, *Ips* engraver beetles, and black turpentine were triggered and compounded by severe drought conditions, especially in the mountains. Southern pine beetle infested ten counties, but only one was epidemic (Onslow). Fall cankerworm defoliated thousands of acres in the mountains and the Charlotte area, while forest tent caterpillar defoliated 11,800 acres in eastern North Carolina along the Roanoke River. Balsam woolly adelgid intensified in the high mountains, while its cousin the hemlock woolly adelgid now infests five North Carolina counties.

An isolated gypsy moth infestation continued around the town of Highlands in the west. Beech bark disease now occurs in two western counties and butternut canker is found in eleven. Fusiform rust infects some 956,200 acres, and littleleaf disease continues as a major problem in the Piedmont. Pitch canker shows dramatic increases where sewerage or animal waste has been applied as fertilizer. Fifteen new oak wilt disease centers were confirmed in the mountains. Dogwood anthracnose infects twenty-nine North Carolina counties.

Additional Information

For more information on forest conditions in North Carolina or Forest Health Monitoring, please contact:

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