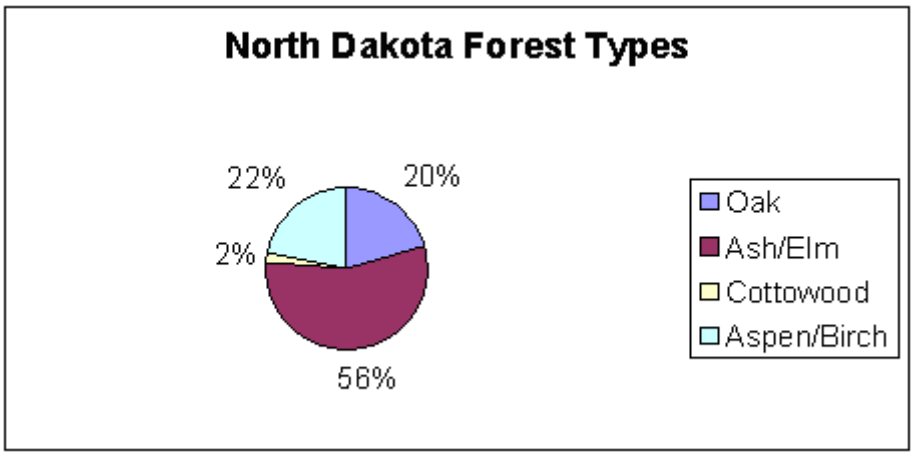
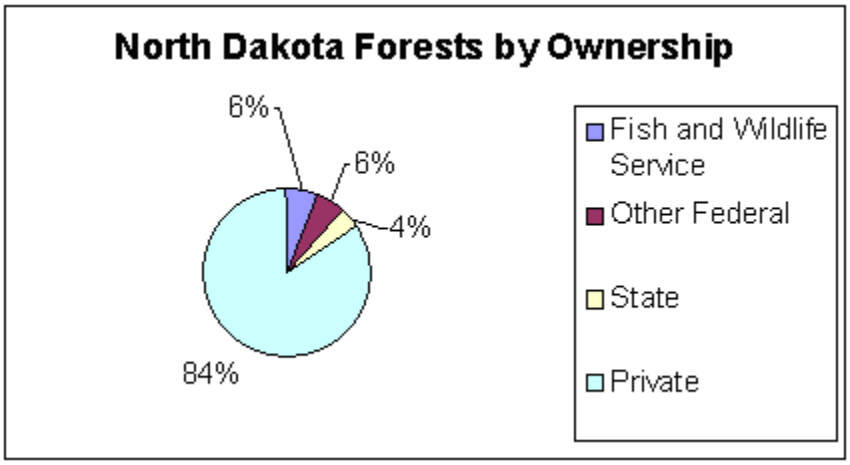
2004 North Dakota Forest Health Highlights

The Forest Resource

Despite their limited size and sparse distribution, native forests are an extremely valuable resource in North Dakota. Deciduous forests along riparian corridors in the eastern half of the state represent the majority of North Dakota's forests. Dominant species within these bottomland forests include Green ash (*Fraxinus pennsylvannica*), Box elder (*Acer negundo*) and American elm (*Ulmus americana*). Stands of Aspen (*Populus tremuloides*) and Bur oak (*Quercus macrocarpa*) can be found in the Turtle Mountains and the north east corner of the state. The western half of the state is characterized by Cottonwood (*Populus deltoides*) forests along the Missouri river and pockets of Ponderosa pine (*Pinus ponderosa*) and Rocky mountain juniper (*Juniperus scopulorum*) in the southwest.



North Dakota Forest Types	Acreage
Ponderosa Pine/Juniper	1,310
Oak	148,719
Ash/Elm	405,342
Cottonwood	14,859
Aspen/Birch	159,148
Total acres	**729,378**



In addition to native forests, conservation plantings such as windbreaks, riparian buffer strips, and living snow fences contribute substantial wooded acreage. These plantings are critical for controlling wind erosion, reducing water loss on agriculture lands, distributing snow in winter months, and providing thermal cover for livestock and wildlife. Commonly used species of rural plantings include: Green Ash, Spruce, Ponderosa Pine, and Hybrid Poplar.

Special Issues

Riparian Forest Health

Bottomland forests consisting of American elm (*Ulmus americana*) and green ash (*Fraxinus pennsylvannica*) in eastern North Dakota and cottonwood (*Populus deltoides*) forests in the west represent a large portion of North Dakota's native forests.

Eastern bottomland forests have been severely impacted by Dutch elm disease. This disease has eliminated many of the once abundant American elms that naturally occurred in these forests and has shifted the species composition toward green ash (*Fraxinus pennsylvannica*) and boxelder (*Acer negundo*). This disease is of particular concern because of the American elm's status as the state tree.

The decline of cottonwood forests along the Missouri River can be attributed to the absence of regeneration and the gradual senescence of mature over story trees. Additionally, encroachment of species such as Russian olive (*Elaeagnus angustifolia*), Buckthorn (*Rhammus* sp.) and brome grass (*Bromus* sp.) has altered these forest communities.

Aspen Health

Aspen forests in northern North Dakota are in a general state of poor health. Lack of fire disturbance and/or harvesting has resulted in older stands with minimal natural regeneration. The current condition is characterized by extensive stem decay caused by *Phellinus tremulae* and large stem mortality caused by Hypoxylon canker (*Hypoxylon mammatum*). In addition, defoliating insects contribute to the overall senescence of these forests. The declining aspen over story may succeed to hazel (*Corylus* sp) shrub land in part due the absence of shade tolerant conifers in North Dakota.

Damaging Forest Insect, Diseases, and Events

Gypsy Moth - *Lymantria dispar* (non-native)

The North Dakota Forest Service, North Dakota Department of Agriculture, and APHIS conduct annual statewide gypsy moth detection trapping surveys. There were 363 gypsy moth detection traps placed in 2004. These traps were distributed throughout the state to encompass major forest types and risk of gypsy moth introductions. Two gypsy moths were detected in 2004. One was found near Jamestown (Stutsman County) and the other was caught at the Grand Forks Air Force base (Grand Forks County). Trapping efforts will continue in the future and include new areas of potential risk.

Yellow-headed spruce sawfly - *Pikonema alaskensis*

All species of spruce (*Picea* sp.) planted in North Dakota are susceptible to the yellow-headed spruce sawfly. Every year small and medium-sized spruce trees are lost to

this insect. This insect is particularly troublesome in rural plantings where spruce is often used and open growing conditions provide favorable egg-laying sites. Sawfly damage has been most significant in the north-central and northeast parts of the state over the past two years. Damage was most severe in Benson and Ramsey counties for 2004.

Forest Tent Caterpillar - *Malacosoma disstria*

The Turtle Mountains of the North Central region of the state encompass over 125,000-forested acres and annually experience some defoliation by the forest tent caterpillar (FTC). An estimated 17,800 acres were defoliated by the forest tent caterpillar in 2003. Based on egg mass surveys conducted in October 2003, FTC defoliation was expected to remain heavy for 2004, however a sudden late spring frost killed many emerging larvae and caused the FTC population to collapse.

Dutch Elm Disease - *Ophiostoma ulmi* (non-native)

Dutch Elm Disease has been detected in nearly all native woodlands, rural plantings, and communities throughout the state. Dutch elm disease has caused substantial damage in the riparian forests of the Red, Sheyenne, and James River Valleys. Recently, wooded draws of Western North Dakota have been impacted by this pathogen.

Dutch elm disease has been very damaging to community forests. In particular, small rural communities of western North Dakota are now feeling the impacts of this disease. Many communities have reported above average disease levels for 2004.

Larger cities conduct annual street surveys and implement pruning and sanitation to reduce the impacts of this disease. Unfortunately, smaller communities that do not posses the means to administer a forestry program continue to experience extensive losses from Dutch elm disease.

Sphaeropsis (Diplodia) Shoot blight - *Sphaeropsis sapinea*

Sphaeropsis shoot blight is prevalent in ponderosa pine windbreaks of Towner State Nursery and has been confirmed in several other locations throughout the state. Towner State Nursery annually produces 200,000 conservation stock ponderosa pine seedlings and there is concern that this disease could reduce the supply of pine seedlings the nursery will provide in the future.

A plan has been developed to prevent damage to nursery crops by monitoring the disease, systematically removing ponderosa pine tree rows and replacing with non-host species, applying preventive fungicides to nursery crops, and relocating ponderosa pine nursery crops to fields with minimum exposure to inoculum sources. Forest Health Protection Funds were used to remove windbreaks in 2002, 2003, and 2004 and will continue into the future. This will reduce the potential for nursery stock losses, possible spread of the disease, and infection of pine provenance tests on adjacent federal lands.

Wildfire

Wildfires burned through portions of the native Ponderosa pine stands of southwestern North Dakota (Slope County) in September of 2004. Approximately 800 acres of privately-owned pine were damaged by the fire. Mortality may reach 100% in areas where the fire intensity was high and caused extensive needle scorching and stem charring. Where the fire intensity was intermediate, estimations of tree mortality are

subjective at this time. The dense stocking and general low vigor of these stands suggests that delayed tree mortality may be significant. Additionally, the standing dead trees may allow the *Ips pini* population to reach a threshold that causes additional mortality for the following 2 years. Surveys are scheduled for 2005 to assess mortality in areas where the flames produced intermediate fire effects. Salvage logging is planned for areas severely burned by the fire.

Ice Storm

A late spring ice storm damaged community and forest trees in the northeastern part of the state. Many small communities within Cavalier and Pembina counties reported boulevard trees that were windthrown or had large branches ripped off. In addition, many rural plantings and trees adjacent to forest edges were damaged.

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