

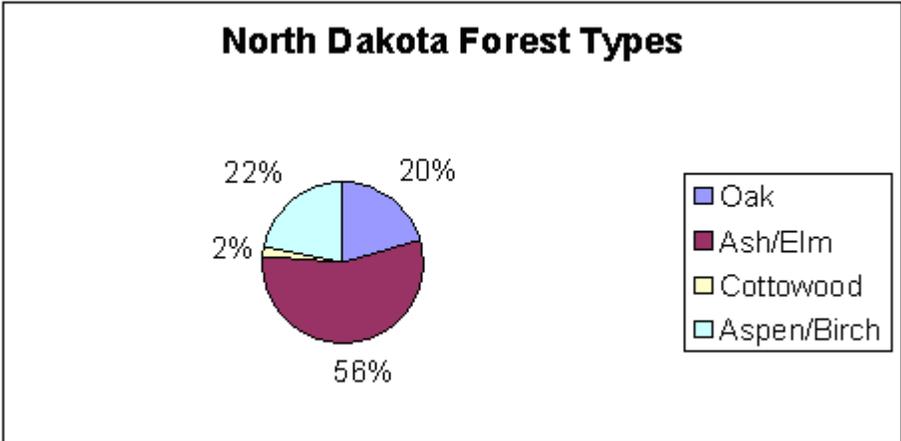
North Dakota Forest Heath Highlights 2004

The Forest Resource



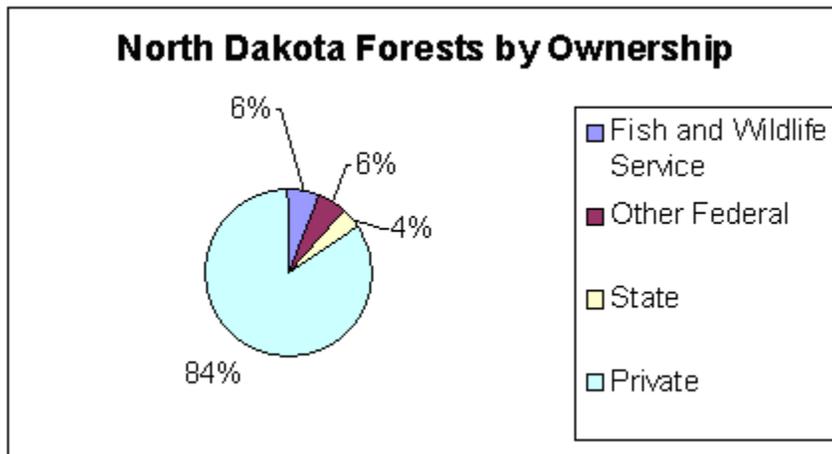
Despite North Dakota’s characterization as a prairie state, native forests are an extremely valuable resource due to their limited size and distribution. Riparian forests and upland deciduous forests constitute the majority of North Dakota's forest resources. In addition, conservation plantings such as windbreaks and living snow fences contribute substantial wooded acreage.

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



Ponderosa Pine Windbreak

Several tree species are used in conservation plantings throughout the state. 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 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.

In addition, decline of cottonwood forests in the western portion of the state can be attributed to over-maturity and lack of flooding to promote cottonwood regeneration. The lack of regeneration coupled with gradual senescence and decline of old cottonwood trees threaten the future sustainability of this unique riparian ecosystem. Additionally, encroachment of species such as Russian Olive (*Elaeagnus angustifolia*), buckthorn (*Rhammus* sp.) and brome grass (*Bromus* sp.) also disrupts cottonwood forest regeneration and succession.

Aspen management

Overmaturity and lack of disturbance are the most significant factors influencing the health of upland aspen forests within the state. Lack of fire disturbance and/or harvesting has resulted in older stands with minimal natural regeneration. These current conditions result in an overmature resource in which stem decay (*Phellinus tremulae*) and Hypoxylon canker (*Hypoxylon mammatum*) are primary pathogens.

The mosaic of ownership contributes to the over maturity of these stands due to the dispersion of aspen resources, the lack of a significant forest products industry within the state, and the small acreages possessed by landowners. As a result, non-industrial private forest landowners are left with few options to actively manage their woodlot on a rotational basis.

Damaging Forest Agents

Listed below are damaging forest insects, diseases, and abiotic agents of concern in North Dakota.

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 312 gypsy moth detection traps placed in 2003. These traps were distributed throughout the state to encompass major forest types and risk of gypsy moth introductions. One gypsy moth was captured near Jamestown in 2003. This was the first positive detection since 1998. Trapping efforts will continue in the future and include new areas of potential risk as the established North American range of the moth expands.

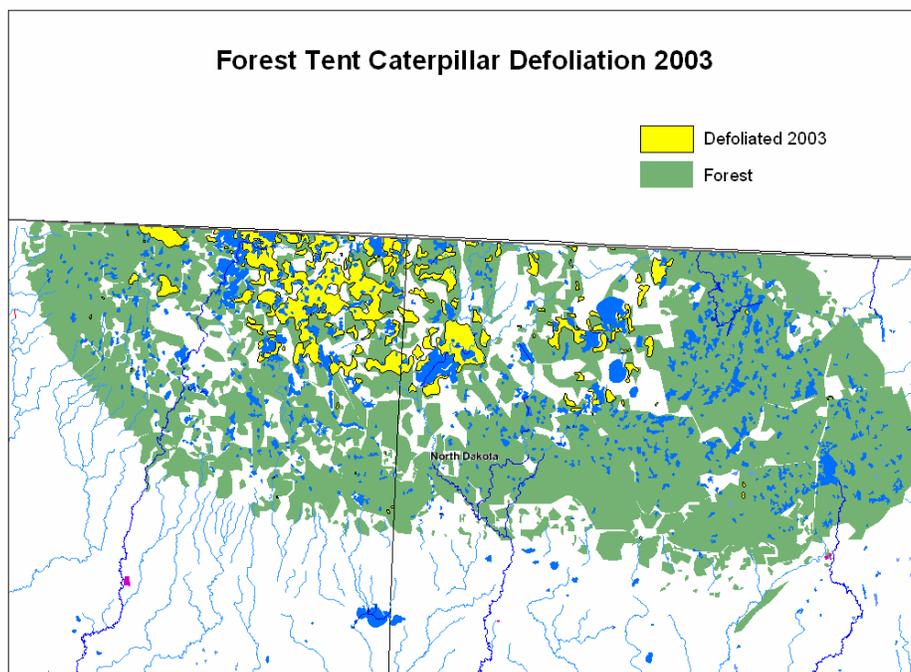
Yellow-headed spruce sawfly - *Pikonema alaskensis*

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. The defoliation caused by the sawfly reduces windbreak efficiency and can predispose spruce trees to other damaging agents.

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. An estimated 17,800 acres were defoliated by the forest tent caterpillar in 2003. This estimate represents a substantial increase since 2002 when 4,345 acres were defoliated. The Turtle Mountains are a popular summer recreation area in North Dakota. Defoliation and caterpillar larvae in campgrounds and state parks present a nuisance to campers. In addition, repeated defoliation may speed the decline of these generally overmature stands.



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

Dutch Elm Disease has been detected in nearly all native woodlands, rural plantings, and municipalities throughout the state. This disease is of great concern because of the American elm's status as the state tree and because it is one of relatively few species that possess the hardiness to be used in rural and landscape plantings.

Dutch elm disease has caused substantial damage in the riparian forests of the Red, Sheyenne, and James River Valleys. The disease has greatly reduced the elm component and

has shifted the species composition toward green ash and boxelder in these forests. This disease has also caused significant windbreak decline as many older planting composed of American elm have been decimated.

The disease consistently causes tree mortality in community forests. Larger cities such as Fargo and Bismarck conduct annual street surveys and implement pruning and sanitation to reduce the impacts of this disease. Unfortunately, smaller communities that do not possess the means to staff a forester have been severely impacted by Dutch elm disease.

Sphaeropsis (Diplodia) Shoot blight - *Sphaeropsis sapinea*

Sphaeropsis sapinea continues to cause problems in ponderosa pine windbreaks at Towner State Nursery and has been confirmed in five other locations within the state. Towner State Nursery annually produces 200,000 ponderosa pine seedlings and there is concern that this disease could reduce the supply of pine seedlings the nursery will provide in the future. The incidence and severity of the disease has gradually increased over a 15-year period. Since 2000, the incidence of the disease in windbreak ponderosa pines has increased 15%. A plan has been developed to prevent damage to nursery crops by monitoring the disease, systematically removing ponderosa pine tree rows and replacing with other species, applying preventive fungicides to nursery crops, and relocating ponderosa pine nursery crops to fields with minimum exposure to the disease. Forest Health Protection Funds were used to remove windbreaks in 2002 and 2003. This will reduce the potential for nursery stock losses, possible spread of the disease, and infection of pine provenance tests on adjacent federal lands.

Ash Decline

A multitude of maladies has resulted in Ash decline throughout the state. Common pests of Ash include: Anthracnose (*Gloeosporium aridum*), ash plant bug (*Tropidosteptes amoenus*), ash fomes (*Perenniporia fraxinophila*), ash borer (*Podosesia syringae*), and ash bark beetles (*Hylesinus* sp.).

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