

1999 Forest Health Highlights Minnesota

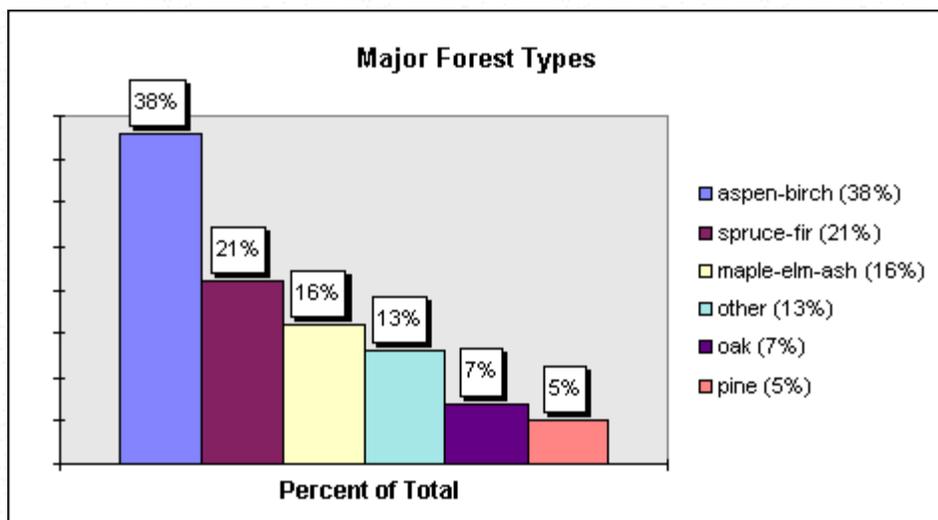
The Resource

Minnesota's trees are a valuable resource. Forests account for 33% of Minnesota's land area, or about 16.7 million acres. The area of all forest land in the State has increased by 0.7 percent since 1977. Private land owners control 48.5% of the timberland; state, county, and municipal governments administer 37.8%, and the National Forest comprises 12.4%.

These forests are important to both the wood products and tourist industry. Forestry related industries and manufacturing employ about 60,000 people. The value of wood products annually exceeds \$8 billion. A total of 4 million cords of wood were cut in 1993, pulp and paper and oriented strand board accounts for 34% of the cut. Window frames make up 20% of all the value of products produced. Other products include sawlogs, veneer, post and poles, wood chips for landscaping, and fuelwood, although wood for energy accounts for only 4% of the volume cut, down from 12% in 1990. The Christmas tree industry annually produces more than 3 million trees worth over \$25 million.

Trees are also important components in wilderness and urban settings. The Boundary Waters Canoe Area (over 1 million acres) has more visitors than any other wilderness in the United States. Forests in the state are home to the largest wolf and bald eagle populations in the lower 48 states. Annually, millions of people visit to camp, canoe, fish, hike and hunt.

Urban trees increase property values and enhance the beauty of open spaces. More than half of the population of Minnesota lives in the Twin Cities Metro Region. The developed areas of the Metro Region have a dense tree canopy cover of over 50%. At least 10% of the urban area is kept in natural open space including lakes, wetlands, prairie, and forests. No community has planted more than 10-15% of any one species, a lesson learned from the widespread mortality from Dutch elm disease in the 1970's.



Summary of 1999 Activity and Predictions for 2000 for Notable Forest Pests in Minnesota		
PEST	1999 Activity	2000 Prediction
Gypsy moth	Decrease in SE MN Increase in NE MN	Increase statewide
Forest tent caterpillar	Increase	Significant increase
Large aspen tortrix	Increase	Decrease
Spruce budworm	Decrease	Continued decline
Jack pine budworm	Non-existent	Continued non-existent
Pine tussock moth	Decrease	Decrease
Bark beetle	Low level activity	Increased in blowdown areas
Walkingsticks	Increase	Decrease
Oakworms	Decrease	Decrease
Leaf diseases	Significant increase	Unknown - weather related

They call the Wind "Awesome," "Total Devastation," "Unbelievable"

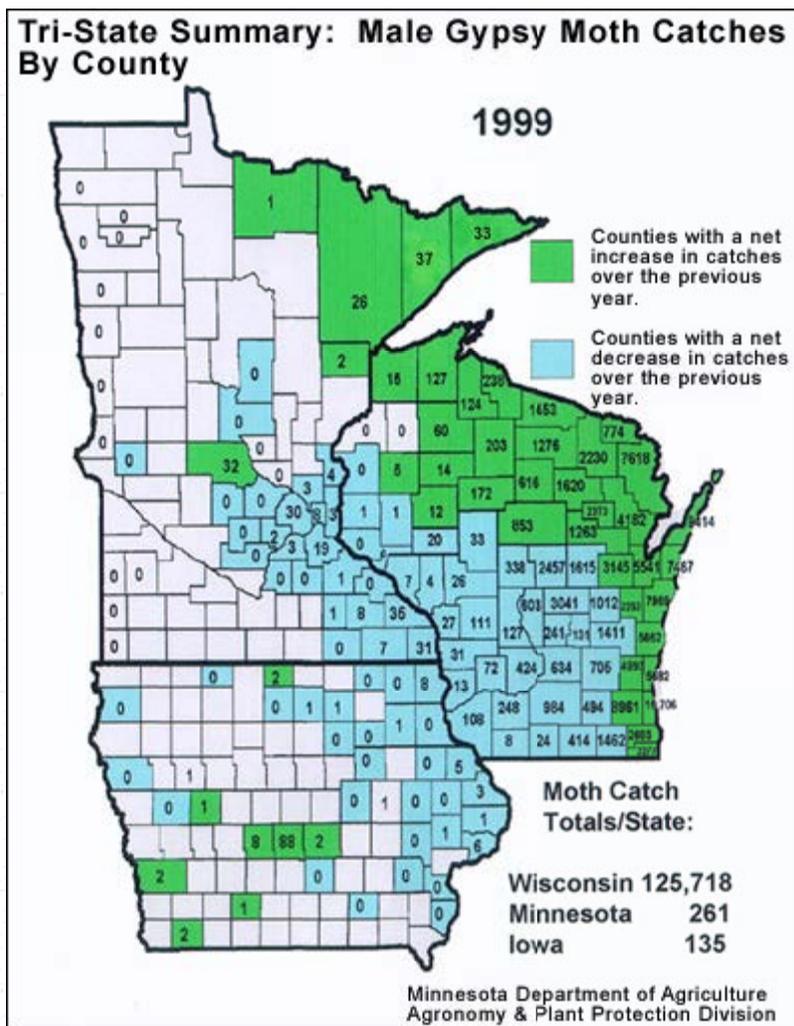
In 1999, wind events damaged timber on 465,000 acres. The most dramatic event occurred on July 4th when straight line winds blew down timber over an area of almost 400,000 acres. There were at least 100,000 acres where nearly 100% of the trees were broken off or tipped over. In some of these areas the piled trees were over 20 feet high. Most of the damage occurred within the Boundary Waters Canoe Area (BWCA) on the Superior National Forest where over 380,000 acres were damaged. Fortunately there were no camper fatalities in this heavily used wilderness area, but there were many medical evacuations immediately after the storm. Campsite and portage trail clearing continued throughout the summer.

Some of the areas outside of the BWCA are being salvaged. Because there was a lot of pine involved in the blowdown, two fears are on everyone's mind: fire and bark beetles. Fire hazard reduction is on going around private residences, and emergency fire plans are being developed. No salvage, however, is allowed within the BWCA. Bark beetle populations were being assessed during the summer. The concern is the amount of brood wood available for populations to build up in next year. If conditions are dry during the summer of 2000, bark beetle populations will build up and standing pine may be attacked.

For more detail and maps: www.ra.dnr.state.mn.us/bwca

Gypsy Moth Ups and Downs

Over 18,000 pheromone traps were set in Minnesota in 1999. Statewide the trap catches were down when compared to 1998. 286 moths were caught in 1999 compared to 953 moths in 1998.



Two surprises were noted this year. In southeastern Minnesota and in the Twin Cities area, where the predominance of oak make both areas prime targets for gypsy moth and in the past have been traditional hot spots for catching gypsy moth, there was a **decline** in trap catches. In 1998 over 900 moths were caught; in 1999 only 156 were caught. It is theorized that the wet spring and early summer may have contributed to this decline. The same pattern was noted in southern Wisconsin.

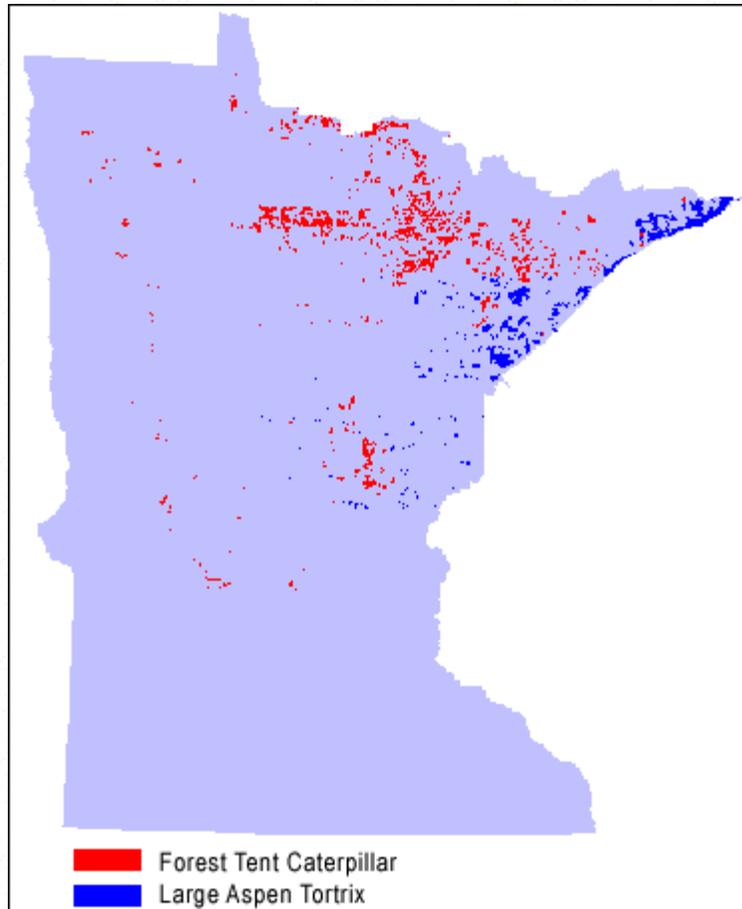
The other surprise was the significant **increase** in trap catches along the "North Shore" area of Lake Superior. This area traditionally produces a few single trap catches, but this year 97 moths were caught. Because this is a popular tourist destination, it is thought that the high trap catches probably came from hitchhiking moths on vehicle and campers coming from infested areas probably in Wisconsin and Michigan.

Forest Tent Caterpillar: The True Millennial Bug

The Y2K bug is probably more hype than reality. However, the forest tent caterpillar (FTC) should become spectacular early in the new millennium and truly be Minnesota's millennial bug. This hardwood defoliator is a native defoliator that builds up populations on a cyclic basis of about every 10 years. The last big outbreak in Minnesota was during the early 1990's when over 4 million acres were defoliated.

In 1999, evidences of the return of the FTC were fairly obvious. Nearly **500,000 acres** were defoliated with about 400,000 acres showing greater than 50% defoliation. Forest tent

caterpillar defoliation was found on basswood in Pope County in southwestern MN to aspen in Cook County in northeastern Minnesota.



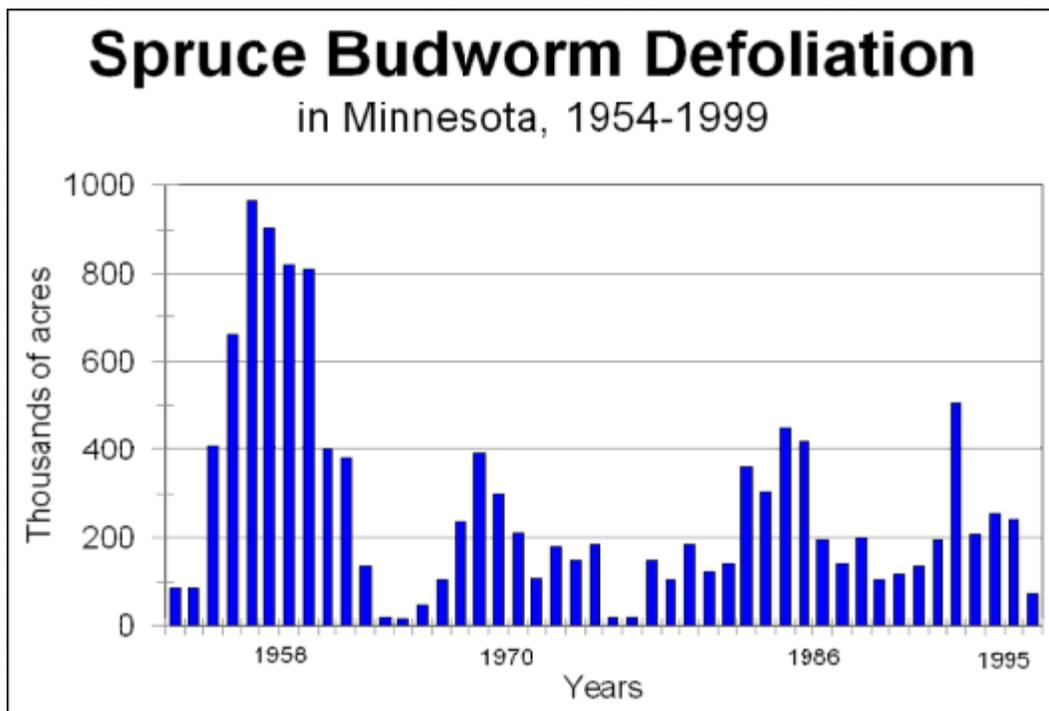
Large Aspen Tortrix

Large aspen tortrix outbreaks often immediately precede forest tent caterpillar outbreaks. Since both defoliating insects feed on aspen, they compete for food, and the forest tent caterpillar often overwhelms the large aspen tortrix. In 1999, it was estimated there were **340,000 acres** defoliated from the large aspen tortrix. Most of the defoliation occurred in the Arrowhead area of Minnesota.

Spruce Budworm

This is the 46th consecutive year in which spruce budworm caused defoliation in Minnesota. (See summary of defoliation by year.) Approximately **70,000 acres** of balsam fir and white spruce were defoliated in 1999. Trees showing in excess of 50% defoliation occurred on nearly 5,000 acres. Most of the defoliation occurred in northeastern Minnesota in historic budworm outbreak areas. Declines in spruce budworm activity in northeastern Minnesota may have been due to the very wet summer. Most of this area received 150 to 175% of normal rainfall.

In central Minnesota where white spruce plantations have been defoliated by budworm since the early 1990's, populations have declined for the second straight year. Warm spring conditions in this area the past two years has stimulated rapid shoot growth and the needles have been able to lignify quickly preventing feeding caterpillars from obtaining enough nutrients to reach the moth stage and reproduce.



Walkingsticks

Approximately **930 acres** in northern Stearns County were defoliated in 1999. This is an area where forest tent caterpillar is also present. Defoliation early in the growing season by FTC and then defoliation later in the growing season by walkingsticks after the trees have expended a lot of the energy to refoliate in response to FTC may result in dieback and death to some of the trees in the area. Plans are underway to treat the area to control FTC if populations seem to be building in the area of walkingstick activity.

Leaf Diseases

The wet spring was perfect for foliage diseases. The most common disease was **anthracnose** which produces spots on the leaves. The spots grow together and cause a general browning of the leaves, and the leaves are then shed. Anthracnose is caused by a particular group of fungi, and both oaks and ashes were infected.

By far, bur and white oaks were affected the most. Approximately **150,000 acres** of oak across southeastern Minnesota showed symptoms of anthracnose. Trees infected generally outgrow the disease. As new leaves are produced and the weather turns dryer as the growing season progresses, disease symptoms tend to diminish. Outbreaks of this disease are so tied to weather conditions, outbreak predictions for the following year are nearly impossible to make.

Another spectacular foliage disease occurred on balsam poplar or balm of Gilead in central and northern Minnesota. This foliage disease was **Septoria blight**. This disease is similar to anthracnose in that foliage first shows brown spots which then grow together, and the entire leaf browns and drops. The disease is more prevalent on the lower parts of the tree, but if conditions remain wet throughout the growing season, the disease will spread upward in the tree and the balsam poplars will become nearly bare of leaves by August.

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Updated: **December 1999**