

Nebraska Forest Health Highlights

2012

The Forest Resource

Nebraska is home to several important forest types. Ponderosa pine dominates the forests in the Panhandle of western Nebraska including the Wildcat Hills in the central Panhandle and the Pine Ridge in the north. Upland deciduous forests are present in the east along the Missouri and Nemaha Rivers. In northern Nebraska, the Niobrara Valley contains an ecologically unique mix of ponderosa pine, eastern redcedar, central hardwood forests (oak and walnut) and remnants of the northern boreal forest (aspen and birch). Riparian forests of cottonwood, elm and ash protect river and stream corridors throughout the state.

The current estimate of forest land area in Nebraska is 1.3 million acres. Windbreaks, shelterbelts and narrow wooded riparian strips account for an additional 423,000 acres of tree-covered land, while community forests add 470,000 acres to the state's total forest resources. In total 3.3 million acres of forested and treed land is present in the state.

Pests and Problems of Concern in Nebraska

Drought

The past year was one of extreme to exceptional drought over most of Nebraska, with 95% of the state affected by extremely dry conditions. Drought can cause significant tree losses in communities and rural areas as it kills trees outright when soil becomes too dry and when it makes trees more susceptible to serious disease and insect pests because of the additional stress the drought causes.



In 2012, probably 100 to 200 pines and spruces were killed in Nebraska by the extremely dry conditions. The drought has the potential to directly kill an estimated 48,000 white pines, Colorado blue spruces and Norway spruces across the state in the more susceptible younger age classes if conditions do not improve.

White pine killed by the drought.

Pine wilt

Pine wilt is caused by the pinewood nematode, a pathogen native to most of North America. Recent research suggests that a bacterium carried by the nematode may also play a significant role in the disease. Pine wilt has killed thousands of Scotch pines in Nebraska annually since the late 1990s. The disease occurs in scattered locations throughout much of the state, but is prevalent in the east and south-central areas. The Nebraska Forest Service no longer recommends using Scotch pine in long-term plantings in the southeast portion of the state.



Scotch pine windbreak and trees killed by pine wilt.



Austrian pines in various stages of decline from Diplodia blight.

Diplodia blight

Diplodia blight continues to increase in Nebraska in both urban and rural landscapes. Damage is often seen in both Austrian and ponderosa pines. Stressed trees are more susceptible, such as those affected by drought or overcrowded stands. Some of the symptoms of Diplodia blight are similar to those of pine wilt, so care must be taken when identifying the disease.

Mountain pine beetle

Mountain pine beetle mortality in ponderosa and Scotch pine in the Wildcat Hills and Pine Ridge was much reduced in 2012 compared to the previous several years. In a continued effort to slow the spread of the beetle and limit its impact, a cost-share program was used to help public and private landowners manage the insect. Monitoring continued in 2012 by scouting for dead and dying trees.



Attacking adult mountain pine beetle may be “pitched out” by heavy resin flow in resistant trees.

Thousand cankers disease

One of the newest pests of national concern is thousand cankers disease of black walnut, which has killed thousands of trees in 12 states in recent years. In 2012, street-side surveys of black walnut disease symptoms and trapping surveys for walnut twig beetle, which is involved with the disease, were conducted across the state. No evidence of the disease or twig beetle was found. In addition, 120 citizen volunteers have been trained in the past three years to survey for thousand cankers disease. These “Tree Pest Detectors” have greatly increased detection efforts across the state. A quarantine of walnut wood from infested states is in effect to prevent the movement of this disease and its vector into Nebraska.

Nebraska Black Walnut Facts

- ✓ 1.5 million trees
- ✓ 40 million board feet of merchantable wood
(value: \$40-80 million)
- ✓ 1 million board feet harvested annually
(value to state's economy: \$3.5 million)
- ✓ 4,000 commercial nut-bearing trees
- ✓ 70,00 pounds of nuts produced annually
(value to state's economy: \$1.2 million)
- ✓ valuable species for wildlife
- ✓ widely used landscape tree for tough sites



Zimmerman pine moths

Three species of *Dioryctria* (Zimmerman) pine moth continued to cause branch and tree mortality in Nebraska. Symptoms include masses of pitch (resin) that form on the bark where the insects are inside tunneling. The insects are present in western and central Nebraska, as well as in the Lincoln and Omaha areas. Ponderosa, Austrian and Scotch pines are commonly attacked, and young trees generally sustain more damage than mature trees.

Large masses of resin indicate attack by *Dioryctria* species.

Cytospora canker

Cytospora canker of spruce has become more common in landscape plantings and windbreaks, probably because of the additional stress in the trees caused by this year's drought and the multi-year drought that ended only a few years ago. Colorado blue spruce is the species most commonly affected. Branches and sometimes the tops of trees are killed by the disease.

Oak decline

Several biological and environmental factors appear to be involved in a general decline of bur oak in northern and eastern areas of the state. Environmental factors include root disturbance and soil compaction from livestock or human activities, herbicide exposure, and long term effects of drought. These factors have stressed trees and made them more susceptible to pests such as cankers, borers and root decays (including *Armillaria*). Oak wilt and bur oak blight (*Tubakia* sp.) are also contributing to the decline in many cases.

Dutch elm disease

Dutch elm disease continues to cause mortality in American elm throughout the state, particularly in riparian areas and communities. Vectors include the European elm bark beetle (*Scolytus multistriatus*), the native elm bark beetle (*Hylurgopinus rufipes*) and potentially a new exotic species, the banded elm bark beetle (*S. schevyrewi*).

Emerald ash borer

Emerald ash borer remains at the top of the list for potential economic impact to Nebraska's forest resources. Recent inventory estimates place the number of ash trees in the state at 44 million. Detection trapping and park/campground surveys are ongoing efforts. Citizen "Tree Pest Detectors" have been trained in emerald ash borer identification and survey methods and have assisted with survey efforts across the state. The insect has not been detected in the state.

Gypsy moth

Annual detection trapping for gypsy moth is conducted each year in the state. Traps are placed among potential hosts at state parks, rest areas and nurseries. No gypsy moths were found in traps in 2012.

For further information on Forest Health in Nebraska, please visit the websites listed below.



Nebraska Forest Service
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www.nfs.unl.edu/program-foresthealth.asp



USDA Forest Service—Rocky Mountain Region
Forest Health Protection (FHP)
www.fs.usda.gov/goto/r2/fh