

Nebraska Forest Service

Forest Health Highlights 2015

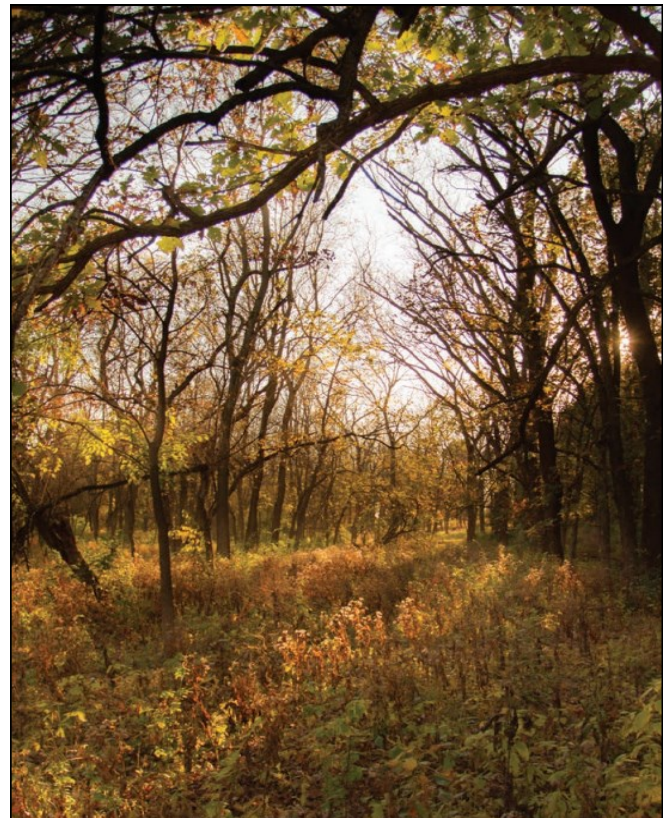


The Forest Resource

Nebraska's forest resources are unique, diverse, substantial and growing.

- 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 forest (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, an increase of almost 300,000 acres since 1994.

- Windbreaks, shelterbelts and narrow wooded riparian strips account for an additional 423,000 acres of tree-covered land.
- Community forests add 470,000 acres to the state's total forest resources.
- In total 3.3 million acres of forested and treed land are present in the state.
- Nebraska's forest land produces at least 1 million net tons of wood each year, every year.
- The forest land contains more than 40 million oven-dry tons of standing woody biomass.
- The vast majority (87%) of this biomass is on privately owned land.



Pests and Problems of Concern in Nebraska in 2015

Pine wilt

Pine wilt continued to kill thousands of Scotch and Austrian pines in eastern and south-central Nebraska in 2015. The disease also occurred in scattered locations in the central and southwestern parts of the state. Because of pine wilt, the Nebraska Forest Service no longer recommends using Scotch pine in long-term plantings.



Scotch pine killed by pine wilt

Diplodia blight

Diplodia blight continued to kill and damage many pines in Nebraska in 2015 in both urban and rural landscapes. Mortality and damage was most common on Austrian and ponderosa pines.



Austrian pines in decline from Diplodia blight

Ips beetles

Ips beetles continued to cause damage in native ponderosa pine in western and north-central Nebraska, but caused less mortality and damage than in 2014 and 2013. The reduced damage was most likely because of reduced drought stress resulting from near normal precipitation in 2014 and 2015 and because of better handling of slash piles after logging operations. Ips beetles also continued to cause mortality within and adjacent to areas recently affected by wildfires.



Ponderosa pines along the Snake River in Nebraska damaged and killed by Ips beetles

Drought injury

Drought conditions generally improved in Nebraska in 2015 with many areas receiving near normal precipitation for the year. Forests in most areas of the state are now beginning to recover from the severe drought of the previous several years but are still weakened by the previous drought injury.

Pines in far western Nebraska showed substantial needle browning in January 2015 apparently from short-term severe drought stress that began in the fall of 2014. The needle browning seemed to be caused by warm and windy conditions in November and December after the ground had frozen.



Ponderosa pine in western Nebraska injured by warm, windy conditions during late fall

Freeze injury

Very warm early fall temperatures in 2014 followed by a rapid drop to below freezing caused freeze injury that appeared in 2015 on many pines in western Nebraska.



Ponderosa and Austrian pines in western Nebraska injured by warm fall temperatures that rapidly dropped to below freezing

Zimmerman pine moths

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



Large masses of pitch from attacks by Zimmerman pine moths

Rough bullet gall of oak

Rough bullet gall has become a serious problem on bur oaks in western Nebraska. Abundant galls cause severe stunting of growth, and the honeydew produced by the galls attracts large numbers of nuisance wasps. Some bur oaks are highly susceptible to the gall while others are highly resistant.



Rough bullet galls on bur oak



Bur oak stunted by heavy infestation of rough bullet gall

Tip dieback on oak

Tip dieback caused by the canker-causing fungus *Botryosphaeria quercuum* was common in red oaks in central and western Nebraska.



*Tip dieback from *Botryosphaeria quercuum* on pin oak*

Foliar diseases of hardwoods

Rainfall across the state was higher in 2015 than in many of the previous this year, which led to greater problems with foliar diseases on many hardwoods. Marssonina leaf spot and Septoria leaf spot were two very common diseases on *Populus* species.



Septoria leaf spot on cottonwood

17-Year cicada damage on many hardwoods

Oaks, hackberries and other hardwoods in many areas of Nebraska were heavily damaged in 2015 by the 17-year cicada. Twig dieback was extensive in some locations. The dieback occurred because of the injury caused by the female cicada when she lays eggs in twigs.



Cicada injury on an oak twig



Extensive twig dieback from cicada injury and an unidentified canker

Willow tree decline

Several locations in eastern Nebraska experienced a decline in willows in 2015. This was probably caused by stress from the recent years of drought, injury from fluctuating temperatures in the late fall of last year and early spring of this year and canker diseases that are common on willow.



Willows declining from cankers and environmental stresses

Oak decline

Several biological and environmental factors appear to be involved in a general decline of bur oaks 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.

Cytospora canker

Cytospora canker of spruce has become more common in landscape plantings and wind-breaks, probably because of additional stress in the trees caused by several years of drought. Colorado blue spruce is the species most commonly affected. Branches and sometimes the tops of trees are killed by the disease.



Branches killed by Cytospora canker

Dutch elm disease

Dutch elm disease continued to cause mortality in American elm throughout the state, but the mortality was less common than in previous years. Most elms affected are in riparian areas and communities.

Mountain pine beetle

No active mountain pine beetle infestations were detected in Nebraska in 2015. Beetle populations in western Nebraska forests seem to have returned to the low levels that existed prior to the 2009 outbreak. Monitoring for the beetle will continue.

Emerald ash borer

Emerald ash borer has not been found in Nebraska, but it remains at the top of the list for potential economic impact to the state's forest resources. Detection trapping and surveys in parks, campgrounds and major cities and towns are ongoing efforts.

Thousand cankers disease

Thousand cankers disease of black walnut has not been found in Nebraska. In 2015, street-side surveys and surveys in plantations of black walnut in Nebraska found no evidence of the disease or the twig beetle associated with it. A quarantine of walnut wood from infested states is in effect to prevent the movement of the 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

For more information on Forest Health in Nebraska, please visit the website:

www.nfs.unl.edu/program-foresthealth.asp



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