

Nebraska Forest Service

Forest Health Highlights 2016

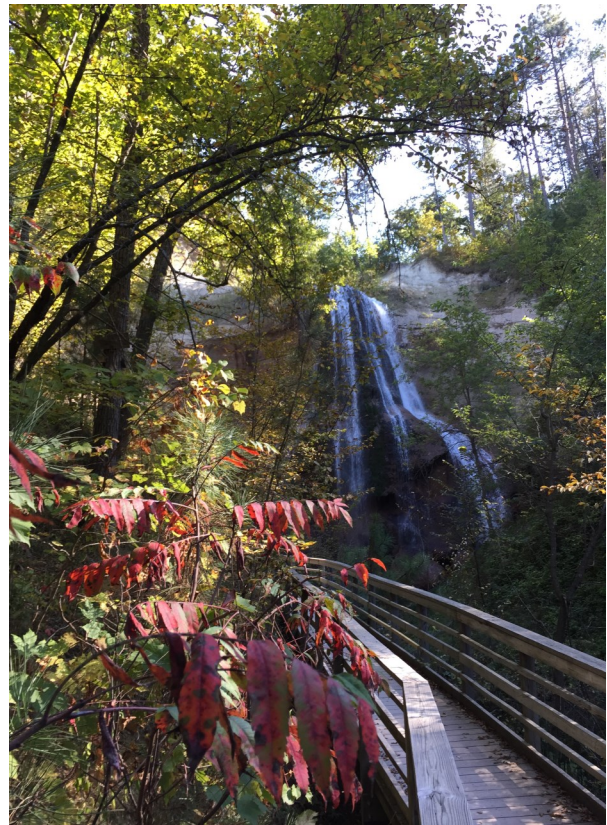


The Forest Resource

Nebraska boasts a diverse array of forest resources. From the ponderosa pine forests of the Panhandle's Pine Ridge to the hardwood forests of the Missouri River bluffs, trees and forests play an important role in the lives of all Nebraskans and in the stability of ecological systems across the state and region.

Nebraska's 1.24 million acres of forestland represents many unique mixes of vegetation types. The hardwood forests of eastern Nebraska are representative of the central hardwoods of the eastern United States. Ponderosa pine forests in the west are representative of the Rocky Mountains, and the birch/aspen forests in northern Nebraska are representative of northern boreal forests. These forest types, combined with elm-ash-cottonwood riparian forests, mixed conifer forests, conservation tree plantings and urban forests, create a highly diverse and unique array of tree and forest resources growing within an agricultural and range landscape. With the addition of non-forestland with trees, conservation plantings and community forests, the total number of acres of treed or forested areas is approximately 3.3 million acres.

The dominant species of Nebraska's non-forestland with trees (defined as less than one acre, less than 120 feet wide and less than 10% stocked) are eastern redcedar, Siberian elm, hackberry, red mulberry and ash. These trees provide unique benefits such as rural home wind protection, snow drift management, energy savings, livestock protection, crop protection and yield increases, water quality and soil protection, wildlife habitat and other ecosystem services. Although not large units individually, combined these areas are important components that provide key and essential ecosystem services in Nebraska's rural agriculture-dominated landscape.



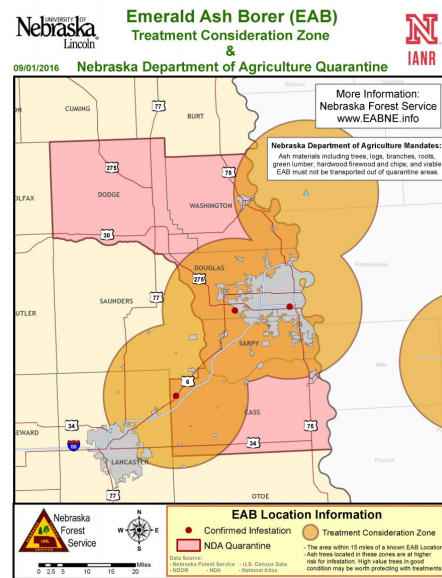
Smith Falls State Park.

Top photo: Near Fort Robinson State Park

Pests and Problems of Concern in Nebraska in 2016

Emerald Ash Borer

Emerald ash borer (EAB) was found for the first time in Nebraska in southeast Omaha in June. It was found also the following week 30 miles to the southwest in Greenwood, Nebraska, near Lincoln. In July it was found at a second location in Omaha approximately seven miles west of the first location. Five counties in the Omaha and Greenwood areas have been included in a quarantine to restrict the movement of ash and other hardwood materials. Treatments should be considered only within 15 miles of a known EAB location. (More information at eabne.info)



Map of the quarantined area in Nebraska and the 15-mile radius treatment consideration zones around the three Nebraska EAB locations and two closest EAB locations in Iowa. (Map also at eabne.info)

Nebraska Ash Facts

- ✓ About 43 million ash trees in rural areas
- ✓ About 9% of all trees in rural areas
- ✓ About 1 million ash trees in communities
- ✓ About 27% of all trees in communities
- ✓ Will cost about \$961 million to remove and replace in communities



The first EAB specimen found in Nebraska

Pine wilt

Pine wilt continued to kill thousands of Scotch and Austrian pines in eastern and south-central Nebraska in 2016. The disease also occurred in scattered locations in the central, southwestern and western parts of the state. Because of pine wilt, the Nebraska Forest Service no longer recommends using Scotch pine in long-term plantings.



Scotch pines killed by pine wilt

Diplodia blight

Diplodia blight continued to kill and damage many pines in Nebraska in 2016 in both urban and rural landscapes, but damage was less common than in previous years, probably because of reduced drought stress resulting from three years of near normal precipitation. 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 damage than in previous years. The reduced damage was most likely because of reduced drought stress resulting from three years of near normal precipitation and because of better handling of slash piles after logging operations. Ips beetles 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

Foliar diseases

Above average rainfall in the spring and early summer in eastern Nebraska led to a much greater occurrence of foliar diseases that are more common in wet years, such as gymnosporangium rusts (cedar-apple rust on crabapples and cedar-hawthorn rust on hawthorn and pear), anthracnose on sycamore and maple, powdery mildew on oak, and oak leaf blister. Foliar symptoms were common, but no significant damage was seen.



Orange spore masses from gymnosporangium rust galls on juniper



Leaf spots from a rust disease on hawthorn



Leaf blight and twig dieback from anthracnose on sycamore



Powdery mildew on oak



Extensive defoliation from apple scab on crabapple



Oak leaf blister

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

Rough bullet gall of oak

Rough bullet gall continues to be 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

Herbicide injury

Damage to trees from herbicides applied around or upwind from the trees was widespread and sometimes severe in 2016 and appeared to be more common than in previous years. Certain herbicides, such as 2,4-D and dicamba, that are commonly used in agricultural fields often volatilize and damage trees nearby. The use of dicamba on dicamba-tolerant soybeans is becoming a serious threat to trees near areas where it is applied.



Ash leaf with cupped leaflets probably caused by 2,4-D or dicamba applied nearby



Curled pine needles probably caused by 2,4-D or dicamba applied nearby



Curled pine branches and dead foliage probably caused by 2,4-D or dicamba applied nearby

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 are also contributing to the decline in many cases.

Mountain pine beetle

No active mountain pine beetle infestations were detected in Nebraska in 2016. 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.

Dutch elm disease

Dutch elm disease continued to cause scattered mortality in American elm throughout the state. Most elms affected are in riparian areas and communities.

Thousand cankers disease

Thousand cankers disease of black walnut has not been found in Nebraska. In 2016, 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/forest-health



Mark Harrell,
Forest Health Program Leader
Nebraska Forest Service