

Nebraska Forest Service

Forest Health Highlights 2017



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.



*Thinned ponderosa pine.
Top photo: Niobrara River*

Pests and Problems of Concern in Nebraska in 2017

Herbicide Damage

Damage to trees from herbicides was widespread and sometimes severe in 2017. Nursery trees in some cases were so severely damaged as to be a total loss. Certain herbicides, such as 2,4-D and dicamba, that are commonly used in agricultural fields and in urban landscapes often drift or 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.



Distorted branch formation in nursery tree affected by herbicide, making tree unsalable



Distorted leaves of maple typical of plant growth regulator herbicides such as 2,4-D or dicamba



Thin, distorted and chlorotic foliage of Kentucky coffeetree typical of growth regulator type herbicide



Herbicide induced distortion and discoloration of Kentucky coffeetree leaves

Freeze Damage

Browning of evergreens particularly in western Nebraska was noted in early spring of 2017. Extremely low temperatures in December of 2016 preceded by a very dry summer and fall appear to have been responsible. Temperatures were colder than -20F in December in some locations.



Limber pine browning in spring following a dry summer and fall and below zero temperatures the previous fall

Diplodia blight

Diplodia blight continued to kill and damage many pines in Nebraska in 2017 in both urban and rural landscapes. Austrian and ponderosa pine are frequently affected.

Western gall rust

Western gall rust causes stem and branch galls in the native ponderosa pine stands of the state. Galls and hip cankers (galls that develop concentric ridges) that form on the main stem can affect form and lumber content and can lead to stem breakage.

Pine wilt

Pine wilt continued to kill Scotch and Austrian pines in eastern and south-central Nebraska in 2017. The disease also occurred in scattered locations in the central and western parts of the state. Because of pine wilt, the Nebraska Forest Service no longer recommends using Scotch pine in long-term plantings.

Conifer bark beetles

Cedar bark beetles were reported in eastern redcedar windbreaks in north central Nebraska, causing significant flagging from adult feeding. Few trees showed signs of attack to the main stem. Tree stress due to the drought of 2012 along with large slash pile placement near trees allowed for a large buildup of the bark beetle population.

Ips beetles continued to cause limited damage in native ponderosa pine in western and north-central Nebraska.

Mountain pine beetle populations in western Nebraska seem to have returned to the low levels that existed prior to the 2009 outbreak.



Flagging in eastern redcedar windbreak attributed to cedar bark beetle

Spider mites

Spider mites were a problem in 2017, affecting both broadleaf and conifer trees, especially in western Nebraska. Affected foliage showed yellowing and browning and often was covered with extensive webbing. Two-spotted spider mite appeared to be responsible in many cases.



Rocky Mountain juniper with extensive webbing caused by spider mites



Spruce with extensive webbing caused by spider mites

Bagworm

Bagworm continued to be a problem in 2017, particularly in south central and south eastern areas of the state. Bagworm is commonly found in windbreaks on spruce, juniper and eastern redcedar, but also attacks a number of broadleaf trees.



Young bagworm caterpillar on Juniperus species



Bagworm bag and feeding damage on crabapple



Bagworm larvae with their bags

Foliar diseases

Foliar diseases were a problem again in 2017, including Gymnosporangium rusts, apple scab, anthracnose, oak leaf blister (*Taphrina*) and Mycosphaerella leaf spot of ash. Foliar symptoms were common, but no significant damage was seen.



Orange spore masses from *Gymnosporangium* rust galls on juniper



Apple scab foliar symptoms include feathery black spots and general leaf yellowing and browning



Sycamore anthracnose shoot blight

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.

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.

Emerald Ash Borer

Emerald ash borer (EAB) was found for the first time in Nebraska in 2016. Infested trees were found in Omaha (Douglas County) and in Greenwood (Cass County). No additional infestations were found in 2017. Five counties (Douglas, Cass, Dodge, Washington and Sarpy) are 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 can be found at eabne.info)



EAB tunnels in ash in Greenwood, Nebraska

Japanese beetle

Japanese beetle populations were very high in many locations in 2017. Linden trees were frequently reported to be severely defoliated. Other severely affected tree and shrub hosts included cherry, peach, birch, and hazelnut. The Nebraska Department of Agriculture lists 30 counties as infested in 2016.



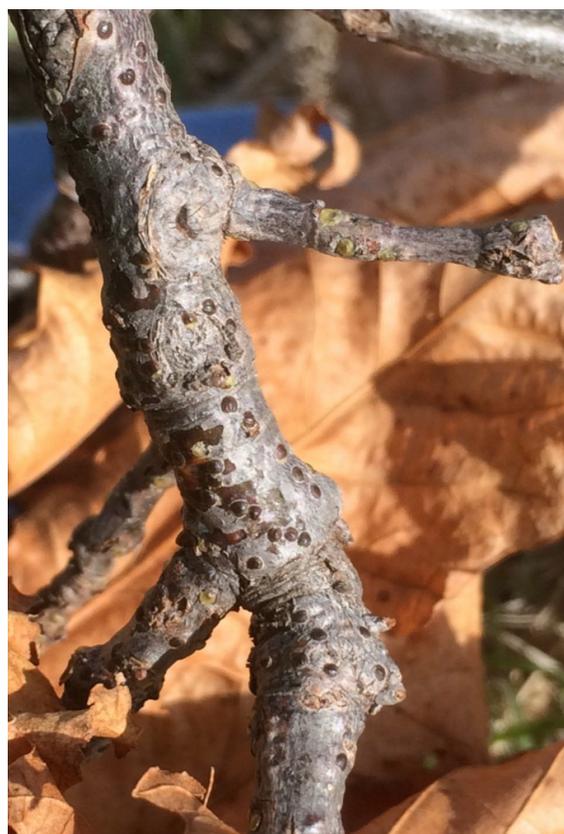
Linden defoliated by Japanese beetle



Leaf feeding damage on linden by Japanese beetle

Scales

Golden oak scale was reported on oaks in central Nebraska in 2017. This pit-making scale is easily overlooked and is not often reported. Scales commonly found in Nebraska include oystershell, scurfy, pine needle, and kermes scale.



Golden oak scale

For more information on Forest Health in Nebraska, please visit these websites:



Laurie Stepanek
Interim Forest Health Program Leader
[Nebraska Forest Service](#)



[Rocky Mountain Region forest-grasslandhealth](#)

USDA Forest Service
Rocky Mtn. Region
Forest Health Monitor: Jeri Lyn Harris