

**Additional Pest Surveyed:
Pine Shoot Beetle**

Year: 2023
State: Iowa
Forest Pest

Common Name: Pine Shoot Beetle
Scientific Name: *Tomicus piniperda*

Hosts: All Pines
Setting: Rural Forests, Nursery, and Urban
Counties: Statewide
Survey Methods: N/A
Acres Affected: Unknown
Narrative:

Pine Shoot Beetle was identified September 18, 2006 and all counties in Iowa were quarantined for pine shoot beetle. Since the entire state is quarantined, no further monitoring has been needed. If a landowner needs assistance with management options for the [pine shoot beetle](#), please contact the ISU Plant Diagnostic Clinic at 515-294-0581.

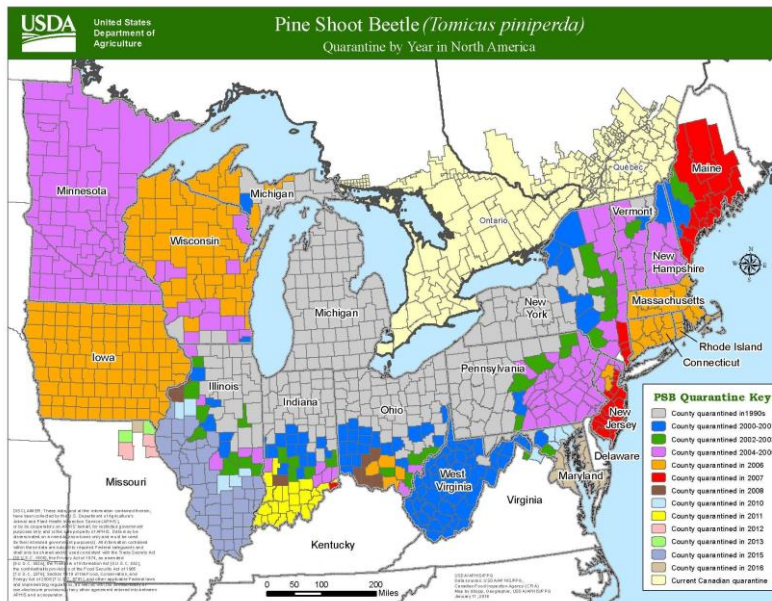


Figure 23. The map above shows the quarantined areas for pine shoot beetle. (Image: by USDA-APHIS-PPQ)

Pine Shoot Beetle Background

The pine shoot beetle (*Tomicus piniperda* L.) is an introduced pest that attacks pines. It was first discovered in the US at a Christmas tree farm near Cleveland, Ohio, in July 1992. A native of Europe, the beetle attacks new shoots of pine trees, stunting the growth of the trees. The pine shoot beetle may also attack stressed pine trees by breeding under the bark at the base of the trees. The beetles can cause severe decline in the health of the trees, and in some cases, kill the trees when high populations of the beetle exist.

In May, 2006, USDA-APHIS-PPQ confirmed the presence of pine shoot beetle (PSB) in Dubuque and Scott counties. A Federal Order was issued effective June 22, 2006 placing Dubuque and Scott counties under a Federal quarantine for interstate movement of PSB regulated articles. Iowa Department of Agriculture and Land Stewardship (IDALS) was provided a copy of the Federal Order as well as additional information concerning the pine shoot beetle, and was requested to consider placing a state PSB quarantine for intrastate movement of PSB regulated articles from Dubuque and Scott Counties. However, after considerable review, IDALS declined to implement an intra-state quarantine for PSB. Therefore, a Federal Order was issued effective September 18, 2006 for quarantine of the entire state of Iowa for PSB, *Tomicus piniperda*.

The quarantine affects the following pine products, called “regulated articles”:

- Pine nursery stock
- Pine Christmas trees
- Wreaths and garlands
- Pine logs/lumber (with bark attached)

All pine nursery stock shipped from Iowa to a non-regulated state must be inspected and certified free from PSB. This inspection and certification must occur just before shipping. Small pine seedlings (less than 36 inches tall, and 1 inch in diameter) and greenhouse grown pines require a general inspection of the whole shipment. All other (larger) pine nursery stock shipments must have 100% tip-by-tip inspection.



Figure 24. The picture above shows the pine shoot beetle and the damage it causes to branches.
(Images: Steve Passoa, USDA APHIS PPQ, Bugwood.org)

**Additional Pest Surveyed:
Phomopsis galls**

Year 2023

State: Iowa

Forest Pest

Common Name: Phomopsis galls

Scientific Name: Phomopsis spp.

Hosts: Bitternut and Red Oaks

Setting: Rural Forests and Urban

Counties: Western Iowa

Survey Methods: Ground, General Observation, and Culturing

Acres Affected: Approximately 10,916 aerial surveyed acres

Narrative: Phomopsis Galls may occur singly or in clusters on the trunk and branches. They are woody, rough, more or less round swellings. They can be from very small to 10" in diameter. They appear as tight clusters of nodules, each nodule up to 1" or more in diameter. If cut open they reveal disorganized woody tissue but no insect chambers or tunnels.

Spores are produced throughout the growing season and are spread by wind and rain splashes. It is believed that spores infect a host by entering a wound of a young twig. The fungus then spreads to branches and to the trunk. The galls do not kill the host but reduce vigor and girdle small branches causing dieback. Uninfected trees may occur near heavily infected ones. For more information visit Wisconsin DNR Forestry News



Figure 25. Picture of an infected hickory tree with Phomopsis galls. (Image: www.minnesotaseasons.com/Fungi/Phomopsis_gall_on_hickory.html)

**Additional Pest Surveyed:
Dutch Elm Disease**

Year 2023

State: Iowa

Forest Pest

Common Name: Dutch Elm Disease

Scientific Name: *Ophiostoma ulmi* or *Ophiostoma novo-ulmi*

Hosts: Elm

Setting: Rural Forests and Urban

Counties: Statewide

Survey Methods: Ground, General Observation, and Culturing

Acres Affected: Approximately 10,916 aerial surveyed acres

Narrative: Dutch elm disease was introduced to North America in the 1930's and began killing millions of native elm trees. Dutch elm disease has been identified in all of Iowa's counties, and it's estimated that just over 95 percent of the urban elm trees have succumbed to this disease.

The fungus is native to Asia and was introduced to Europe shortly after World War I. From Europe, it traveled to North America in the 1930's in crates made from infected elm logs. The disease quickly infected elms across the United States since our native elms did not have natural resistance to the introduced pathogen.

Dutch elm disease was reported statewide in 2023. The 2023 season appeared to have a high occurrence of [Dutch elm disease](#).



**Figure 26. Areas where Dutch elm disease is generally known to occur within the continental United States.
(Image: Tivon Feeley, DNR)**

**Additional Pest Surveyed:
Hickory Dieback**

Year 2023

State: Iowa

Forest Pest

Common Name: Hickory Dieback

Scientific Name: *Fusarium solani* and *Ceratocystis smalleyi*

Hosts: Bitternut Hickory and Occasionally Shagbark Hickory

Setting: Rural Forests and Urban

Counties: Statewide

Survey Methods: Ground

Acres Affected: Approximately 10,000 acres

Narrative: Hickories have continued to decline statewide. Mortality has become fairly common within the range of bitternut hickory making it difficult to track and estimate the acres impacted. If a landowner suspects hickory mortality, they should contact the ISU Plant Diagnostic Clinic at 515-294-0581.

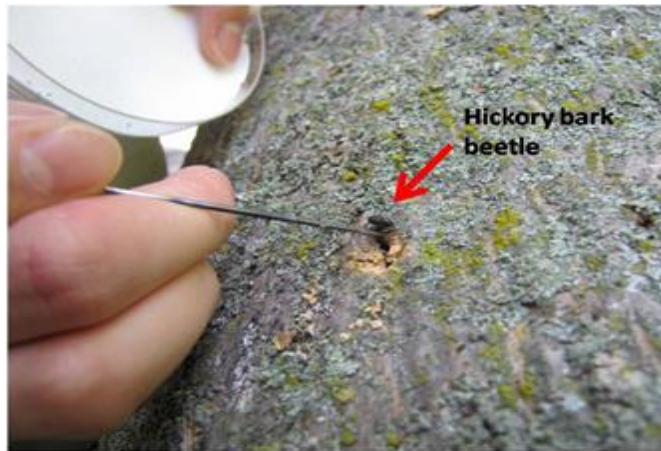


Figure 27. Hickory bark beetle attack. (Image: Dr. Jennifer Juzwik, USFS)



Figure 28. Associated cankers. (Image: Dr. Jennifer Juzwik, USFS)

Additional Pest Surveyed:

Invasive Plants

Exotic invasive species are plants that are non-native to an ecosystem and cause or are likely to cause economic or environmental harm to humans, crops, livestock, or natural plant and animal communities. The most common non-native species found in the FIA report as problematic in Iowa forests are multiflora rose, reed canary grass, bush honeysuckle, garlic mustard, Japanese knotweed, autumn olive, common buckthorn, Japanese barberry, and oriental bittersweet (Miles, P.D. Wed Mar 25 20:46:53 MDT 2016. [Forest Inventory DataMart](#) web-application version 1.6.0.01. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station.).

These invasive and exotic plants are out-competing native forest species, diminishing fisheries and wildlife habitat, reducing water quality, reducing economic returns from forest management and tourism, and threatening long term forest sustainability and biodiversity. In 2013 Oriental bittersweet, Japanese knotweed, garlic mustard, and Japanese hops were made illegal to distribute in the State of Iowa.

Known Invasive Plants in Iowa 2023

Key: NP= Not Present- Not known to exist in Iowa

I= Isolated- the species is infrequent, not commonly seen

LA= Locally Abundant- the species is present but is not in the majority of the counties

W= Widespread- commonly seen in the majority of counties in large or small populations

Species	Common Name	Abundance
<i>Abutilon theophrasti</i>	Velvetleaf	W
<i>Ailanthus altissima</i>	tree-of-heaven	W
<i>Alliaria petiolate</i>	garlic mustard	W
<i>Berberis thunbergii</i>	Japanese barberry	W
<i>Bromus tectorum</i>	cheatgrass	W
<i>Butomus umbellatus</i>	flowering rush	I
<i>Carduus acanthoides</i>	plumeless thistle	I
<i>Carduus nutans</i>	Musk thistle	W
<i>Celastrus orbiculata</i>	Oriental bittersweet	LA
<i>Centaurea maculosa/beibersteinii</i>	spotted knapweed	LA
<i>Centaurea repens</i>	Russian knapweed	I
<i>Centaurea solstitialis</i>	yellow starthistle	I
<i>Cirsium arvense</i>	Canada thistle	W
<i>Cirsium</i> spp.	thistle	W
<i>Cirsium vulgare</i>	bull thistle	W
<i>Conium maculatum</i>	poison hemlock	I
<i>Coronilla varia</i>	crown vetch	W
<i>Daucus carota</i>	Queen Anne's lace	W
<i>Dipsacus fullonum/sylvestris</i>	common teasel	I
<i>Dipsacus laciniatus</i>	cutleaf teasel	I
<i>Dipsacus sativus</i>	Indian teasel	NP
<i>Elaeagnus angustifolia</i>	Russian olive	I
<i>Elaeagnus umbellate</i>	autumn olive	LA
<i>Euonymus alatus</i>	burning bush	LA
<i>Euphorbia esula</i>	leafy spurge	W
<i>Fallopia japonica</i>	Japanese knotweed	LA
<i>Frangula alnus/Rhamnus frangula</i>	glossy buckthorn	I
<i>Heracleum mantegazzianum</i>	giant hogweed	NP

Species	Common Name	Abundance
<i>Hesperis matronalis</i>	dame's rocket	W
<i>Humulus japonicus</i>	Japanese hop	LA
<i>Lespedeza cuneata</i>	Sericea lespedeza	I
<i>Ligustrum japonicum</i>	Japanese privet	NP
<i>Ligustrum obtusifolium</i>	blunt-leaved or border privet	I
<i>Ligustrum sinense</i>	Chinese privet	NP
<i>Ligustrum vulgare</i>	common or European privet	I
<i>Lonicera fragrantissima</i>	fragrant honeysuckle	NP
<i>Lonicera japonica</i>	Japanese honeysuckle	LA
<i>Lonicera maackii</i>	Amur honeysuckle	W
<i>Lonicera standishii</i>	Standish's honeysuckle	NP
<i>Lonicera tatarica</i>	Tatarian honeysuckle	W
<i>Lonicera x bella</i>	Bell's honeysuckle	I
<i>Lonicera xylosteum</i>	European fly honeysuckle	NP
<i>Lythrum salicaria</i>	purple loosestrife	W
<i>Morus alba</i>	white mulberry	W
<i>Pastinaca sativa</i>	wild parsnip	W
<i>Potamogeton crispus</i>	curlyleaf pondweed	I
<i>Pueraria montana</i>	kudzu	I
<i>Rhamnus cathartica</i>	common buckthorn	W
<i>Rosa multiflora</i>	multiflora rose	W
<i>Tamarix</i> spp.	salt cedar	I

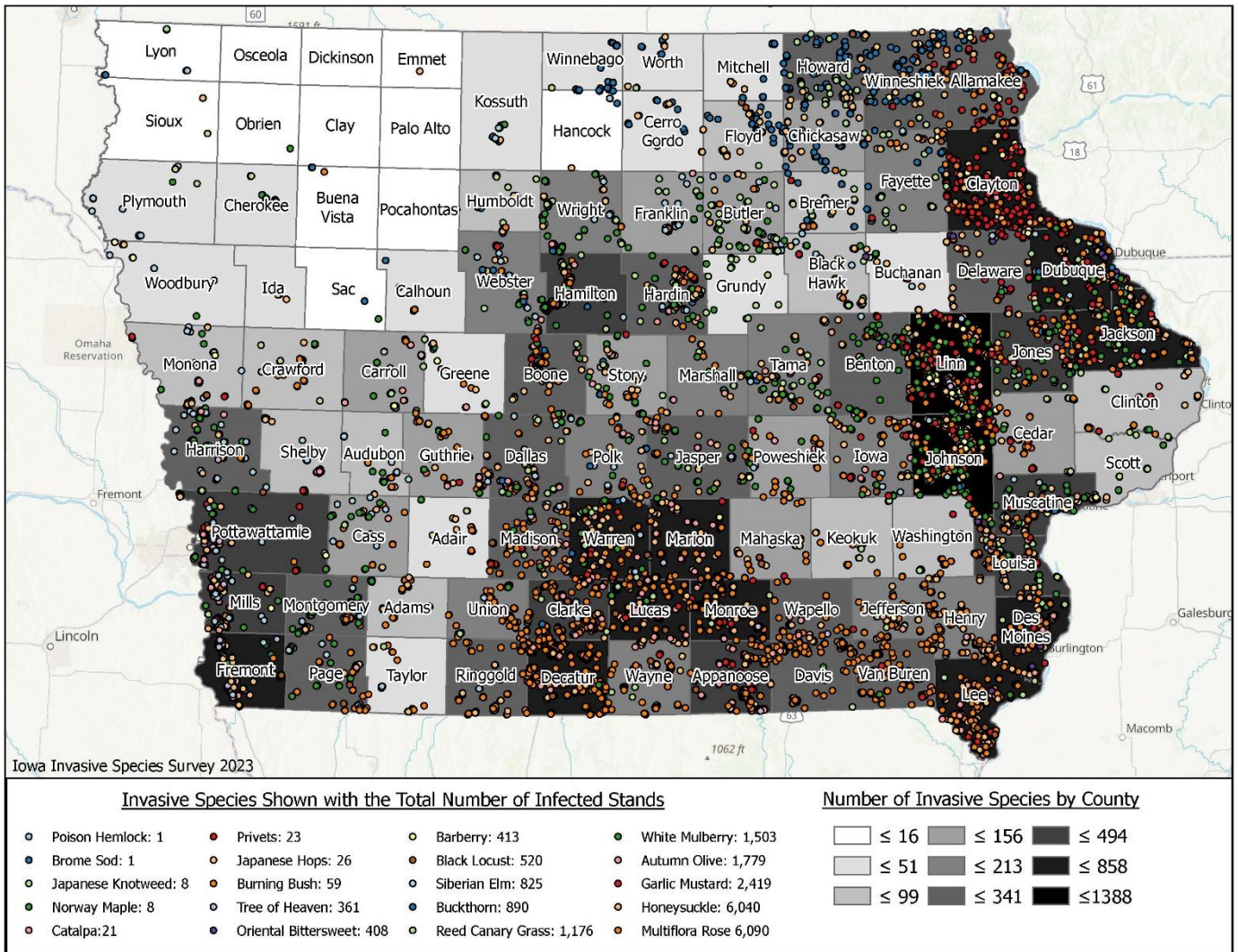


Figure 29. The map above details the locations of invasive species as identified by DNR District Foresters and the Forest Health Program Leader in 2023. (Image: Tivon Feeley, DNR)

**Additional Pest Surveyed:
Rapid White Oak Mortality**

Year: 2023
 State: Iowa
 Forest Pest
 Common Name: Rapid White Oak Mortality
 Scientific Name: Unknown

Hosts: Quercus alba
 Setting: Rural Forests and Urban
 Counties: SE Iowa
 Survey Methods: General Observation
 Acres Affected: Approximately 10,208 acres
 Narrative:

There have been several counties in SE Iowa where DNR has visited woodlands that had severe white oak mortality from unknown causes. The white oaks start to decline in the lower slopes and the decline/mortality quickly moves upland. The leaves turn chlorotic and within a year, the tree is complete dead. The current management plan is to aggressively harvest affected trees.

This pattern of decline is similar to what Missouri has reported over the past several years. Samples collected in 2017 indicated activity of Armillaria root disease, two-lined chestnut borer, and a variety of decline-inciting disease agents, so it is unclear of the foundational cause of mortality. Nested PCR tests for oak wilt disease have all been negative. In 2023, mortality continued, but the causes continue under investigation.

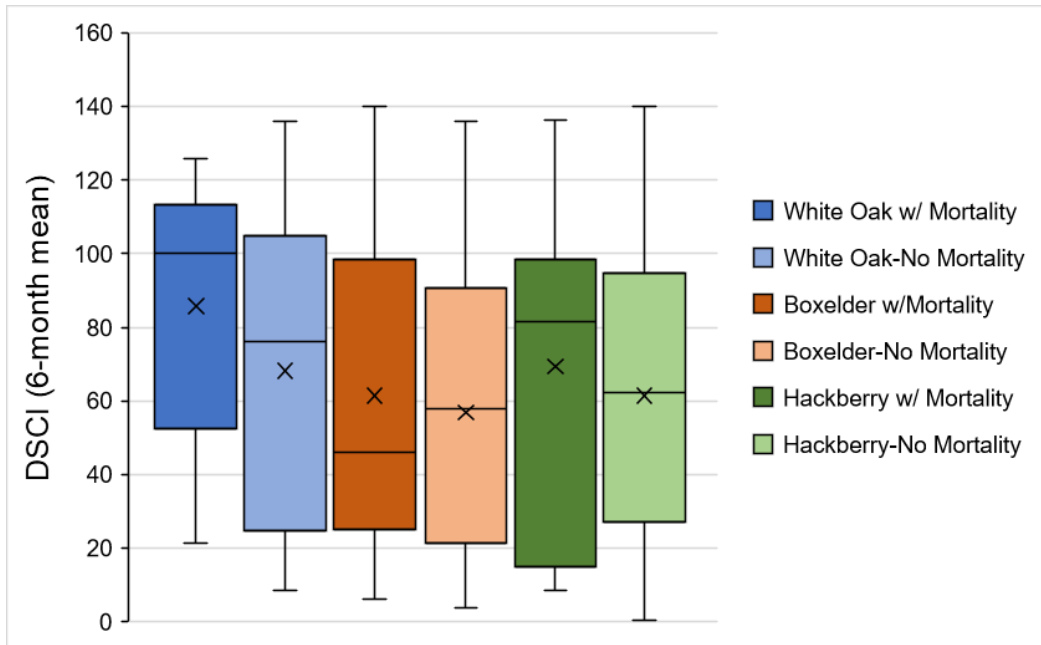


Figure 30. The figure above contrasts drought impacted sites of white oak, boxelder, and hackberry vs sites not impacted by drought. The graph shows no statistical difference in sites, suggesting that drought may not be the causal agent for the decline. (Image: FIA, USFS 2023)

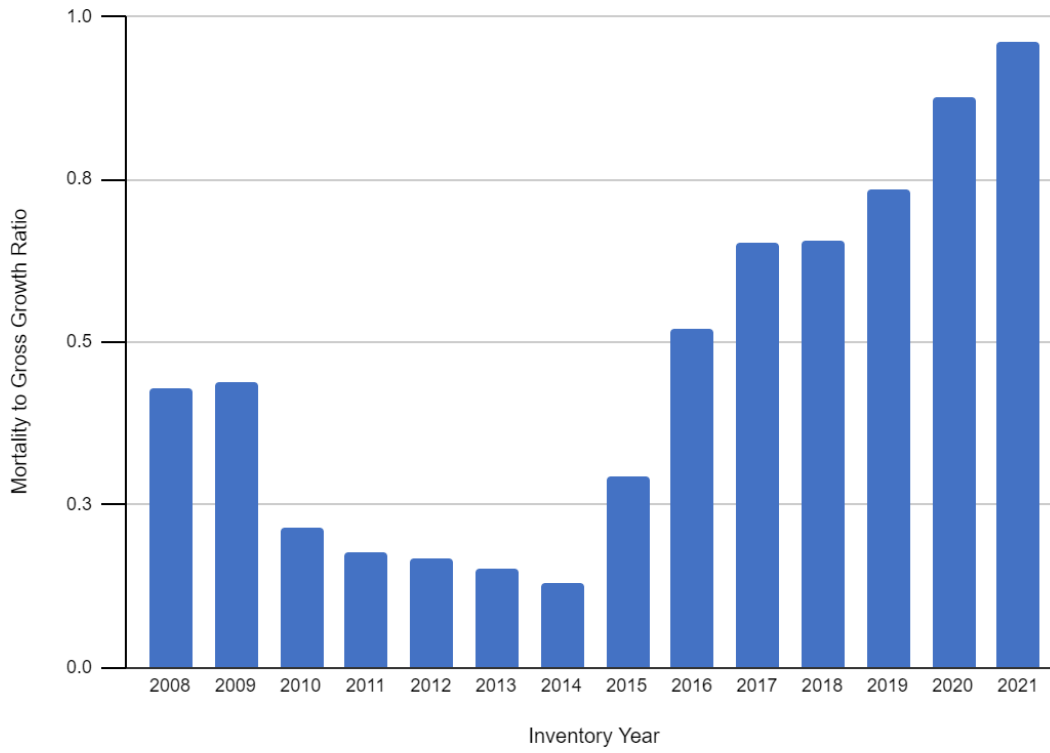


Figure 31. The figure above shows the average white oak mortality to gross growth ratio. White oak mortality was detected in the FIA date starting in the year 2015 and has steadily increased. (Figure: FIA, USFS 2023)

**Additional Pest Surveyed:
Gretchena amatana**

Year: 2023
State: Iowa
Forest Pest

Common Name: *Gretchena amatana*
Scientific Name: *Gretchena amatana*

Hosts: Walnut
Setting: Rural Forests and Urban
Counties: Isolated areas in eastern and western of Iowa
Survey Methods: N/A
Acres Affected: Unknown

Narrative: 2023 has seen a slight increased number of this native tortricid moth. Reports in northeast and southwest Iowa occurred in 2021, 2022 and again in 2023. This moth is associated with defoliation of Juglandaceae species

They first feed on buds and then become leafrollers, significantly impacting the health of infested trees. The shrouded tree trunk and appearance of the webbing by *Gretchena amatana* defoliation does not appear to have significant consequences to the affected trees there have been no indications that applied controls are warranted.



Figure 32. *Gretchena amatana* (Image: M. Sabourin - Bugguide.net)



Figure 33. Shrouded tree trunk and appearance of the webbing (Image: Oliver Cater, Iowa State University)

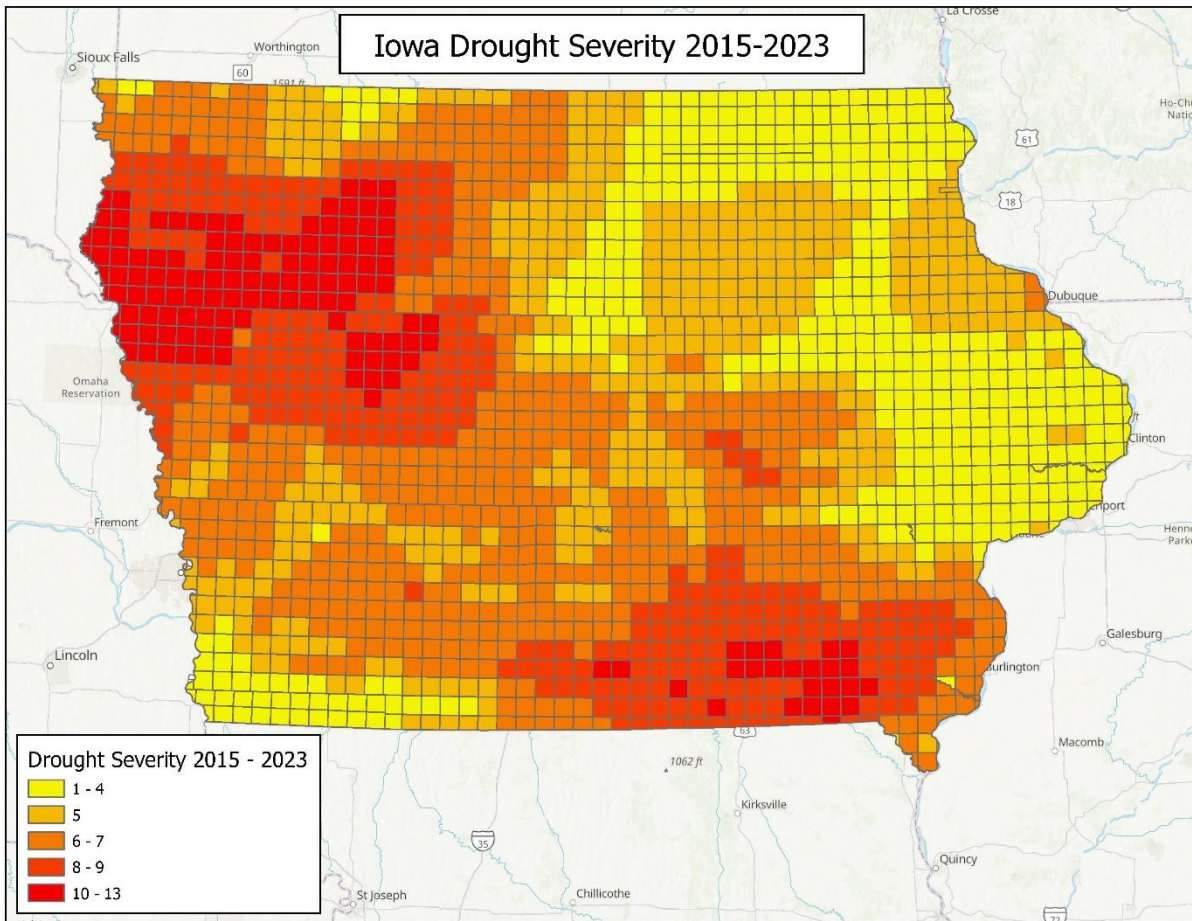
**Additional Pest Surveyed:
Drought**

Year: 2023
State: Iowa
Forest Pest
Common Name: Drought
Scientific Name: N/A

Hosts: N/A
Setting: Rural Forests and Urban
Counties: Statewide
Survey Methods: N/A
Acres Affected: Statewide
Narrative:

Above average temperatures along with lower than average accumulated precipitation has led to 12 counties experiencing extreme levels of drought while the rest of the state experienced moderate to severe conditions during August, 2024.

Average Temperature map (Left) shows areas in Iowa which experienced higher than average temperatures during the months of June 1st through August 31st, 2023. Accumulated Precipitation (Right) shows the majority of Iowa experienced a lower number of rainfall events during the months of June 1st through August 31st, 2023.



**Additional Pest Surveyed:
Oak Tatters**

Year 2023

State: Iowa

Forest Pest

Common Name: Oak Tatters

Scientific Name: N/A

Hosts: Oaks and Hackberry

Setting: Rural Forests and Urban

Counties: Statewide

Survey Methods: General and Aerial

Acres Affected: Unknown

Narrative: DNR received several phone calls of tatters on oak and hackberry in 2023. The cause of oak tatters is not known. However, a study conducted by the University of Illinois suggested that Class 5 herbicides might be causing oak tatters. This has yet to be proven in the field.

Overall, the number of reports received during 2023 were lower than average past growing seasons. DNR will continue to work with its cooperators to determine the cause of oak tatters.



Figure 34. Oak leaves showing signs of Oak tatters. (Image: Joseph O'Brien, USDA Forest Service, Bugwood.org)

Conclusion

Management plays an important role in creating a healthy Iowa forest. The best insurance a person can have when managing their woodlands is diversity of tree species with the appropriate number of trees per acre. These simple management strategies may help prevent excessive tree loss from a single pest and help maintain the trees' vigor, which may make them more resistant to potentially destructive insects and diseases. The best management plan for community forests is to not have more than 10% of any one species represented. Iowa forests play an important role by providing abundant forest products and amenities, including outdoor recreation opportunities, wildlife habitat, water quality, human health, and the economic benefits of a vast array of wood and wood fiber products.

Iowa's forests are facing an unprecedented level of invasive pests, chemical damage, wildlife pressure, and improper management. Emerald ash borer, Spongy moth, bur oak blight, and thousand cankers disease on walnut could have a 91.6-billion-dollar impact on Iowa's woodlands and community trees. No longer will passive management allow for woodlands to be "preserved" in the condition that they are in today. Learning about your woodlands and how each component affects another will make it easier for Iowa's woodlands to be managed for long term health. If you need technical assistance with your woodlands contact your [private lands forester](#) for assistance.

The Forestry Section, through cooperation with other agencies, has programs in place to monitor forest stressors which have potential to move into Iowa and damage our forests. Those programs operated vigorously during 2023, and plans are in place for a similar continued vigorous forest health program operation in 2023. Those programs existed in part from funding received by USFS grants and the State of Iowa Woodland Health Appropriation.

However, budget constraints limit the amount of work for important matters such as: white oak decline, aspen decline, additional oak wilt pockets, and bur oak blight. Additional funds are needed for these important forest health issues to be addressed in 2023.

DNR would like to thank its collaborators from USDA-Forest Service, USDA-APHIS-PPQ, Iowa State University Extension, Iowa Department of Agriculture and Land Stewardship, and Department of Natural Resources Foresters.

"A nation that destroys its soils destroys itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people."

- Franklin D. Roosevelt

Useful Phone Numbers and Websites

DNR Forestry Section has an updated [forest health page](#).

DNR maintains an [emerald ash borer resource page](#).

Iowa Department of Agriculture and Land Stewardship [Tree Health Page](#).

The Iowa State University Plant Disease Clinic has been assisting Iowa for nearly 50 years and is still available to answer plant disease questions. From flowers to trees they are ready to help. Contact them at 515-294-0581 or check them out on their [Plant Disease Clinic website](#).

For the creepy and crawling things on your plants, don't forget to contact [Iowa State University Extension Entomology](#). They can help you identify the insect and discover the best control measures. Contact them 515-294-1101.

Find a pesticide and its label to manage pests at [Greenbook](#).

Search for the best way to control invasive plants at the [Midwest Invasive Plant Network](#).

Check out the [DNR landowner assistance](#) web page.

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