

State of South Dakota

2024 Forest Health Highlights

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Division of Resource Conservation and Forestry

General Overview:

Combined technical assists related to forest health totaled 1,983 in Fiscal Year 2024. This year, the three most common tree genus from which samples were submitted or inspected during site visits included ash (*Fraxinus*), pine (*Pinus*), and spruce (*Picea*). Other common tree genera submitted as samples included maples (*Acer*), elms (*Ulmus*), juniper (*Juniperus*), and apple (*Malus*).

Ash (*Fraxinus*) was the most common genera for enquires. About 23 percent of the enquiries were about ash, mostly green ash (*F. pennsylvanica*). Green ash is one of the most common trees in South Dakota community forests and windbreaks. The confirmation of emerald ash borer (EAB) in Sioux Falls in 2018 increased awareness and concern among ash tree owners of the threat by this pest. The discovery of this borer in other nearby communities during 2024 continues to spread interest and concern. We received enquiries from around the state about ash trees infested by EAB. All the inspected ash outside of the state quarantine counties, were not infested by EAB. These trees were infested with the ash bark beetle, ash-lilac borer, banded ash borer, carpenterwood, or the redheaded ash borer.

The second most common genera for enquires was spruce (*Picea*) (17%). Spruce calls were mostly concerning Colorado spruce (*P. pungens*), though white spruce (*P. glauca*) and Norway spruce (*P. abies*) were also common enquiries. Cytospora canker was a common disease associated with mature Colorado spruce. These infected trees were also drought-stressed. Needlecast diseases were also commonly associated with needle loss in the lower canopies.

Pines (*Pinus*) represented about 13 percent of the enquiries. About half of these were about ponderosa pine (*P. ponderosa*) with many of these pines in the Black Hills. The most common stressor was pine engraver beetle. There is also a small, but expanding, infestation of pines in the northern Black Hills by the mountain pine beetle. There was also an outbreak of a pine defoliator in the Black Hills in the fall of 2022. A long ridge of pine, mostly managed by the US Forest Service but also including private property, suffered 25 to 100 percent defoliation by the pine looper. The defoliation occurred on all size classes from saplings to mature trees. Most pine site visits outside of the Black Hills were for Scotch (*P. sylvestris*) and Austrian (*P. nigra*) pines infected with pine wilt disease. There were also site visits for pines infected with diplodia tip blight or dothistroma needle blight, two diseases seen every year on pines. There were also calls about pine needle scale and Zimmerman pine moth.

Seven percent of the enquiries were regarding maples (*Acer*). Most calls were about the upper canopy dead or extremely late in leafing out this spring. This was attributed to winter desiccation injury from the dry fall and long winter. Chlorosis from deficiencies of available manganese and iron were frequent questions for silver maple, red maple (*A. rubrum*) and their hybrid, the Freeman maple (*A. x freemanii*).

Another seven percent of the enquiries were concerning elm (*Ulmus*). Most of the samples and site visits were about defoliation by the European elm flea weevil. The most infested trees were Siberian elms (*U. pumila*) and hybrid elms such as Vanguard elm (*U. 'Morton Plainsman'*) which have Siberian elm in their lineage. American elms (*U. americana*) were identified with European elm scale, lecanium scale and Dutch elm disease (DED). There was one isolation of elm yellows on Vanguard elms. There were also American elms infected with verticillium wilt.

Juniper (*Juniperus*) were about six percent of the enquiries. Most of these were regarding eastern redcedar (*J. virginiana*) and Rocky Mountain juniper (*J. scopulorum*) in windbreaks throughout the state. A departure from the two previous years is the most common stressors were not the common fungal diseases - Cercospora blight, Kabatina blight or Phomopsis blight – but drought and winter burn. Cedar bark beetles were commonly found in drought-stressed cedar windbreaks.

The remaining samples and site visits were of many different genera including apple (*Prunus*), arborvitae (*Thuja*), black locust (*Robinia*), catalpa (*Catalpa*), cottonwood (*Populus*), hackberry (*Celtis*), honeylocust (*Gleditsia*), oak (*Quercus*) and walnut (*Juglans*) among others.

Confirmed Insects & Mites

By samples submitted or pictures sent via phone or email

- Apple maggot (*Rhagoletis pomonella*)
- Ash/lilac borer (*Podosesia syringae*)
- Ash bark beetle (*Hylesinus*)
- Ash flower gall mite (*Aceria fraxiniflora*)
- Ash leaf curl aphid (*Prociphilus fraxinifolii*)
- Ash plant bug (*Tropidosteptes amoenus*)
- Ash-grey blister beetle (*Epicauta fabricii*)
- Banded elm bark beetle (*Scolytus chevvyrewi*)
- Banded ash borer (*Neoclytus caprea*)
- Bronze birch borer (*Agrilus anxius*)
- Carpenterworm (*Prionoxystus robiniae*)
- Cedar bark beetle (*Phloeosinus*)
- Chokecherry gall midge (*Contarinia virginianae*)
- Codling moth (*Cydia pomonella*)
- Cottonwood leaf beetle (*Chrysomela scripta*)
- Cottony maple scale (*Pulvinaria innumerabilis*)
- Dogwood sawfly (*Macremphytus tarsatus*)
- Eastern tent caterpillar (*Malacosoma americanum*), the western tent caterpillar (*M. californicum*) and the forest tent caterpillar (*M. disstria*)
- Emerald ash borer (*Agrilus planipennis*)
- European elm flea weevil (*Orchestes steppensis* syn *alni*)
- European elm scale (*Eriococcus spurius*)
- Fall webworm (*Hyphantria cunea*)
- Fall cankerworm (*Alsophila pometaria*)
- Gall wasp (*Callirhytis flavipes*)
- Hackberry nipple gall maker (*Pachypsylla celtidismamma*)
- Honeylocust pod midge (*Dasineura gleditschiae*)
- Japanese beetle (*Popillia japonica*)
- Lecanium scales (*Parthenolecanium*)
- Locust borer (*Megacyllene robiniae*)
- Locust leafminer (*Odontota dorsalis*)
- Maple agrilus (*Agrilus masculinus*)
- Maple bladder gall mite (*Vasates quadripedes*)
- Metallic woodborer (*Buprestis confluenta*)
- Mountain pine beetle (*Dendroctonus ponderosae*)
- Oystershell scale (*Lepidosaphes ulmi*)
- Pear slug (*Caliroa cerasi*)
- Pigeon tremex (*Tremex columba*)
- Pine engraver beetle (*Ips pini*)
- Pine looper (*Nacophora (Phaeoura) mexicanaria*)
- Pine needle scale (*Chionaspis pinifoliae*)
- Poplar borer (*Sapera calcarata*)
- Poplar vagabond aphid (*Mordvilkoja vagabunda*)
- Six-spined engraver beetle (*Ips calligraphus*)
- Spruce bud scale (*Physokermes piceae*)
- Spruce needleminer (*Endothenia albolineana*)
- Turpentine beetle (*Dendroctonus valens*)
- Twolined chestnut borer (*Agrilus bilineatus*)
- Western flower thrip (*Frankliniella occidentalis*)
- Woolly adelgid (*Pineus strobi*)
- Zimmerman pine moth (*Dioryctria*)



Western tent caterpillar
SD DANR, Dr. Ball

Confirmed Diseases

By samples submitted or pictures sent via phone or email

- Apple scab (<i>Venturia inaequalis</i>) - Ash anthracnose (<i>Plagiostoma fraxini</i>) - Ash rust (<i>Puccinia sparganioides</i>) - Bacterial blight of lilac (<i>Pseudomonas syringae</i> pv. <i>syringae</i>) - Black knot (<i>Apiosporina morbosa</i>) - Black rot (<i>Diplodia seriata</i>) - Brown spot needle blight (<i>Mycosphaerella dearnessii</i>) - Cedar rusts, cedar-apple rust (<i>Gymnosporangium juniperivirginianae</i>), cedar-hawthorn rust (<i>G. globosum</i>), juniper broom rust (<i>G. nidus-avis</i>) and cedar-quince rust (<i>G. clavipes</i>) - Cercospora blight (<i>Pseudocercospora juniperi</i>) - Cereal rust fungus (<i>Puccinia coronata</i>) - Currant cup rust (<i>Puccinia caricina</i>)	- Diplodia tip blight (<i>Diplodia pinea</i>) - Dothistroma needle blight (<i>Dothistroma pini</i>) - Dutch elm disease (<i>Ophiostoma novo-ulmi</i>) - Elm yellows (Candidatus <i>Phytoplasma ulmi</i>) - Fireblight (<i>Erwinia amylovora</i>) - Kabatina twig blight (<i>Kabatina juniperi</i>) - Lilac leaf spot (<i>Pseudocercospora</i>) - Marssonina blight (<i>Marssonina brunnea</i>) - Phomopsis twig blight (<i>Phomopsis juniperovora</i>) - Pine wilt disease – pinewood nematode (<i>Bursaphelenchus xylophilus</i>) - Plum pockets (<i>Taphrina communis</i>) - Powdery mildew on lilac (<i>Erysiphe</i>) and ninebark (<i>Podosphaera</i>)	- Spruce needlecast (<i>Stigmina lautii</i> and <i>Rhizosphaera kalkhoffii</i>) - Tar spot (<i>Rhytisma acerinum</i>) - Septoria leaf spot on dogwood (<i>Septoria</i>) - Valsa (cytospora) canker (<i>Valsa kunzei</i>) - Walnut anthracnose (<i>Ophionomonia leptostyla</i>) - Verticillium wilt (<i>Verticillium dahliae</i>)
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Ash anthracnose
SD DANR, Dr. Ball

Sample Photos Submitted

with Follow-Up Site Visits

- Chlorosis (*Acer rubrum*, *A. x freemanii*, and *Betula nigra*)
- Drought (*Acer* and *Picea*)
- Fall needle drop (*Pinus*, *Picea*)
- Winterburn (*Abies*, *Taxus* and *Thuja*)



Chlorosis on Freeman maple
SD DANR, Tony Seidl

Woody Plant Identification

- Common buckthorn (*Rhamnus cathartica*)
- White mulberry (*Morus alba*)

Highlighted Insect Conditions: Pine Looper

Pine looper outbreak in the Black Hills

Pine loopers defoliated ponderosa pines over about 7,000 acres along a ridge east and north of Pringle. The defoliation was first reported by landowners in August 2021, when they noticed a sudden appearance of caterpillars in the pines. By September 2023, they are gone.

Pine looper outbreaks are rare, occurring only once every few decades. Each outbreak lasts a year or two. The insect is native to the Black Hills. Usually there are just small populations of caterpillars feeding on pines scattered across the Black Hills. The population and damage are so small that it goes without notice. A public meeting for affected landowners was held in August 2023 to discuss management options. Thirty-two landowners attended.

The outbreak collapsed that fall. While there was significant defoliation in 2023, many larvae died before pupation. The reason for the collapse is the natural enemies – parasitic insects and pathogens. During our survey of the Pringle area in September 2022, the ground was littered with black pupae. We could find six or more per square foot of ground. A year later, in September 2023 year none were found in the area that had suffered two years of defoliation.



Pine looper inchworms
(Dr. John Ball, RCF)



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EAB status in South Dakota

In 2024, Emerald ash borer (EAB) was found in three more communities in southeastern South Dakota: Brookings, Lennox, and Tea. The confirmation of an EAB population in Brookings adds Brookings County to the state quarantine list along with Minnehaha, Turner, Lincoln and Union counties. This also represents the first non-adjacent county in SD to identify EAB.

Many communities in the eastern part of the state are now taking proactive measures to reduce the impact of this invasive pest's inevitable spread; such measures include removing ash trees, treating remaining ash trees with 15 miles of known infestations, and planting various species of hardwoods to promote biodiversity and forest health.

South Dakota Forest Health Workshop – Virtual Web Series

Forest Health Specialist, Dr. John Ball, hosts a 60-minute discussion about timely tree care topics for our region. Some topics include an EAB update, herbicide carryover/drift, and recommended species for planting. The monthly virtual workshop continues to host 80 viewers on average and the recorded videos gain hundreds of views online.

Annual Insect and Disease Training

The Division of Resource Conservation and Forestry's strategic plan requires one insect and disease training be held each year for division personnel to improve diagnoses of common problems of trees in South Dakota. These training are also open to other agencies and individuals looking to expand their knowledge of tree insects and diseases. The 2024 training was held in Pierre, SD from June 5 through 7. The training included identification of common South Dakota trees and pests, tree identification field tour, and tree & pest quiz.

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