



# KANSAS FOREST SERVICE

## FOREST HEALTH PROGRAM HIGHLIGHTS

2024-2025

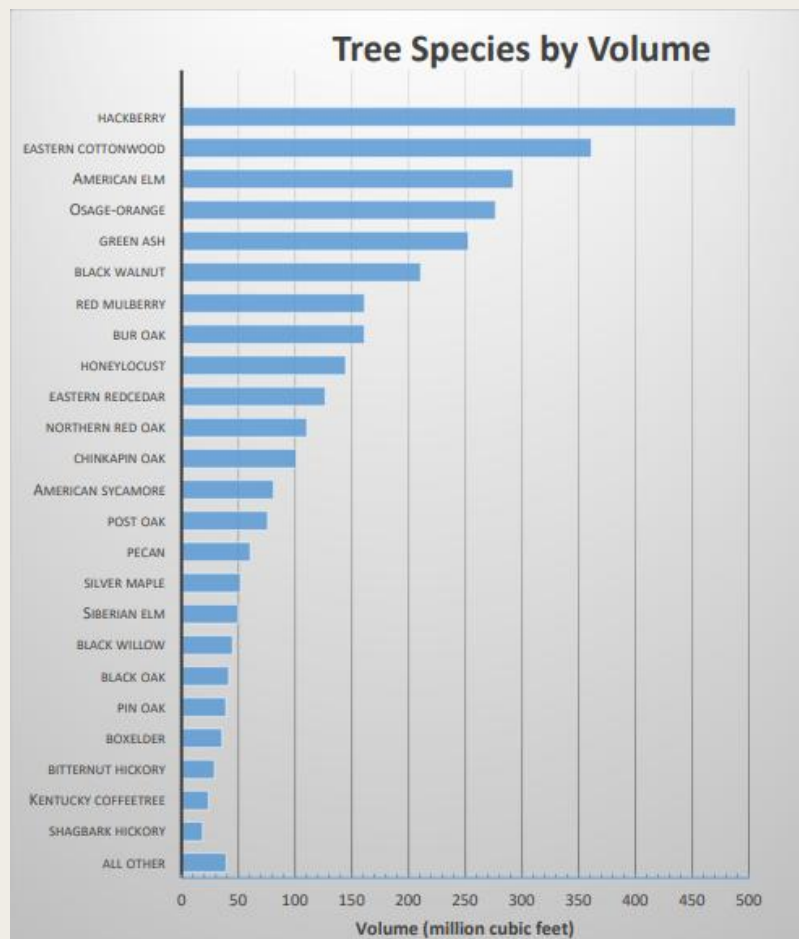
Although much of Kansas is devoted to traditional agriculture, trees remain an important part of the state's landscape. Kansas contains more than 5 million acres of trees, representing roughly 10 percent of the state's land area. These trees occur in riparian forests, native woodlands, windbreaks, and community landscapes across the state. The majority of these woodlands are linear in nature and occur along bodies of water, although contiguous forestland can be found in far eastern Kansas.

The Kansas Forest Service works with landowners, communities, and partner organizations to conserve, protect, and utilize these resources. Through monitoring, outreach, and technical assistance, the agency's Forest Health Program helps address threats from insects, diseases, invasive species, and environmental stressors while supporting resilient forests and community trees across Kansas.

The following report highlights key forest health issues, monitoring efforts, and program accomplishments from Fiscal Years 2024 and 2025.

Kansas has approximately 100 species of trees that grow naturally outside of cultivation, while many additional species are planted throughout the state in urban and developed areas such as streets, parks, and residential landscapes. The tree species with the greatest statewide volume include hackberry, eastern cottonwood, American elm, Osage-orange, green ash, black walnut, red mulberry, bur oak, honeylocust, and eastern redcedar. These species play a major role in the structure and composition of Kansas forests.

The two dominant forest type groups in the state are Elm/Ash/Cottonwood forests and Oak/Hickory forests, which reflect the common species combinations found in many natural forest areas.



Over the past 60 years, regeneration of eastern cottonwood has been relatively low. Changes to riparian environments—such as agricultural expansion, dam construction, and stream channelization—have altered areas where cottonwood trees once thrived and reduced site suitability for new seedling growth. In contrast, eastern redcedar has spread rapidly across Kansas, especially into grasslands where natural fires are no longer common. Historically, periodic fires limited redcedar growth in fire-adapted prairie ecosystems, but fire suppression and decreased land management efforts have allowed the species to expand.

Forest acreage in Kansas increased from 1939 to 2012 but has slightly declined since then and may now be leveling off according to Forest Inventory and Analysis (FIA) data. Forest composition is also changing, with oak decreasing in some areas as natural succession favors shade-tolerant species such as hackberry and elm, which can grow beneath established forest canopies.

Kansas forests contain about 828 million live trees (at least one inch in diameter) and approximately 3.3 billion cubic feet of wood volume in trees five inches or larger. The most numerous species—hackberry, American elm, eastern redcedar, Osage-orange, and green ash—make up about 56 percent of all trees in the state. Although eastern cottonwood ranks only 25th in number of trees, it is the second-most voluminous species because the trees tend to be very large, while eastern redcedar ranks third in number but only tenth in volume.

Hackberry, eastern cottonwood, and American elm show the highest growth rates in Kansas forests, followed by black walnut and Osage-orange. However, since 2014 tree mortality has increased while forest area, number of live trees, and net growth have declined, raising concerns about the long-term health and sustainability of Kansas forests.

# Fiscal Year 2024 Highlights

During Fiscal Year 2024, the Forest Health Program of the Kansas Forest Service experienced a period of program transition, resulting in reduced program capacity for a significant portion of the year. Despite these limitations, several important activities and initiatives continued to support forest health awareness and invasive species management across the state.

In spring 2024, the Kansas Forest Service helped host a Callery Pear Buyback Event aimed at promoting invasive species awareness and reducing the spread of escapee ornamental pear trees. Participants who removed one or more callery pear trees from their properties received a free native tree replacement. Through this event, approximately 100 native trees were distributed, helping to promote greater species diversity and reduce future seed sources of this increasingly problematic invasive species.



KFS staff member assists Callery Pear Buyback Event participants

Monitoring for emerald ash borer also continued during the year. A new infestation was confirmed in Lyon County in May of 2024, further illustrating the ongoing spread of this destructive pest within the state. Detection efforts remain critical for providing early notification to communities and landowners so they can plan for potential impacts to ash tree populations and begin implementing management strategies.



EAB larvae obtained in Lyon County, KS.

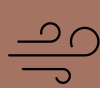
These activities helped maintain progress toward forest health monitoring and invasive species management objectives while the program prepared for expanded efforts in Fiscal Year 2025. With program staffing restored late in the year, the Kansas Forest Service Forest Health Program expanded monitoring, outreach, and partnership efforts during Fiscal Year 2025 to address existing and emerging forest health threats in Kansas.

# Fiscal Year 2025 Accomplishments and Highlights

During Fiscal Year 2025, the Forest Health Program of the Kansas Forest Service continued and expanded statewide efforts to monitor, detect, and respond to forest health threats affecting rural forests, community trees, and riparian ecosystems. Program activities and priorities focused on four primary areas: **insects, tree diseases, invasive woody plants, and environmental/abiotic stressors**. Through partnerships with state agencies, universities, local governments, and private landowners, the program expanded monitoring efforts, supported early detection initiatives, and provided education and technical assistance to protect Kansas forests and community tree resources.

In addition to addressing high-priority forest threats, the program responded to numerous inquiries from landowners, communities, and partner agencies regarding a variety of forest health issues. Many of these concerns involved minor or localized problems that did not pose significant or widespread threats but still required evaluation and technical guidance. Some inquiries included deer browsing damage, frost cracking (“exploding trees”), thorny tree species, herbicide drift, bagworms, nutrient deficiencies, and other issues caused by insects, diseases, invasive plants, and abiotic stressors.

Responding to these inquiries remains an important component of the program’s work as it helps provide technical assistance and prompts awareness of forest health conditions across Kansas.



Girdling Tree Support



Planted Too Deeply



Bagworm on Juniper



Herbicide Drift on Oak Foliage



Hail Damage



Tornado Damage in Southeast Kansas



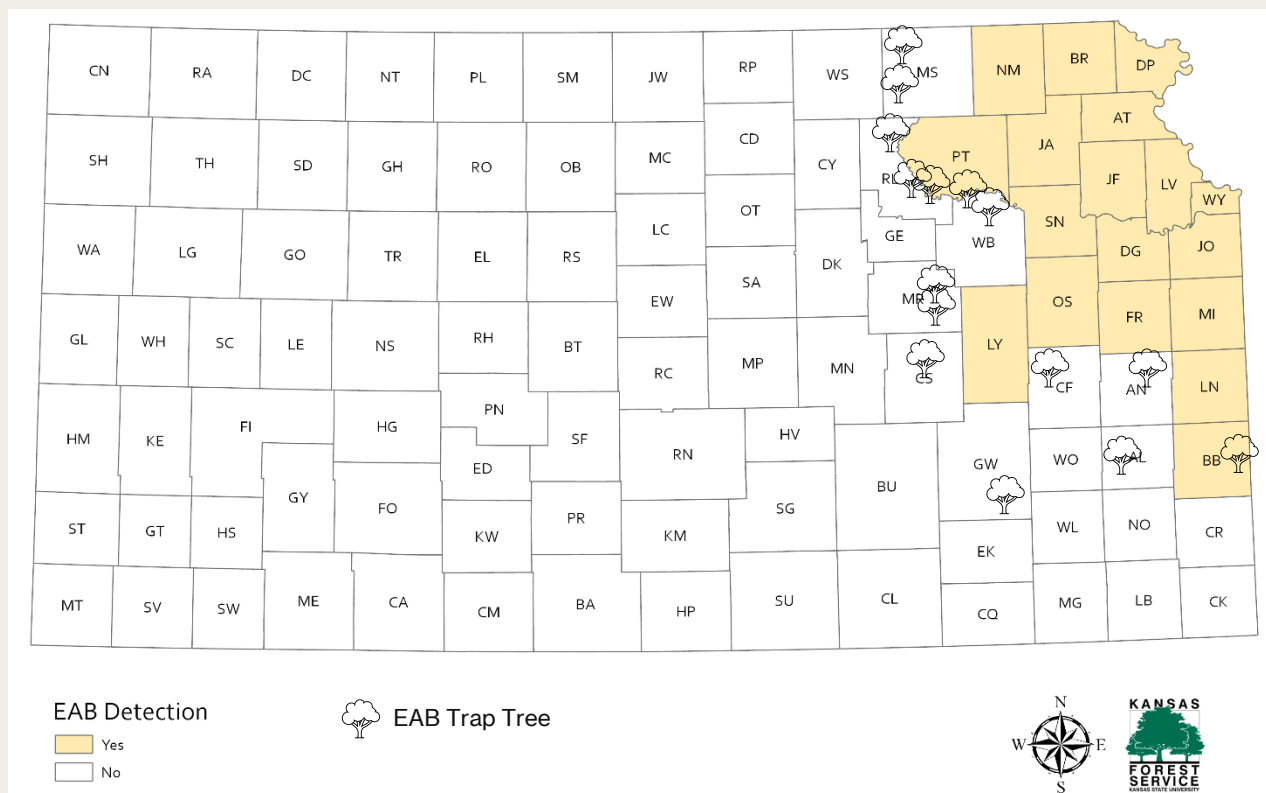
Mower Damage on Tree

# Insects – Emerald Ash Borer

In FY2025, the Forest Health Program continued to prioritize monitoring and response efforts for the invasive emerald ash borer (EAB), one of the most destructive forest insects in North American history. First detected in Kansas in 2012, EAB continues to expand its range and threatens an estimated 65 million ash trees across the state.

To improve early detection in areas without confirmed infestations, the Kansas Forest Service maintained its trap tree monitoring program. Receiving assistance from public and private partners, KFS completed the installation of 15 trap trees across 11 counties adjacent to known infestations. Selected ash trees were intentionally girdled to become a preferred host tree for EAB feeding and egg-laying.

In the fall, trap trees were felled, peeled, and inspected for larval activity to determine whether new infestations were present. These monitoring efforts, combined with year-round responses to public reports and inquiries regarding suspected EAB activity, allowed the Kansas Forest Service and the Kansas Department of Agriculture to confirm new detections in four additional counties during FY2025 – the highest number of new county detections since the insect was first discovered in the state. The total number of counties with positive counties detections is now 18.



# Insects – Emerald Ash Borer



Representatives from KDA and USFW examine an ash tree in Marais de Cygnes National Wildlife Refuge in Linn County.



An adult emerald ash borer on ash tree foliage.



An EAB silhouette is cast on an ash leaf in Pottawatomie County.



Beneath the bark of an ash tree, different life stages of EAB are exposed.



EAB feeding galleries are evident and plentiful in this ash tree in Bourbon County.



In Riley County, members of the KFS Tech Team, Colton Farra and Jessica Schmeidler, assist with bark peeling in the search for EAB larvae.



KFS Forest Health Program Coordinator, Shad Hufnagel, attaches an informational sign to an EAB trap tree in Marshall County.

# Insects – Emerging Threats

In addition to emerald ash borer monitoring, the program tracked several emerging invasive insect threats that could significantly impact Kansas forests if introduced. These include the **Walnut Twig Beetle**, the vector responsible for **Thousand Cankers Disease (TCD)** in black walnut; the invasive **Spotted Lanternfly**, which threatens numerous hardwood species and agricultural crops; and the highly destructive **Asian Longhorned Beetle**, which attacks a wide range of hardwood trees.

Kansas remains free of Thousand Cankers Disease of black walnut; however, the threat remains significant. Five of the six Colorado counties bordering Kansas have confirmed detections of the disease. Surveys and sampling conducted by the Kansas Department of Agriculture during the reporting period returned no detections of TCD or the Walnut Twig Beetle within the state.

If TCD were introduced into Kansas, it could result in an estimated \$160 million loss to the Kansas economy due to impacts on black walnut resources and associated industries. To help prevent the introduction and spread of TCD and other invasive pests, the program conducted targeted outreach efforts emphasizing that the movement of firewood and wood products significantly increases the risk of spreading invasive insects and diseases.

Continued vigilance, public awareness, and coordination with partners remain essential to preventing the establishment of these invasive forest pests in Kansas.

## Thousand Cankers Disease of Black Walnut



Kansas remains free of Thousand Cankers Disease of black walnut; however, the threat remains significant. Five of the six Colorado counties bordering Kansas have confirmed detections of the disease.



Members of the Great Plains Society of American Foresters inspect black walnut logs staged at a sawmill in Wathena, KS.



Freshly hulled black walnuts.



Dave Bruton, KFS Timber Marketing & Utilization Program Manager, assisting with walnut hulling.

# Tree Diseases

Several important tree diseases affecting both rural and urban forests across the state were monitored during FY2025 through diagnostic support, field surveys, and research collaborations.

## Oak Wilt

One of the primary disease concerns in 2025 was oak wilt, a vascular fungal disease capable of rapidly killing susceptible red oak species. To improve understanding of the disease's distribution across Kansas, the Kansas Forest Service collaborated with the Kansas State University Plant Pathology Diagnostic Laboratory and local partners to collect 23 symptomatic samples from trees within both the red and white oak groups. Of those samples, five tested positive for oak wilt. While confirmed cases remain intermittent, the disease continues to pose a threat in areas where oak resources are abundant—particularly in the eastern third of the state. Additional oak wilt surveying is planned to further support this research.



Oak leaf presenting symptoms of oak wilt.



Oak stem sample with brown tissue streaking indicating presence of oak wilt.



A white oak in Overland Park, Kansas, tested positive for oak wilt and was located adjacent to another infected tree, suggesting likely transmission through root grafting or insect vectors.

# Tree Diseases

## Pine Wilt

Pine wilt also remains an ongoing and increasingly widespread issue across the state. In Kansas, Scotch, Austrian, and mugo pine trees are most susceptible, although other pine species may also be affected. Pine health continues to be a common concern for Kansans, reflecting the widespread use of pines in landscapes and windbreaks despite the absence of native pine species in the state. Pine wilt was first detected in Kansas in 1979, and the disease continues to spread as the range of the pine sawyer beetle expands and firewood movement contributes to its distribution.

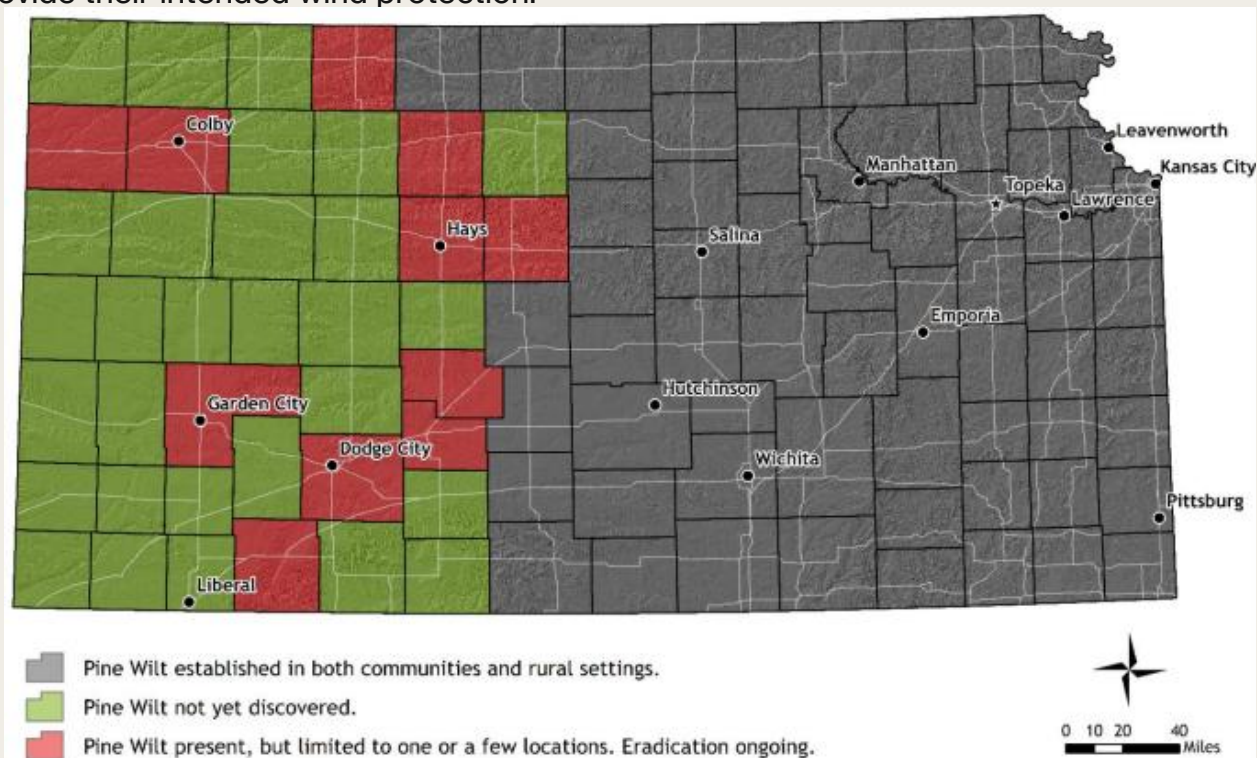
Kansas has more than 31,000 miles of windbreaks, with pine trees serving as a long-standing component of many plantings. Unfortunately, these windbreaks often become most vulnerable to pine wilt just as the trees mature and begin to fully provide their intended wind protection.



Dead pine needles appearing abruptly are often a sign of pine wilt.



A white pine sample taken for pine wilt testing.

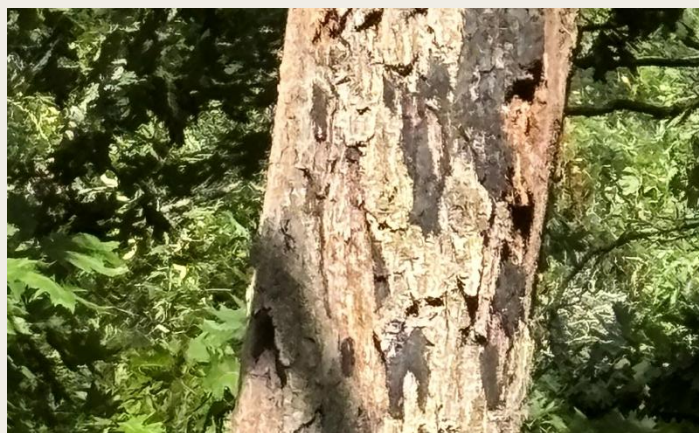


# Tree Diseases

Additional disease concerns addressed through diagnostics and outreach included, **Hypoxylon Canker**, **Diplodia Tip Blight**, and **Dothistroma Needle Blight**, which continue to affect both rural forests and community tree plantings.

## Hypoxylon Canker

Reports and concerns regarding Hypoxylon canker have increased over the past year. Following several years of widespread drought, declining tree health likely created favorable conditions for this opportunistic pathogen. Its increasing presence underscores the strong connection between overall tree health and susceptibility to disease. These impacts have not been limited to Kansas, as similar issues have been observed in other Midwestern states, including Nebraska and Iowa, where oak species have been particularly affected.



Johnson County, Kansas, a red oak shows signs of Hypoxylon canker.

## Diplodia Tip Blight and Dothistroma Needle Blight

Diplodia tip blight and Dothistroma needle blight are fungal diseases that affect, and sometimes kill, pine trees in Kansas. As with pine wilt, mature specimens tend to be most susceptible, particularly those growing in windbreaks or in areas with limited air movement where conditions favor fungal development. These diseases are often observed as recurring annual stressors that lead to defoliation, decline, and, in severe cases, eventual tree death.



Small black spore-producing structures called "pycnidia" can be seen on pine cone scales, indicating the presence of Diplodia tip blight.



A pine windbreak in Washinton County, KS., showing significant decline due in part to fungal diseases such as Diplodia tip blight and Dothistroma needle blight.

# Invasive Woody Plants

Invasive woody plant species continue to threaten native biodiversity, forest regeneration, and wildlife habitat throughout Kansas. In FY2025, program staff provided technical assistance, training, and outreach focused on controlling several high-priority invasive species.

Primary attention was directed toward **Tree-of-Heaven**, **Asian Bush Honeysuckle**, and **Callery Pear**. These species are rapidly expanding across many parts of the state, particularly in disturbed forests, riparian corridors, and urban-rural interface areas. Education and management recommendations emphasized early detection, removal strategies, and prevention of further spread.

Additional invasive woody species addressed through monitoring and outreach included **Tamarisk**, **Russian Olive**, **Autumn Olive**, **Wintercreeper**, and **Black Locust**. Though some of these species received less program focus during the year, they remain important management concerns due to their ability to alter riparian systems, outcompete native vegetation, and reduce ecosystem resilience.

## Tree-of-Heaven

Tree-of-heaven (*Ailanthus altissima*) forms dense, clonal thickets that displace native vegetation and can rapidly invade fields, meadows, and harvested forests. This invasive tree species is highly tolerant of poor soil conditions and can even establish in concrete cracks and riprap along roads, railroad tracks, and embankments. Although not shade tolerant, it readily invades disturbed forests and forest edges, where it can degrade native habitat.

Originally introduced as an ornamental, tree-of-heaven was widely planted in urban areas due to its rapid growth and ability to thrive in poor conditions. Today, management and control efforts for this species continue across the United States at significant economic cost. In Kansas, tree-of-heaven continues to spread in isolated pockets throughout the state, with many current populations likely originating from ornamental plantings established decades ago.

In most instances, the Kansas Forest Service (KFS) Forest Health Program assists Kansans with tree-of-heaven removal efforts by providing technical expertise and management guidance on a case-by-case basis. In addition, a larger-scale eradication project is currently underway along the Smoky Hill River channel in Salina, Kansas, with assistance from the Kansas Forest Service. This project aims to restore historical water flow to the river channel, rehabilitate river habitat, encourage recreational activities, and foster community connections to the river.



Tree-of-Heaven volunteers freely grow in and along a rip-rap buffer on a roadside in Riley County.

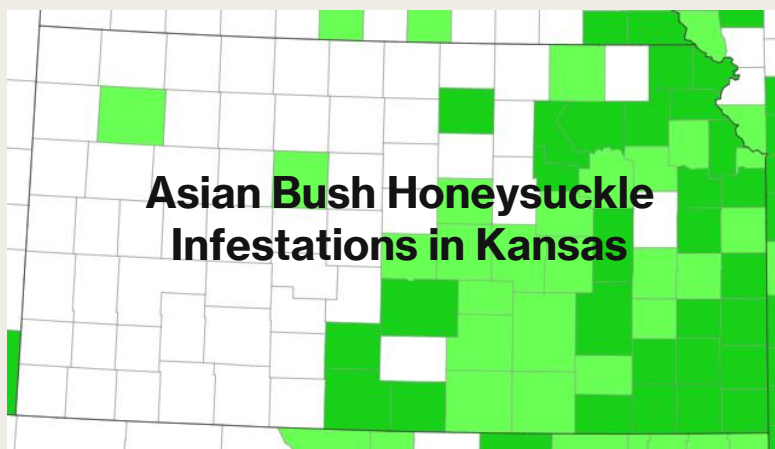
# Invasive Woody Plants

## Asian Bush Honeysuckle

Asian bush honeysuckle refers to a group of introduced ornamental woody shrubs that have become invasive and disruptive in many parts of the United States. In Kansas, the most common invasive species include **Lonicera maackii**, **Lonicera tatarica**, and **Lonicera morrowii**. These shrubs are considered one of the top invasive threats to Kansas forests. While infestations are most concentrated in the eastern third of the state, populations have been documented across many other regions of Kansas as well.

Because of the disruptive impacts of bush honeysuckle, active removal and management are essential to protecting Kansas's forests and native biodiversity. The Kansas Forest Service supports and encourages the removal of Asian bush honeysuckle from both private and public lands by providing targeted outreach, technical guidance, and support for eradication and control strategies.

To assist landowners and land managers, KFS offers resources such as the Backpack Mist-blower Loan Program, which provides access to equipment and guidance materials for invasive plant management. KFS is also researching control strategies, treatment methods, and optimal timing to develop more effective mitigation approaches for different site conditions and infestation levels, helping communities manage infestations and protect Kansas's natural landscapes.



Most bush honeysuckle infestations have been documented in the eastern third of the state, but recent surveys have resulted in new detections further west. KFS continues mapping the spread of these invasive plants.



Ryan Armbrust, KFS Rural Forestry Program Coordinator, demonstrates the use of a backpack mist-blower.



Bush honeysuckle debris covers the ground following the use of a forestry masticator attachment. This work was conducted in Warner Park in Manhattan, Kansas.

# Invasive Woody Plants

## Callery Pear

Due to their ornamental popularity, Callery pear and its many cultivars—including Bradford, Cleveland Select, Aristocrat, and Chanticleer—have been widely planted across the United States and Kansas for more than 50 years. Although these trees are self-sterile, cross-pollination among cultivars has allowed them to reproduce and spread into natural areas, causing economic, ecological, and societal impacts. In Kansas, at least 60 counties have confirmed levels of infestation.



Escapee Callery pear trees growing on a hillside in Riley County, Kansas.

This growing problem has prompted the Kansas Department of Agriculture to enact a quarantine on Callery pear beginning in January 2027, which will prohibit the sale, movement, and planting of the tree and its reproductive materials. Despite their conspicuous nature and recent unfavorable notoriety, the issue remains somewhat controversial because of the tree's popularity and prominence in the landscape. In addition, many people are unaware that the numerous ornamental pear cultivars commonly planted in landscapes are all varieties of the Callery pear species.

The issue of Callery pear as an invasive species has become a widely discussed topic, resulting in numerous news interviews, public presentations, and occasional contentious feedback on social media. In FFY 2025, the Kansas Forest Service hosted a Callery Pear Buyback Event at its state office in Manhattan, Kansas to raise awareness about invasive species and encourage the removal of ornamental pear trees. Participants who removed a Callery pear from their property received a free native replacement tree. Programs like this help reduce seed-producing trees in the landscape while promoting tree canopy diversification and healthier ecosystems.



Wild hybrid Callery pear trees often have thorns, unlike most cultivars.



Showy, but pungent, flowers are one reason for Callery pear's popularity.

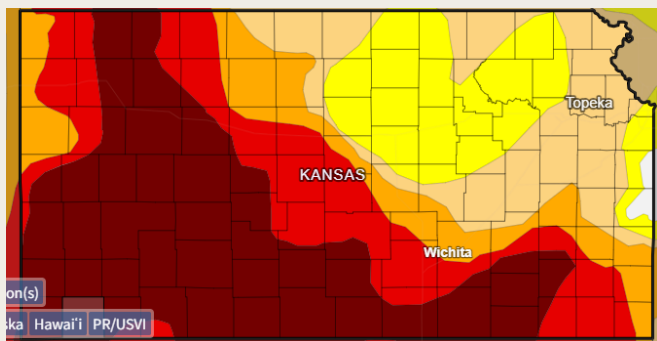


A chain and come-along winch is being used to support this Callery pear's crown.

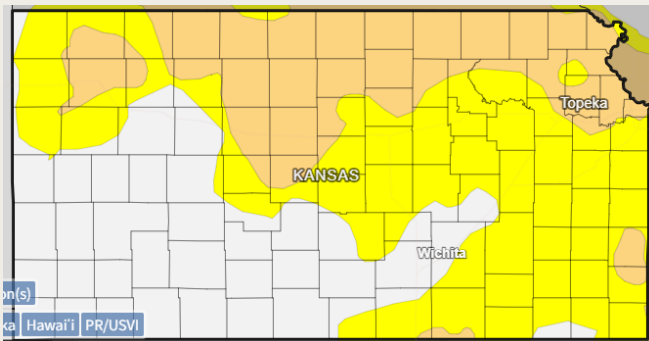
# Environmental/Abiotic Stressors

In addition to biological threats, trees in Kansas experienced a range of environmental and human-related stressors during FY2025. These predisposing, inciting, and contributing factors play a major role in overall tree and forest health across the state.

Variable rainfall patterns influenced soil moisture conditions, resulting in periods of both drought stress and saturated soils in different regions. Although overall precipitation in 2025 was closer to normal than in recent years, prolonged and recurring drought in previous years likely contributed to significant tree decline and increased susceptibility to additional stressors.

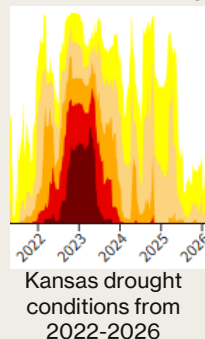


January 2023 Drought Map showing widespread drought statewide ranging from abnormally dry to exceptional drought.

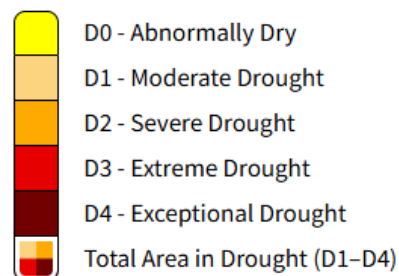


January 2025 Drought Map showing relatively low drought conditions statewide.

Severe weather—including storms, hail, and high winds—caused localized tree damage and further increased vulnerability to pests and diseases. Seasonal temperature fluctuations also contributed to physiological injuries such as frost cracking and sunscald on exposed trunks.



## U.S. Drought Monitor Category



Tornado damage on a mature forest in Coffey County, Kansas.



A frost crack scar on a bur oak at the Geyer Research Center near Manhattan, Kansas.

# Environmental/Abiotic Stressors

Each year, an estimated one million acres of forestland are lost to development across the United States. Since 1992, urban areas in Kansas have expanded by about 170,000 acres, permanently converting significant forestland to other uses. Conversion and fragmentation are expected to continue as the national population grows by an estimated 120 million people over the next 50 years.

The Kansas City metropolitan area alone is projected to add roughly 350,000 residents over the next 20 years, converting an estimated 400,000 acres of land to urban use. Of this area, about 22 percent is considered to have good to high ecological value, including forests and woodlands that make up roughly 18 percent of these lands.

Riparian forests are often located where highly productive agricultural land and prime development opportunities overlap. Although long-term trend data are limited, observations suggest that riparian forests continue to be converted to cropland and urban development, negatively affecting water quality, wildlife habitat, and other ecosystem services.



Large-scale urban development projects, such as this construction site in Manhattan, Kansas are increasingly common across the state.

Human-related stressors also affect trees in both rural and urban environments. Common issues include herbicide drift, improper species selection, poor planting practices, and inadequate protection during construction. Ongoing development and land conversion further contribute to localized deforestation and canopy loss.

Together, these stressors weaken trees and increase their susceptibility to insect pests and diseases, underscoring the importance of proper species selection, planting practices, and long-term tree management.



A pocketknife is used to show the excessive mulch piled near the base of this tree.



Though no protection is in place, these trees were identified as "trees to keep" during a construction project.

# Kansas Forest Service Forest Health Program Highlights 2024-2025

For Forest Health assistance and further information on forest health in Kansas, please refer to the following:

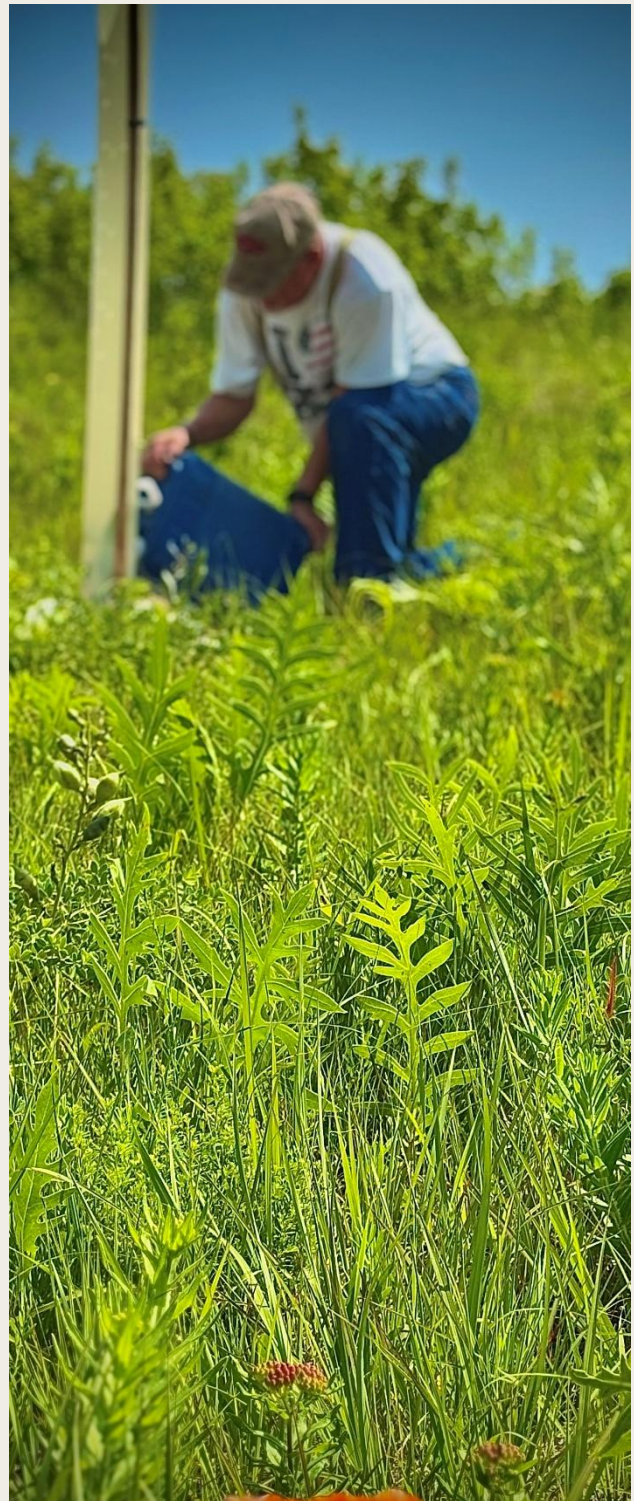


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A Kansas landowner provides water to a newly planted bur oak tree in the Flint Hills region of the state.

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