



# Virginia

## Forest Health Highlights 2022

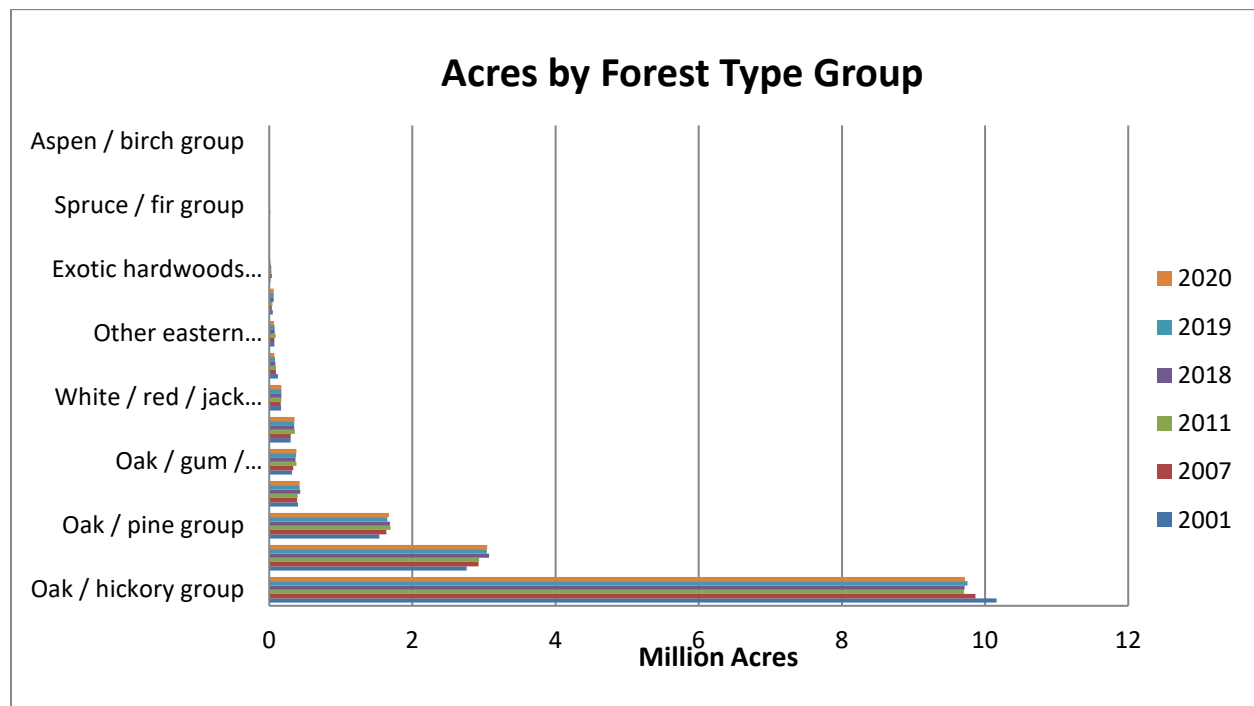
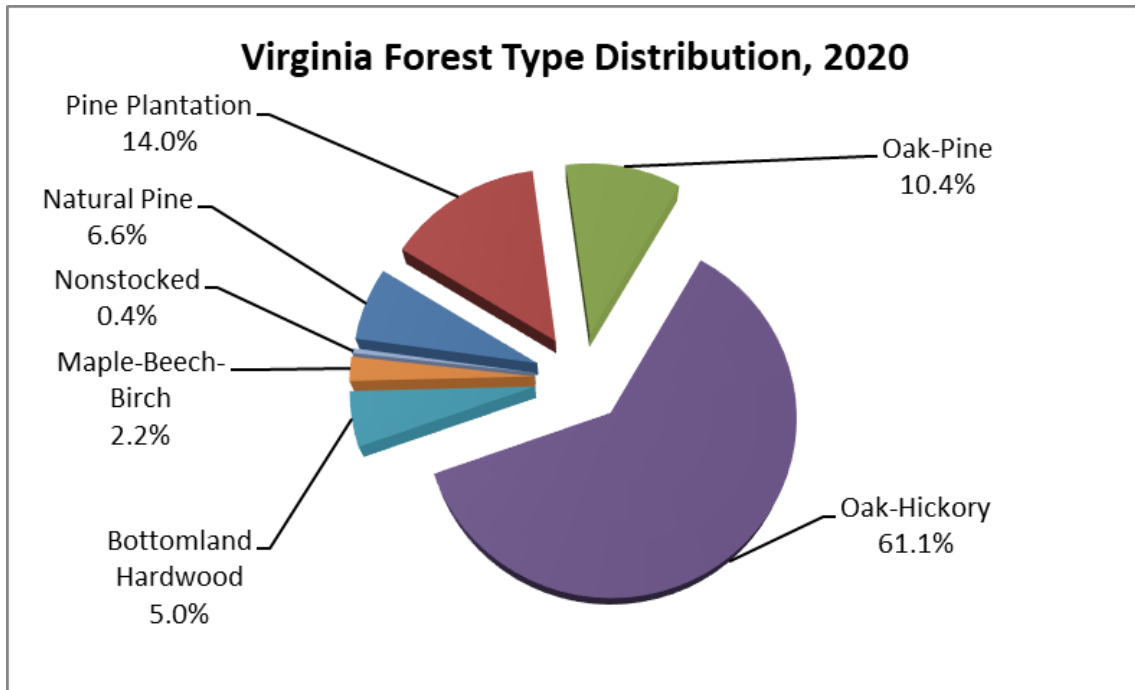


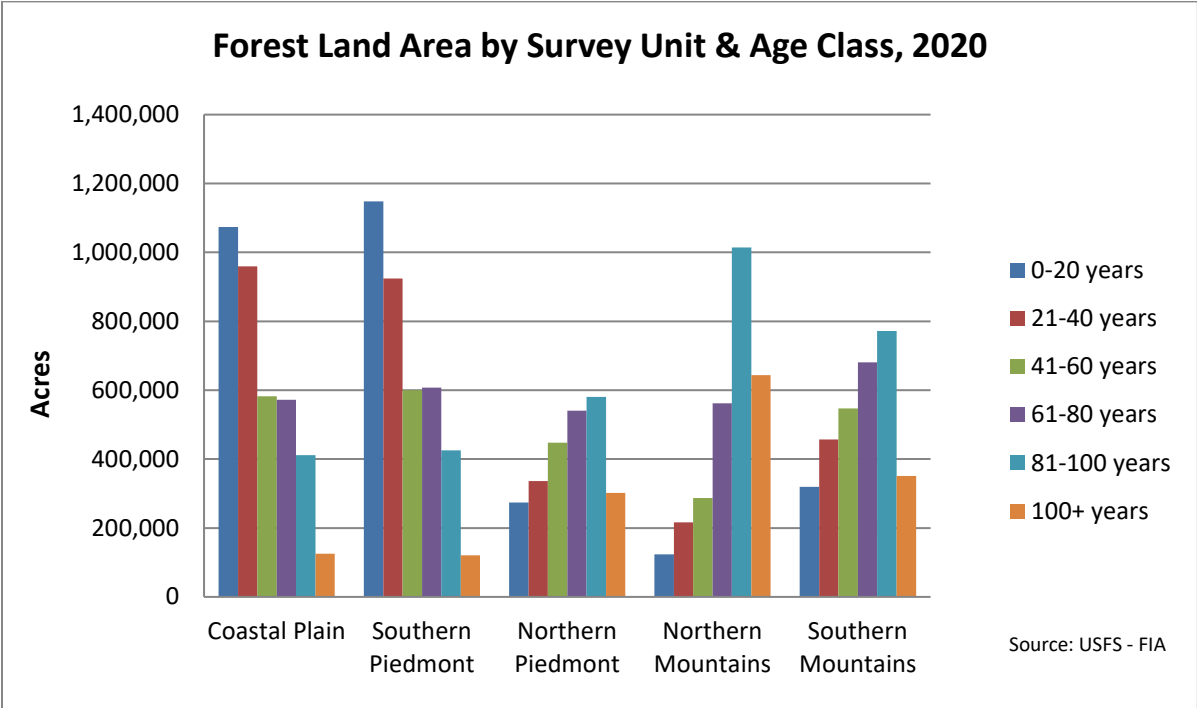
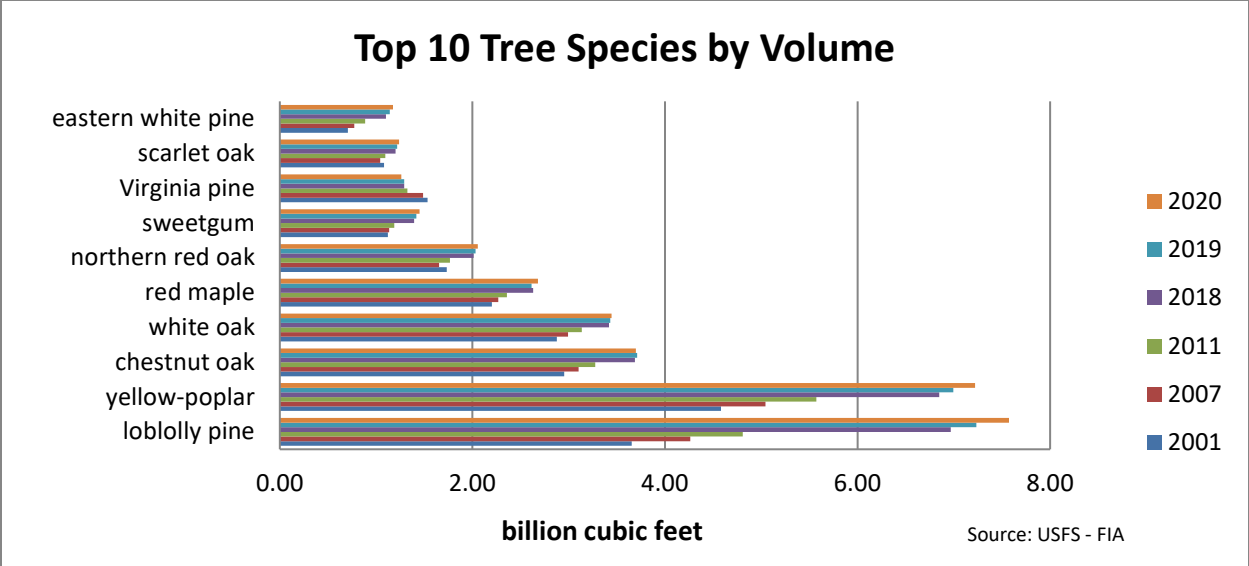
### **The Resource:**

The forest resource in Virginia is rich and diverse in both species composition and the services they provide. Forests are a valuable resource in Virginia, providing ecological and economic benefits. Close to 60% of the Commonwealth's total land area is classified as forest land, totaling 16 million acres. Over three-quarters (82%) of the forest in Virginia is held in private ownership, creating income from timber operations, recreation opportunities, wildlife habitat, and scenic landscapes. The FIA (Forest Inventory Analysis) program collects forest resource data across the landscape through sampling plots. The data from FIA shows that Virginia's forests are dominated by oak-hickory forest type (over 9 million acres), followed by loblolly-shortleaf (almost 3 million acres) and then oak – pine (nearly 2 million acres). Loblolly pine is the most abundant tree species by volume followed very closely by yellow poplar, each with over 7 billion cubic feet recorded in 2020. Given the diversity of species and importance of Virginia's forests to both the ecology and economy of the Commonwealth, forest health disturbances are of great concern. Forests are currently impacted by a number of biotic and abiotic disturbances, and threatened by other emerging pests not yet established. Some of these common forest health threats are described below. The Virginia Department of Forestry (VDof) helps to protect and develop healthy and sustainable forest resources for all Virginians.

**Source:**

Brandeis, T.J.; Hartsell, A.J.; Randolph, K.C.; Oswalt, C.M. 2018. Forests of Virginia, 2016. Resource Update FS-150. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 4 p. <https://doi.org/10.2737/FS-RU-150>.





**Forest Health Influences and Programs:**

**Pine Bark Beetles-**

The southern pine beetle (SPB) is a native pest but still poses a major risk to pine trees in Virginia. Activity has been consistently low in Virginia for many years, but VDOF continues to participate in an annual SPB spring survey to assess populations. In late March/early April 2022,

twenty-five pheromone baited funnel traps were placed in high-risk areas across 13 counties to monitor SPB populations. The probability of a SPB outbreak is calculated based on the number of beetles caught in traps and the number of SPB spots documented. For most counties, the probability of an outbreak was low based on 2022 data. However, Chesterfield, Cumberland, and Gloucester counties had elevated beetle counts with outbreak probabilities of 14%, 9%, and 13% respectively. In other traps, only a handful of beetles were caught with the exception of Franklin and Henry counties which had no beetles. Additionally, there were 6 SPB spots reported to VDOF forest health staff this year, totaling only a few acres. All spots were small and mostly located in the eastern region. Late in the season, southern pine beetle activity was confirmed in Cumberland State Forest. Some of the infested stands will be harvested, and some will be closely monitored through the winter to assess the potential for future damage.

*Ips* bark beetle activity has become more common in mature pine stands that have never been thinned, or are experiencing stress from other factors such as construction or drought. Spots of *Ips* bark beetles were reported to VDOF forest health staff in late winter through the summer months. There were 25 reports of *Ips* bark beetles totaling over 125 acres of damage. These spots were located in 15 central and eastern Virginia counties.

### **Southern Pine Beetle Prevention Program –**

Good silvicultural practices such as thinning are known to decrease the likelihood of attack by pine bark beetles. The VDOF continues to offer three cost-share programs to assist private landowners with practices to minimize the risk of bark beetle attack: pre-commercial pine thinning for landowners, first commercial pine thinning for loggers, and longleaf restoration for landowners. The Virginia Pine Bark Beetle Prevention Program is supported by USFS Forest Health Protection Southern Pine Beetle Program funds. To date, Virginia has thinned over 70,000 acres of pine (mostly pre-commercial) through such cost share programs since 2004.

### **Laurel Wilt Disease-**



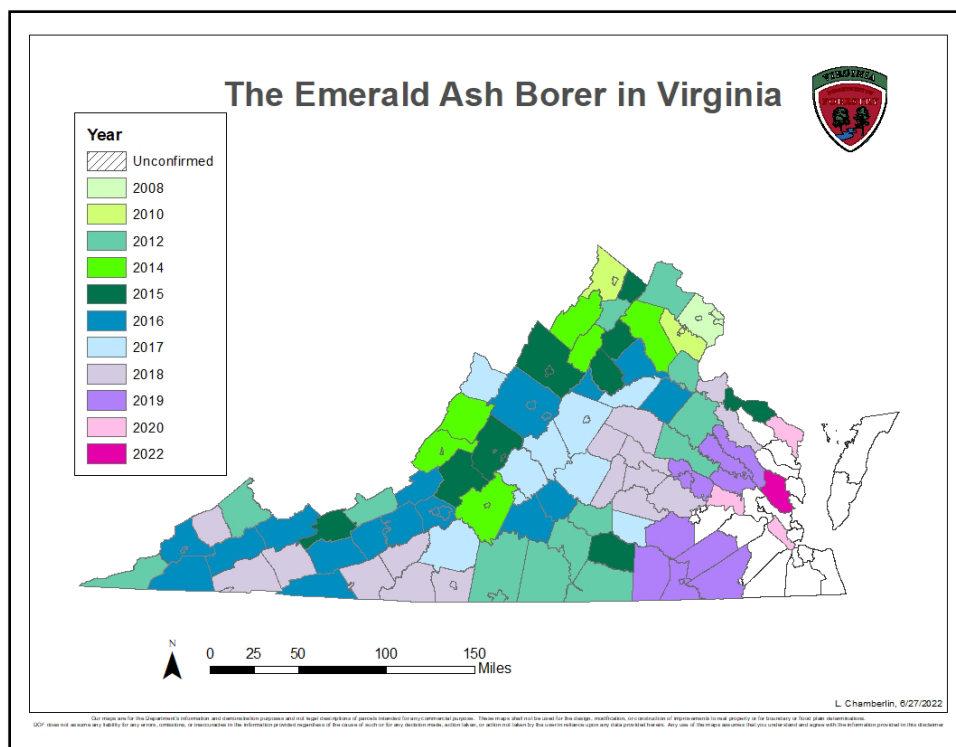
All attendees at the laurel wilt training in front of two dead sassafras trees in Tennessee.

Laurel wilt disease was first detected in Scott County, Virginia in 2021. This vascular wilt disease involves both the redbay ambrosia beetle and the fungal pathogen *Harringtonia*

*lauricola*. Laurel wilt disease impacts all species in the Lauraceae family, including sassafras, redbay, avocado, swampbay, and spicebush. Most of these species have limited ranges or are not present in Virginia; however, sassafras and spicebush are found statewide. In June 2022, VDOF Forest Health and Urban & Community Forestry programs organized a laurel wilt field day in Southwest, VA to educate natural resource professionals and survey surrounding areas. Twenty-six people attended from 7 different agencies in Virginia, North Carolina, and Tennessee. The group observed symptoms on infected sassafras and spicebush plants, and then surveyed nearby areas. In total, 27 laurel wilt disease surveys were conducted on public lands in Scott, Wise, and Washington counties. Samples from a number of potentially symptomatic trees were collected and sent to the Virginia Tech Plant Disease Clinic for confirmation, though none tested positive for laurel wilt.

### **Emerald Ash Borer-**

This invasive wood boring beetle continues to be a threat to all ash species found within Virginia. Emerald ash borer (EAB) larvae feed on the phloem tissue under bark, disrupting the movement of water and nutrients within the tree. EAB has been detected in 84 counties; Gloucester was confirmed in 2022 (see map). Only counties in eastern Virginia remain unconfirmed, though EAB is most likely present. VDOF continues to support chemical and biological control efforts to protect ash trees. Forest health staff treated 94 ash trees on State Land in 2022, including all species of ash found in Virginia (white, green, black, blue, Carolina, and pumpkin). In addition, *Oobius agrilli* parasitoid wasps were released at Langley Air Force Base in eastern Virginia as biological control. VDOF’s ash treatment cost-share program provides financial assistance to landowners and organizations for the treatment of ash. In 2022, there were 130 trees treated through this cost-share program.





## Oak Decline-

Oak decline continues to persist across the Virginia landscape. The aging cohort of oaks in Virginia are succumbing to a wide array of predisposing, inciting, and contributing factors. VDOF foresters and forest health staff receive numerous calls regarding declining oaks, especially near the end of the summer. Stress factors that contribute to oak decline include poor site index, insect feeding, decay fungi, mechanical injuries, and many more. To better understand some of the fungal species involved, a pathologist from the Virginia Department of Agriculture and Consumer Services (VDACS) visited sites in Shenandoah and Frederick counties to collect samples from declining oaks. *Diplodia* sp. was recovered from symptomatic tissue at each site. *Diplodia* is an opportunistic fungal pathogen and frequently found in stressed oak trees. It is common in many forests and symptoms include crown dieback, stunted and wilted foliage, and lesions/cankers on stems and branches. *Diplodia* sp. appears to be another contributor factor in the oak decline complex, complimentary to poor site conditions, advanced age, and environmental stress. Currently, there are no management strategies for this pathogen, just as there is no way to reverse oak decline. You can read more about common pests and pathogens of oak trees in our new publication: [https://dof.virginia.gov/wp-content/uploads/FT0059\\_Common-Pests-of-Oaks-in-VA\\_2022-04\\_pub.pdf](https://dof.virginia.gov/wp-content/uploads/FT0059_Common-Pests-of-Oaks-in-VA_2022-04_pub.pdf)

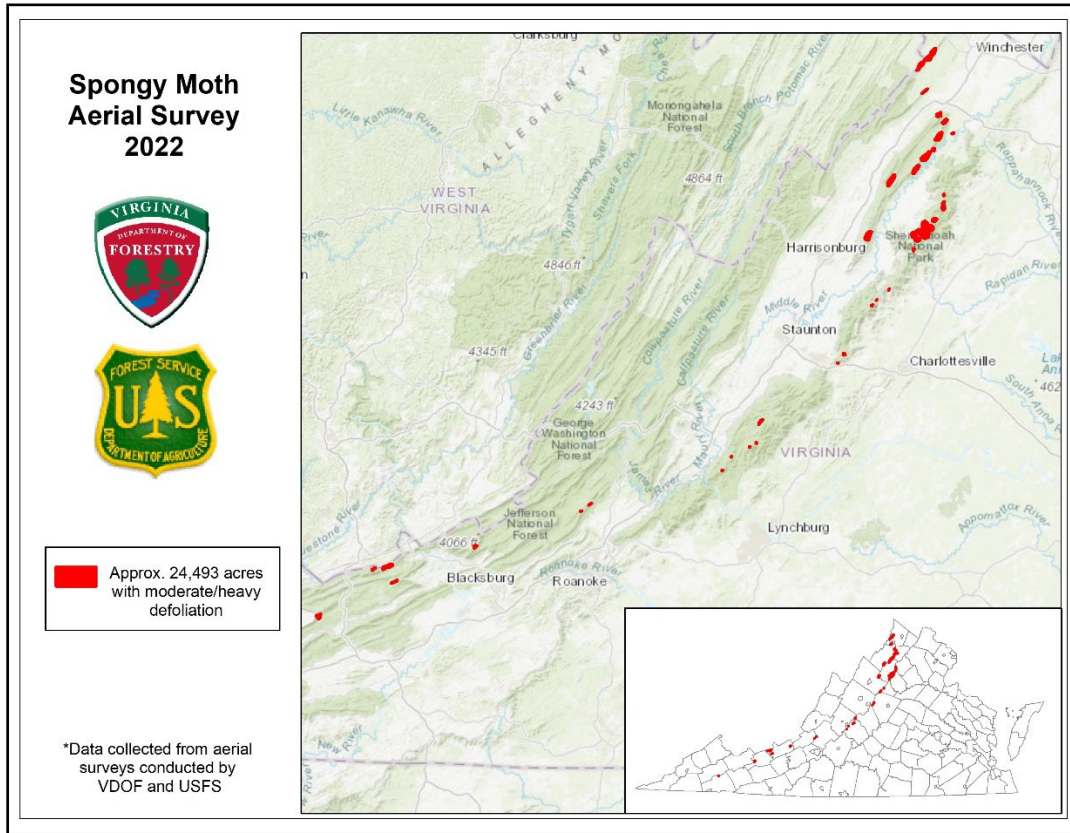


Sapwood discoloration from *Diplodia* canker on oak tree

## Spongy moth-

In 2022, spongy moth (the new common name for the pest previously known as gypsy moth) caused significant damage in western, Va. Defoliation was observed in Shenandoah National Park, the Shenandoah Valley, and parts of southwest, Va. This invasive species is native to Europe and feeds on a variety of hardwood species with a strong preference for oak trees. Feeding begins in spring on new foliage, and defoliation was reported to VDOF in early June. Both VDOF and USFS conducted aerial surveys; combined, these two flights mapped 24,493 acres *with* heavy/moderate defoliation (12,984 acres *of* heavy/moderate defoliation). Later in the season, Shenandoah National Park biologists observed evidence of larval mortality due to *Entophomaga maimaiga* and a nucleopolyhedro virus (NPV). Fall egg mass surveys in

SNP revealed low numbers except in a few locations, indicating that *E. maimaiga* and NPV were successful at suppressing reproduction in the Park. Healthy trees should survive a defoliation event; however, consecutive years of defoliation can severely stress or kill trees.



### Hemlock Woolly Adelgid-

The hemlock woolly adelgid (HWA) is an invasive, sapsucking pest that has been feeding on eastern hemlocks since the 1950s. The VDOF continues to prioritize efforts to protect remaining hemlocks on public land through integrated pest management strategies including chemical and biological control. In 2022, forest health staff treated a total of 118 hemlocks in three different county parks. Additionally, forest health staff released 500 *Laricobius osakensis*, a predatory beetle, for biological control of HWA at Riven Rock Park in Hinton, VA. These sites will be monitored, and new sites will be assessed for future treatment. Post-release surveys were conducted at James River State Park in December of 2021 where 14 *Laricobius nigrinus* adults were recovered. Forest Health staff also assisted with recovery efforts in Shenandoah National Park in December 2021 where a number of *Laricobius* beetles were collected.

### Forest Tent Caterpillar-

The forest tent caterpillar is a native species that emerges early in the growing season and feeds on tender, young foliage of many hardwood species. Defoliation in southeast, VA was reported to VDOF in mid-May. Ground surveys confirmed forest tent caterpillars and revealed extensive damage. An aerial survey was conducted in early June in which 76,083 acres with

moderate/heavy defoliation was mapped near the Great Dismal Swamp. Healthy trees are generally able to recover and put out a new flush of leaves shortly after defoliation.



Forest tent caterpillar damage from aerial survey

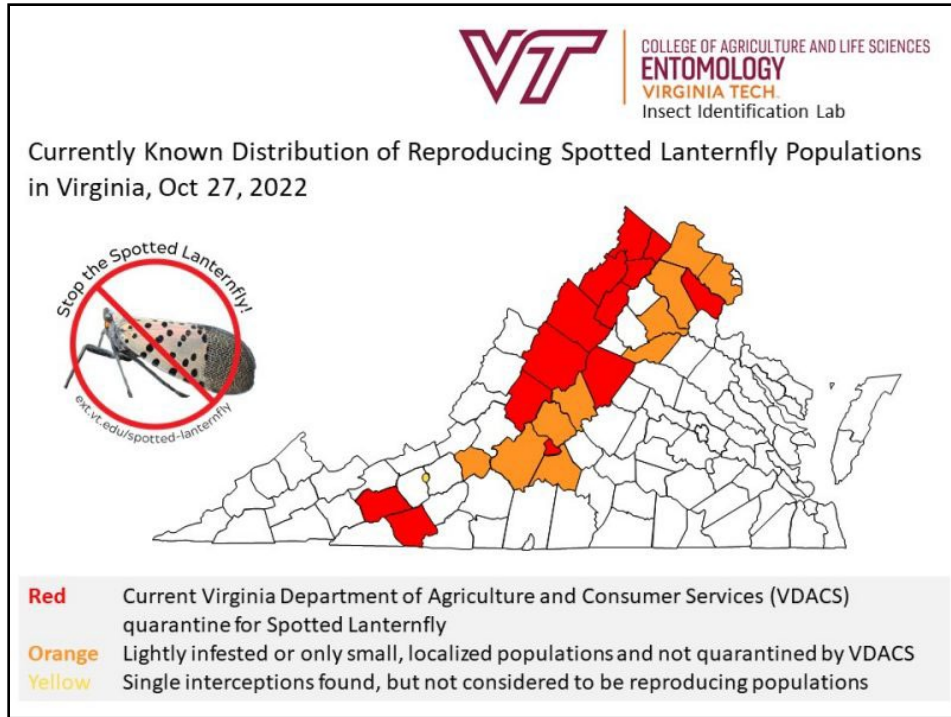
### **Beech Leaf Disease-**

Beech leaf disease (BLD) impacts American beech trees. Symptoms appear to be associated with a foliar nematode, *Litylenchus crenatae* ssp. *mccannii* (Anguinata), which overwinters in buds and detached leaves. Symptoms include interveinal greening, leaf wilting and curling, leaf discoloration, and eventual leaf drop. Mortality can occur in smaller, understory trees in as little as 2-7 years. Beech leaf disease was first detected in Virginia last year in Prince William County. In 2022, Fairfax County staff discovered a symptomatic beech tree and submitted samples to USDA-APHIS. *L. crenatae* was confirmed, adding a new county to the list of beech leaf disease locations in Virginia. VDOF continues to survey for beech leaf disease in areas with a high concentration of beech trees.

### **Spotted Lanternfly-**

Since its initial detection in Virginia (Frederick County and the City of Winchester, 2018), spotted lanternfly (SLF) populations have continued to spread. This invasive pest has a large host list which includes tree-of-heaven, maple, black walnut, and many other agricultural commodity crops. SLF feeds by inserting its piercing sucking mouthparts into the plant tissue of its host. It feeds on sap and excretes excess fluid as honeydew, on which sooty mold can develop. VDACS regulates a spotted lanternfly quarantine in Virginia which expanded in July of 2022. The VDOF Forest Health program assists with SLF surveying, trapping, and outreach to the public.





### Abiotic Factors-

In 2022, a large snowstorm (6-15 inches of snow reported) took place in early January and impacted young pine stands in Louisa, Fluvanna, Spotsylvania, eastern Albemarle, and western portions of Hanover and Caroline counties. Cedar trees and Virginia pines were heavily damaged as well as loblolly pines that were 8-10 years old. Foresters working in the impacted areas reported more than 800 acres of damage. Most of the damage was classified as light or moderate, so the recommendation for all tracts was to leave the stands to grow until the trees have reached merchantable size. Additionally, a hailstorm caused severe damage in Augusta County in May; ground surveys mapped 6,217 acres with damage near the cities of Waynesboro and Fishersville.

### Forest Health Assistance in Virginia:

For more information or assistance, please contact:

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<https://dof.virginia.gov/forest-management-health/forest-health/>