

# New York 2022 Forest Health Highlights

## Forest Resource Summary

New York State is 61% forested - forests cover 18.6 million acres of our 30.2 million total acres (about one acre per resident). Seventy-eight percent of this land is privately owned and managed for wood or pulp. The State owns 19 percent of the land, which mostly encompasses the Adirondack Park. Most of the land owned by the State is forested. These forest lands provide a recreational base for millions of residents and others visiting the State's scenic regions. New York's forests also produce timber, providing employment to 2 percent of the State's workforce. The manufacture of wood products provides \$2.4 billion annually to the State's economy. The forest resource is made up of a variety of forest types, mostly maple and other hardwoods, along with pine, oak, and eastern hemlock.



*Figure 1 Map of NY State showing forested areas of 5 acres and larger.*

## Forest Damage

### Insects

#### Asian longhorned beetle

There has been an active Asian longhorned beetle (ALB) eradication program in New York State for over 20 years (ALB was first found in Brooklyn, New York in August 1996). Since that time, teams of survey crews have been scouting out infestations. Trees found to be infested are removed and destroyed, while healthy trees are sometimes treated to prevent infestations from expanding. ALB has now been eradicated from all boroughs of New York City. There is now only one remaining active quarantine area in New York, covering 53 square miles and located in Central Long Island.

## Elm zigzag sawfly

The elm zigzag sawfly is one of the new emerging pests in North America and was found for the first time in New York this summer. Larvae, as well as their distinctive “zigzag” leaf feeding pattern were detected in upper St. Lawrence County, the area with the highest density of elm in the state. Damage detected in New York thus far has been minor, but this species can cause severe defoliation damage to elm, a tree already decimated by Dutch elm disease in the northeast. In Europe, two threatened native species of lepidopterans reliant on elm as a food source are being out competed by elm zigzag sawfly, further exacerbating their declining population. It’s unclear at this time how this species will impact our ecosystem.



*Figure 2. The distinctive feeding pattern of elm zigzag sawfly on an elm leaf in Brasher State Forest.*

### Hemlock woolly adelgid

Hemlock woolly adelgid (HWA) continues to cause widespread damage and mortality to native forest and ornamental eastern hemlock trees. Hemlock mortality and decline are recorded regularly throughout the known range of HWA in New York. Damage is most severe in areas that have been infested the longest, such as much of the Catskills and Finger Lakes regions. In some of these areas, most of the trees are infested, and many of them are in declining health or dead. In 2022, DEC treated hemlocks with systemic insecticides at Lake George Wild Forest, Glen Island Campground, Carpenter Falls Unique Area, Klipnocky State Forest, and Allen Lake State Forest to protect sensitive hemlock ecosystems and high public use areas. Ultimately, it is hoped that prudent chemical treatments will help to buy time for biological control to become established and effective across the landscape.



*Figure 3 Mark Whitmore (Cornell University) releases predators of hemlock woolly adelgid in an infested hemlock forest near Lake George, New York. Photo credit: Zack Simek, Adirondack Park Invasive Plant program*

### Southern pine beetle

Southern pine beetle (SPB) continues to cause pine mortality on Long Island. The trend in 2022 was increasing populations within the central Pine Barrens and the South fork of Long Island. Sustained suppression efforts from the DEC's Forest Health Unit continued in 2022, with 7,661 infested and buffer pines felled this year to date. In addition to suppression, DEC's SPB program also focuses on SPB prevention through thinning and prescribed fire. The aim is to create healthy pine barrens that are resistant to SPB outbreak, through the ecological restoration of these globally rare communities.

Outside of Long Island, SPB trap detections increased greatly in the fall of 2021, and late that year the first "upstate" infested pitch pines were detected at Taconic State Park. Three infested trees were felled and chipped on site by DEC and State Parks staff during the winter of 2022, and to date no other infested trees have been found upstate. DEC continues to trap for SPB at many sites north of Long

Island, including all previous early detection sites with positive trap catches. These “monitoring” sites allow us to watch for significant increases in trap catches, which may trigger increased survey efforts in that area. Additional goals for the trapping project are to: (1) establish temperature thresholds for flight in the Northeast; (2) Determine the synchrony of emergence and dispersal of SPB and the synchrony of SPB flight with that of its natural enemies.



*Figure 4. A DEC sawyer thinning a pitch pine forest to improve resiliency to Southern pine beetle on Long Island.*

#### *Spongy moth (Lymantria dispar dispar)*

The statewide spongy moth population collapsed this year with less than 50,000 acres of defoliation observed. Localized pockets of severe defoliation occurred mainly in Schenectady, Saratoga, and Warren Counties. In those areas, some conifer as well as extensive hardwood defoliation was seen. NPV, *Entomophaga maimaiga*, and insect predation were observed at high levels statewide, effectively ending the outbreak that began in 2020.



*Figure 5 Defoliation by spongy moth in Warren County New York, July 2022.*

## Pathogens

### Beech leaf disease

Beech leaf disease (BLD) is the latest threat to beech trees. It can kill mature trees in 6 to 10 years and younger trees in just a few years. Each year, DEC Forest Health conducts visual surveys across the state to identify infested stands and map the spread of beech leaf disease. Monitoring plots are established to assess the symptom progression of beech leaf disease and the change in stand characteristics as the disease progresses. There has been significant expansion across New York in the past few years. In 2022, BLD was discovered in 15 new counties including Sullivan, Chenango, Oswego, Steuben, Chemung, Schuyler, Yates, Wayne, Kings, Monroe, Tioga, Herkimer, Ontario, Richmond, and Madison. It was recently discovered in the Adirondacks for the first time, on the southwestern edge of the Adirondack Park.

Since beech leaf disease has only recently been recognized, its biology and vectors are not well understood. DEC is working on several studies to improve understanding of the local spread and impact of BLD in forest stands. In one study location Kennedy State Forest, the area of visibly infected beech has expanded from 1 acre to 15 acres over the past two years. Beech plots are being monitored statewide. Preliminary analyses show reduced leaf density and increased dieback after two years of infestation. One plot visited on Long Island in 2022 showed mortality of overstory beech from BLD, the first such observation in New York.

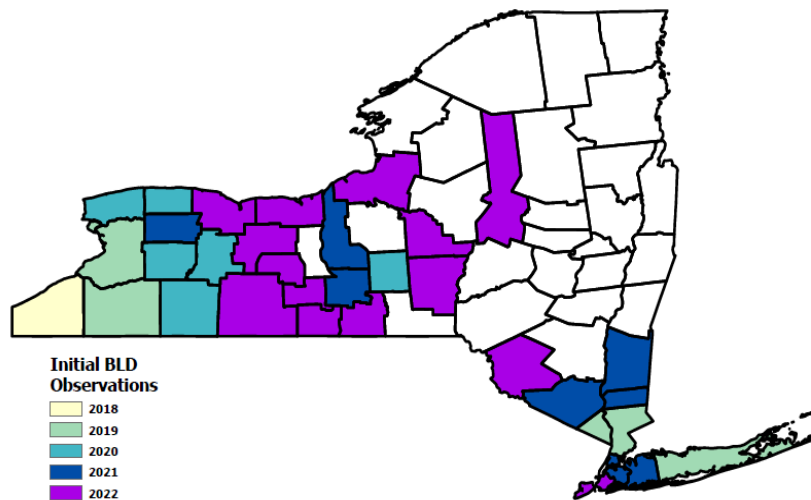


Figure 6. Map showing the expansion of beech leaf disease in New York State, 2018-2022.

### Oak wilt

DEC staff in partnership with the Cornell Plant Disease Diagnostic Clinic published the results of three years of testing nitidulid beetles for oak wilt genetic material. The paper, "Early detection of the oak wilt fungus (*Bretziella fagacearum*) using trapped nitidulid vectors", was published in Forest Pathology as an open access article to make these results available to other land managers. This research was completed in part using Forest Service funding. DEC continues to test nitidulids for oak wilt in 2022 and is partnering with other state and international diagnostic labs to improve testing methods.

DEC conducted aerial surveys for oak wilt over previously known infected areas. Spongy moth defoliation and drought made the survey difficult, but two new sites were detected: one in South Bristol (Ontario County) and one site in Middlesex (Yates County) Both locations contained multiple infected trees. At both sites all infected trees had obvious signs of recent mechanical damage which likely contributed to their infection by oak wilt. The landowner at the first site had forestry mowing done in May to clear out the understory and the other is a home construction site.



*Figure 7 A wounded oak tree killed by oak wilt disease.*

## Invasive Plants

### Giant Hogweed

Giant Hogweed, a noxious invasive plant that causes a severe skin reaction, is present in 52 counties in the State. This was the fifteenth year of controlling giant hogweed plants by DEC forest health and partner agency staff. Based on preliminary data analysis, there are currently 1,602 sites that previously had giant hogweed plants that had no plants in 2022 due to past control efforts; 832 of these sites were monitored in 2022 by DEC/partner agency crews. There are 1,187 known sites where giant hogweed plants are present; with the largest and densest of these found in the western half of the State. During the 2022 field season crews controlled giant hogweed plants at 991 sites using manual and/or chemical control methods. Our control methods have been very successful; 57% of all known sites now have no giant hogweed plants. Public reporting to our giant hogweed information line is encouraged and helps

to find new sites. Information is disseminated to owners and the public through our giant hogweed information line, outreach materials and website.



*Figure 8 A DEC technician stopping the spread of seeds by removing the umbels (flower/seed heads) of a giant hogweed plant.*



## Kudzu

Kudzu, a fast-growing invasive vine originally native to Asia, is present in 14 counties in New York State. DEC is aware of 199 unique sites based on property boundaries, or 85 unique geographical areas when neighboring sites are grouped together. Seventeen of those groups (57 sites) are found in the Hudson Valley, and the other 68 groups (142 sites) are found in New York City and Long Island. Kudzu sites are located on private, state, county, city, town, village and railroad properties and owners are contacted every year to obtain permission to visit each site. At sites where plants are found, a mix of manual (root-crown removal and vertical vine cutting) and chemical control methods (foliar spray and cut-stump control) are used to combat the vines. Sites where no plants are found continue to be monitored each year, until no plants are found for three consecutive years, at which point the site is considered eradicated. Due to DEC and partner prior control efforts, 65 sites were found to have no plants in 2021; 28 sites have been deemed eradicated and 37 sites will be monitored again in 2022. Outreach materials and information is provided by crews and information line staff to owners and interested parties.



*Figure 9 DEC technician controlling kudzu plants with herbicide.*

## Forest Health Diagnostic Lab

The Forest Health Diagnostic Lab continues to provide insect and forest pathology diagnostic services to stakeholders of New York State, and promotes research and survey methods development within the various Forest Health programs. The lab supports outreach and education through its regular contributions to DEC Facebook and Twitter feeds and the Conservationist Magazine.

The lab received a total of 625 diagnostic requests from January-October 2022 through email. About 25 physical samples were submitted. The plurality of requests were about beech leaf disease (24%), followed by general insect ID (16.7%), spongy moth (9.8%), ALB (6.7%), EAB (6.0%), oak wilt (4.8%), HWA (4.3%), ALB pool survey (3.7%), pine decline (3.2%), SPB (2.1%), and ELB (1%). 18.4% were miscellaneous inquiries.

In 2021, the USFS funded the multi-state effort “Enhanced monitoring of emerging pest species through existing trapping surveys, genomics, and bycatch identification”. In 2022, New York sent in the first bycatch samples to be analyzed by a German lab, AIM (Advanced Identification Methods). Fourteen samples were submitted. Each sample represented 2-3 years of season-long trapping data from one location within New York. The metabarcoding analysis has so far resulted in the “detection” of 32 insect (and spider) species that have never been documented from North America or have extremely limited distribution.