New Hampshire

Department of Agriculture, Markets & Food

Shawn N. Jasper, Commissioner

New Hampshire Department of Agriculture, Markets & Food

Division of Plant Industry

Annual Report

2022

Prepared by Piera Siegert, Director

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Division of Plant Industry:

Personnel: 4 FTE, 1 PTE (apiary inspector)
Licensed Plant Dealers (2022): 917
Registered apiaries (2022): 660

Mission statement: The Division of Plant Industry's mission is to curtail the spread of invasive insects, plants, and pathogens that may negatively impact agricultural, natural, and human ecosystems in the State of New Hampshire.

The Division accomplishes mission through licensure, inspection, survey, certification, quarantine, and outreach activities.

Certification of firewood kiln to meet receiving state requirements, *P. Siegert, DAMF*

Programs & Activities Include:

Name	Activities	Source
Plant Industry	Nursery licensure and inspection program. Certification activities. Invasive plant outreach and management. Compliance agreements and permits.	General Funds, recurring
Apiary Inspections	Apiary inspection program, maintenance of state apiary.	General Funds, recurring
Upland Invasive Species Remediation	Cost share of chemical control of invasive plants for municipalities. Outreach and supplies for invasive plant management.	General Funds (non-lapsing, non-recurring)
CAPS Program	Surveys conducted through national USDA CAPS program. Primarily Exotic Wood Borers / Bark Beetles, and nursery survey.	USDA Grant
Invasive Insects Survey	Surveys conducted through PPA7721 federal grant program. Primarily specialty crops—vegetable pests, orchard pests, small fruit, grapes, and Asian defoliators. Semi-competitive granting program with variable awards. Funding bridges deficit in FTE funding via USDA CAPS program.	USDA Grant
Forest Pest Outreach	Outreach activities in the past have included firewood, Firewood Scout, and spotted lanternfly outreach	USDA Grant

Spotted lanternfly, *C. Rallis, DAMF*

Emerald ash borer, *C. Rallis, DAMF*

Honeybee, *C. Rallis, DAMF*

Principle Laws & Rules:

- Insect & Plant Pest Suppression: RSA 430: 1-8
- Nurseries, Plant Dealers & Nursery Stock: RSA 433:21-36, Agr 2500 (expires 2/21/2027)
- Invasive Species: RSA 430:55, Agr 3800 (expires 1/9/2027)
- Beekeeping and Hive Products: RSA 429: 1-12, Agr 1800 (expires 5/13/2024)

Relevant websites:

- www.agriculture.nh.gov/divisions/plant-industry/index.htm
- www.nhbugs.org and Facebook page: NHBugs
- www.firewoodscout.org

Quarantines:

Regulated article or pest	Type	Impact
Firewood	New Hampshire External Quarantine	Prohibits importation of untreated firewood into New Hampshire—with some exceptions as allowed via compliance agreement.
Spongy moth (gypsy moth)	Federal	Shippers sending regulated articles outside of federal regulated area can do so via compliance agreement or inspection demonstrating absence of life stages.
Japanese beetle, European corn borer, onion white rot, others	Receiving states	Assistance for NH producers to meet plant protection requirements of receiving states. Vary by state, trade good, production and storage conditions, and point of origin. Requires certification and/or inspection.

Completed 2022 Pest Detection Surveys:
Surveys were conducted for **26** pest threats to New Hampshire's environment and agriculture. Survey was conducted at nurseries, open fields, and forested areas identified as potential high-risk areas.

Planned 2023 Pest Detection Surveys:
Surveys are planned for **32** pest threats to New Hampshire's environment and agriculture. Survey is planned at vegetable farms, nurseries, open fields, and forested areas identified as potential high-risk areas.

Examples of Innovative Programs:

NHBugs: NHBugs.org is an information clearinghouse for forest insect threats. It is a collaboration between Plant Industry, Forest & Lands, UNH Cooperative Extension, USDA APHIS, and USDA Forest Service. It includes a photo upload function and reporting form for the public to submit information about suspect insects or tree damage. It provides a streamlined response to public reports of forest threats. It houses critical and updated information about forest pests like emerald ash borer and hemlock woolly adelgid. NHBugs also has a facebook page facilitating two-way communication between the cooperating agencies and the public.

Firewood Scout: Recreational transportation of firewood risks introducing forest pests. Outreach that emphasizes the pro-active steps that campers can take to help protect forest resources supports forest health programs. One step is to buy firewood locally. Firewood Scout is a nationwide smartphone-enabled website that uses Google Maps and a state-developed firewood vendor database to connect campers to more than 500 New Hampshire firewood vendors.

Systems Approaches to Nursery Certification (SANC): SANC promotes a harmonized, risk-based systems approach to nursery and greenhouse certification. It is a voluntary certification program developed by the National Plant Board and AmericanHort. There is one SANC facility in the state— the first facility in the country dually-enrolled in the US Canadian Greenhouse Grown Plant Certification Program and SANC.

Programs

Apiary Inspection

Apiaries and Beekeeping | Plant Industry | NH Department of Agriculture, Markets and Food

Honeybee, *C. Rallis, DAMF*

The Division offers a voluntary Apiary Registration Program and inspections of hives for beekeepers experiencing problems. The Division will assist the beekeeper with developing appropriate controls to prevent the infection of other hives if a parasite or disease is detected. Additionally, the Division will inspect honeybees and/or apiary equipment that are being moved to another state to certify their apparent freedom from infectious diseases, parasites and/or pests. There is no filing fee for Apiary Registration, but the inspection fee for bee colonies starts at $5. There is no fee for inspecting broodless equipment in rule, and this is an oversight that should be addressed in upcoming rulemaking. Inspections are requested by contacting the Division.

Annual budget for the apiary inspection program is $5,271, which primarily supports a part-time on-call apiary inspector salary, travel, supplies, and equipment.

The principle negative factor for managed bee health in New Hampshire continues to be *Varroa destructor*. Consultations demonstrate that there is a need for increased education about *Varroa* biology, sampling, and control. Consultations suggest that many beekeepers in the state, both large and small, do not treat for *Varroa destructor*. Beekeepers express concern about managed bee exposures to pesticides used for mosquito and tick control.

Table 1: Apiary Program Metrics

	2011	2012	2013	2014	2015	2020	2021	2022
Registered Beekeepers	274	293	306	351	372	596	631	660
Registered Colonies	.	.	.	.	.	2,483	2,644	2,650
Consult Calls	.	.	.	.	.	24	31	21
Colonies Consulted	.	.	.	.	.	94	37	25
Field Inspections	19	9	13	45	51	11	15	9
Colonies Inspected	48	21	38	.	162	200	48	41
Regulated Pest Abatement	.	.	.	.	.	1	0	0

Invasive Plants

Invasive Plants | Plant Industry | NH Department of Agriculture, Markets and Food

It is illegal in New Hampshire to collect, transport, sell, distribute, propagate or transplant any living or viable portion of any listed prohibited invasive plant species including all of their cultivars, varieties, and specified hybrids prohibited-invasive-species.pdf (nh.gov).

Many of the invasive pests that are introduced as a result of escaping from a managed environment occur among landscape plants. Initially planted because of their attractive appearance and low-maintenance, these plants can quickly overrun and dominate natural environments, where they out-compete native plants. This is why some formerly popular landscaping plants (purple loosestrife, burning bush, Norway maple, Japanese barberry) are on the list of prohibited invasive plants in New Hampshire.

In 2022, five Administrative Fines were collected for the sale of prohibited invasive plants. Prohibited invasive plants offered for sale within the state included creeping Jenny (*Lysimachia nummularia*) (189 plants), common privet (*Ligustrum vulgare*) (7 plants), and Japanese honeysuckle (*Lonicera japonica*) (2 plants).

Cooperative Statewide Invasive Species Management Program

This demonstration and training program was developed and managed by Douglas Cygan, DAMF's Invasive Species Coordinator. The program was initiated in 2012 as a cooperative effort with the NH Department of Transportation (DOT). Mr. Cygan conducts integrated vegetation management (IVM, aka IPM) targeting some of New Hampshire's worst upland invasive species along state and federal highway systems, state owned lands and parks, municipal conservation lands, and NGO properties. Mr. Cygan is a licensed herbicide applicator holding a Supervisory level Category B license for Right-of-Way, Weed & Brush Control. In addition to management of invasive plants, the program includes a strong training component with Mr. Cygan working directly with DOT personnel and town/city highway departments.

This program has been successful at reducing populations of numerous types of invasive plants. As a result of this demonstration project, the DOT now fully embraces and supports this program and has authorized two personnel from each of the six districts become licensed as herbicide applicators. To date, there are 10 – 14 DOT employees licensed to apply herbicides. Application techniques vary from using backpack sprayers and walking the Right-of-Ways (ROW) to treat, to using a DOT truck equipped with a power sprayer and a cone basket from which the applicator can spray while the vehicle is traveling along the road edge.

Knotweed management along railroad.

To ensure program oversight, quarterly meetings are held to discuss methodology, develop goals for targeting roadway corridors, and to discuss required modifications resulting from changes in herbicide / adjuvant selection, techniques, applications rates and/or changes in personnel.

In 2022, the NH Legislature authorized the Upland Invasive Species Remediation fund and hiring of an Upland Invasive Species Coordinator. The fund was established with a non-lapsing amount of $150,000 primarily to serve as a cost-share program for herbicide control of Upland Invasive Species by municipalities. Reimbursement is requested for work performed

Fact Sheet:
Prohibited Invasive Plant Species Rules, Agr 3800

New Hampshire
Department of Agriculture, Markets & Food

Updated 01/31/2017

This fact sheet is a synopsis of the adopted rules on invasive plant species and is intended for general use by the nursery and landscape industry, plant growers, plant dealers, general public, State Agencies, and Municipalities. A complete copy of the rules can be accessed on the internet at http://agriculture.nh.gov/topics/plants_insects.htm.

In accordance with the Invasive Species Act, HB 1258-FN, the NH Department of Agriculture, Markets & Food, Division of Plant Industry is the lead state agency responsible for the evaluation, publication and development of rules on invasive plant species for the purpose of protecting the health of native species, the environment, commercial agriculture, forest crop production, or human health. The rule, Agr 3800, states "**No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1, New Hampshire prohibited invasive species list**".

New Hampshire Prohibited Invasive Plant Species List

Scientific name	Synonyms	Common name
Acer platanoides L.	*Acer platanoides* var. *schwedleri* Nichols.	Norway maple
Ailanthus altissima (P. Mill.) Swingle	*Ailanthus glandulosa* Desv.	Tree of heaven
Alliaria petiolata (Bieb.) Cavara & Grande	*Alliaria alliaria* (L.) Britt.; *Alliaria officinalis* Andrz. *ex* Bieb.; *Erysimum alliaria* L.; *Sisymbrium alliaria* (L.) Scop.	Garlic mustard
Alnus glutinosa (L.) Gaertn.	*Alnus alnus* (L.) Britt.; *Betula alnus* L. var. *glutinosa* L.	European black alder
Berberis thunbergii DC.		Japanese barberry
Berberis vulgaris L.		European barberry
Celastrus orbiculatus Thunb.		Oriental bittersweet
Centaurea stoebe L. ssp. *micranthos* (Gugler) Hayek	*Centaurea biebersteinii* DC.; *Centaurea maculosa* Lam., misapplied; *Centaurea maculosa* Lam. ssp. *micranthos* Gugler	Spotted knapweed
Cynanchum louiseae Kartesz & Gandhi	*Cynanchum nigrum* (L.) Pers.; *Vincetoxicum nigrum* (L.) Pers.	Black swallow-wort
Cynanchum rossicum (Kleopow) Borhidi	*Cynanchum medium*, of authors not R. Br.; *Vincetoxicum medium*, of authors not (R. Br.) Dcne.; *Vincetoxicum rossicum* (Kleopow) Barbarich	Pale swallow-wort
Elaeagnus umbellata Thunb. var. *parvifolia* (Royle) Schneid.	*Elaeagnus parvifolia* Royle	Autumn olive
Euonymus alatus (Thunb.) Sieb.	*Celastrus alatus* Thunb.	Burning bush
Frangula alnus P. Mill.	*Rhamnus frangula* L.	Glossy buckthorn
Glyceria maxima (Hartman) Holmb.	*Glyceria spectabilis* Mert. & Koch; *Molinia maxima* Hartman	Reed sweet grass
Heracleum mantegazzianum Sommier & Levier		Giant hogweed
Hesperis matronalis		Dames rocket

Impatiens glandulifera Royle	*Impatiens roylei* Walp.	Ornamental jewelweed
Iris pseudacorus L.		Water-flag
Lepidium latifolium L.	*Cardaria latifolia* (L.) Spach	Perennial pepperweed
Ligustrum obtusifolium Sieb. & Zucc. var. *obtusifolium*	*Ligustrum obtusifolium* var. *leiocalyx* (Nakai) H. Hara	Blunt-leaved privet
Ligustrum vulgare L.		Common privet
Lonicera japonica Thunb.	*Nintooa japonica* (Thunb.) Sweet	Japanese honeysuckle
Lonicera maackii (Rupr.) Herder*		Amur honeysuckle*
Lonicera morrowii Gray*		Morrow's honeysuckle*
Lonicera tatarica L.*		Tartarian honeysuckle*
Lonicera ×bella Zabel*	*Lonicera morrowii* × *L. tatarica*	Bella honeysuckle*
Lysimachia nummularia L.		Moneywort
Microstegium vimineum (Trin.) A. Camus	*Andropogon vimineum* Trin.; *Eulalia viminea* (Trin.) Kuntze	Japanese stilt grass
Persicaria perfoliata (L.) H. Gross	*Ampelygonum perfoliatum* (L.) Roberty & Vautier; *Polygonum perfoliatum* L.	Mile-a-minute weed
Pueraria montana (Lour.) Merr. var. *lobata* (Willd.) Maesen & S. Almeida	*Dolichos lobatus* Willd.; *Pueraria lobata* (Willd.) Ohwi; *Pueraria thunbergiana* (Sieb. & Zucc.) Benth.	Kudzu
Reynoutria japonica Houtt. var. *Japonica*	*Fallopia japonica* (Houtt.) R. Decr.; *Pleuropterus cuspidatus* (Sieb. & Zucc.) Moldenke; *Polygonum cuspidatum* Sieb. & Zucc.	Japanese knotweed
Reynoutria sachalinensis (F. Schmidt *ex* Maxim.) Nakai	*Fallopia sachalinensis* (F.S. Petrop. *ex* Maxim.) R. Decr.; *Polygonum sachalinense* F. Schmidt *ex* Maxim.	Giant knotweed
Reynoutria ×bohemica Chrtek & Chrtková	*Fallopia japonica* × *F. sachalinensis*; *Fallopia ×bohemica* (Chrtek & Chrtková) J.P. Bailey; *Polygonum ×bohemicum* (Chrtek & Chrtková) P.F. Zika & A.L. Jacobson	Bohemia knotweed
Rhamnus cathartica L.		Common buckthorn
Rosa multiflora Thunb. *ex* Murr.		Multiflora rose

Variance: Persons conducting temporary scientific studies, which may include hybridization of seedless species may apply for a variance to do so by contacting the NH Department of Agriculture, Markets & Food, Division of Plant Industry.

For additional Information

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http://www.agriculture.nh.gov/divisions/plant-industry/invasive-plants.htm

during the year in November, cost share is determined based upon available funding and number of requests in the year, and reimbursement is only for cost of herbicides purchased and used. The municipality is required to provide information about the plants treated and areas treated. The Coordinator position, while established and authorized by the Governor has not yet been funded through the biennial budget process. If funding is made available through the process, it is anticipated that a search for a candidate will start in the new biennium (July 1, 2023). The responsibilities of the coordinator will be to make statewide maps of invasive plant populations, to coordinate control efforts with municipalities, conservation districts, and other entities, and to provide educational materials and presentations.

Table 2: Invasive Plant Control Efforts

Treatment Year	Approx. # of Stems Spot Treated	Acres of Woody Foliar Treatments	Approx. Acres of ROW/ Knotweed Treated
2012	2,690	Undetermined	23
2013	7,000	Undetermined	43
2014	6,589	Undetermined	25
2015	1,000	1+	21.5
2016	3,300	4+	5.5
2017	4,680	6+	12.5
2018	3,572	6.5+	1.3
2019	2,873	6+	3
2020	2,959	Undetermined	23
2021	3,400	3+	3.5
2022	2,675	5+	1.5
Total	40,738	31.5+	162.8

Tree of heaven low volume basal bark treatment.

Table 3: Tree of Heaven Treatment Project

Treatment Year	Approx. # Tree of Heaven Treated
2018	539
2019	1,000
2020	2,959
2021	376
2022	206
Total	5,080

Table 4: Cooperative Invasive Plant Demonstration Projects

Cooperator	Site	Target	Approx. Acres Treated
City of Concord	Various city properties	Tree of heaven & Japanese knotweed	1.5
City of Nashua	Nashua River Walk	Japanese knotweed	1.25
Town of Durham	Various town properties	Japanese knotweed	1.3
Town of Raymond	Recreational park	Japanese knotweed	1.5
Town of Salem	Rail trail	Japanese knotweed	5
Private—Seabrook	Residential	Mile-a-minute vine	1.5
Town of Boscawen	Weir Tree Farm	Oriental bittersweet	1.5
DOT Turnpikes	Turnpike System	Tree of heaven & Japanese knotweed	7
Town of Tilton	WOW Rail trail	Tree of heaven & Japanese knotweed	1.5
Town of Lee	Five Corners (New England cottontail habitat), Thompson Forest, New England Cottontail Habitat	Invasive plants (several)	30+

NURSERY/PLANT DEALER LICENSING PROGRAM Nursery/Plant Dealer Licensing Program | Plant Industry | NH Department of Agriculture, Markets and Food

The Division of Plant Industry participates in an interstate and international network of plant protection agencies whose goal is to reduce the transport of economically injurious plant pests by certifying the condition and quality of shipped nursery stock. The Division licenses New Hampshire's Plant Dealers, and inspects nursery stock sold within New Hampshire, as well as that shipped both nationally and internationally.

Any nurseryman, plant dealer, or landscaper that temporarily or permanently retains nursery stock in his or her possession shall obtain a plant dealer / landscaper license. *Agr 2501.03 (b)*. A list of licensed plant dealers is available from the Division's website: gryLicensePaidCurrentYear.xlsx (nh.gov)

Table 5: Plant Dealer Licensure and Nursery Inspections

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Plant Dealer licenses issued	700	725	746	722	736	782	818	831	828	829	884	917
New Plant Dealer licenses issued	53	50	13	24	64	70	29	45	38	43	74	76
Shipping nurseries	65	65	65	65	65	65	65	70	51	79	73	63
Nursery inspections	152	119	120	123	248	181	135	179	315	456	565	580

Items of interest from 2022 nursery licensure and inspection activities:

- There were 76 newly licensed plant dealers in 2022. These new locations are primarily road side stands, internet sales, and sale of plants at farmers markets.
- Prohibited invasive plants were being offered for sale at 6 locations in 2022. The NH prohibited plants were common privet (*Ligustrum vulgare*), Japanese honeysuckle (*Lonicera japonica*), and creeping Jenny/ moneywort (*Lysimachia nummularia*). Jimsonweed (*Datura stramonium*) was found in root balls during a routine nursery inspection and was removed prior to sale of plants.
- Aphids spider mites, mealy bug and various scales were significant pests in greenhouses and nurseries. The variety of scales found included, but was not limited to, magnolia scale, Japanese maple scale, fried egg scale, cottony taxus scale, pine needle scale, brown soft scale, lecanium scale, var. circular scales, elongate hemlock scale, and coniferous fiorinia scale.
- Multiple dead spotted lanternfly adults were found in mums at two box store locations.

CAPS AND PPA 7721 SURVEY PROGRAM Federal Cooperative Agreements | Plant Industry | NH Department of Agriculture, Markets and Food

CAPS Nursery and Retail Plants Pest Survey:

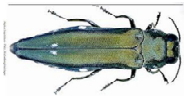
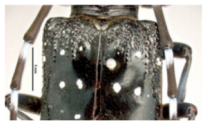
A visual and trapping survey was conducted at 50 high risk nurseries receiving trees and shrub nursery stock from out-of-state. New Hampshire has a very active greenhouse, nursery and landscape industry with 917 individual businesses selling plants. Plant production and related services amount to more than $381 million annually (NE Ag. Statistics Service, NE Nursery Assoc., UNH Coop. Ext, NH Int. Trade Resource Ctr., US Census Bureau, NHDAMF). Nurseries have been identified as a high-risk pathway for the introduction of invasive species and can facilitate the artificial spread of many invasive species of concern. It is critical to establish regular inspections of nurseries within the state to monitor for specific exotic/invasive pests that may be transported through inter/intrastate movement of nursery stock. By actively searching for target pests, this survey provides data that helps create an accurate distribution map of specific pests in the United States, thereby assisting scientists and regulators to make recommendations and regulations on how to best safeguard U.S. resources that may be negatively impacted by a given pest. The survey also ensures that nursery/greenhouse owners and managers are educated about certain exotic/invasive species of concern in relation to their industry and ultimately sets the foundation for early detection of pest threats to agriculture and the environment.

CAPS Exotic Wood Borer / Bark Beetle Survey

New Hampshire is a densely-forested state with significant hardwood and conifer forest resources. Forests cover approximately 84% of the state's lands and define the culture of the state, are critical components of the state's environmental resources, and are an important part of the state's economy – from forest-based recreation, to manufacturing, to sales of fir Christmas trees and maple syrup. The forest industry in New Hampshire has an approximate value of $3 billion per year. Establishment of exotic timber infesting beetles could have a significant adverse economic impact to this

Ambrosiodmus sp. *Photo: C. Rallis, DAMF*

Table 6: CAPS Nursery and Retail Plants Pest Survey Targets *images not to scale*

Common Name	Scientific Name	Survey Type	# Confirmed Positives
Oak splendour beetle 	*Agrilus biguttatus*	Visual	0
Citrus longhorned beetle 	*Anoplophora chinensis*	Visual	0
Asian longhorned beetle 	*Anoplophora glabripennis*	Visual	0
Boxwood blight 	*Calonectria pseudoviculata*	Visual	0
Boxtree moth 	*Cydalima perspectalis*		0
Pine sawfly 	*Diprion pini*		0
Leaf gall nematode 	*Litylenchus crenatae*	Visual	0
Pine beauty moth 	*Panolis flammea*		0
False codling moth 	*Thaumatotibia leucotreta*		0
Oak processionary moth 	*Thaumetopoea processionea*		0

industry. Additionally, recent climatic conditions have created an environment highly susceptible to establishment of forest pests. Severe drought conditions have significantly impacted the health of the state's forests, making them at increased risk from introduced forest pests. Cool and dry springs have allowed greater survivorship of many forest-feeding caterpillars, including forest tent caterpillar and spongy moth outbreaks. This survey for exotic longhorned beetles was conducted at 10 high risk mixed conifer sites primarily in Carroll, Rockingham, and Strafford counties.

Table 7: CAPS Exotic Wood Borer Survey *images not to scale*

Common Name	Scientific Name	Trap	# Confirmed Positives
Large pine weevil 	*Hylobius abietis*		0
Japanese pine sawyer 	*Monochamus alternatus*		0
Black fir sawyer 	*Monochamus urussovii*		0
Black spruce beetle 	*Tetropium castaneum*		0
Brown spruce longhorn beetle 	*Tetropium fuscum*		0
Velvet longhorned beetle 	*Trichoferus campestris*		0

PPQ Surveys:

One of the state's Plant Health Safeguarding Specialists (USDA APHIS PPQ PHSS) retired in May, 2022. It was agreed that Division staff would monitor the traps normally deployed by the Epping, NH PPQ office during the 2022 field season or until a replacement was hired. A new PHSS is in place and will monitor the PPQ traps during the 2023 field season. Three sites were monitored season-long for exotic wood-boring beetles, including *Monochamus spp.*, *Tetropium spp.*, *Ips typographus*, *Platypus quercivorus*, and *Trichoferus campestris*. A single *Sirex noctilio* was detected in one of the traps. Inspection of the area where the individual *Sirex* was trapped did not identify infested trees.

PPA § 7721 Funded Surveys

Forest Pest Survey Program

Survey was conducted for exotic bark beetles, and Asian defoliators (Table 8), by monitoring six traps at each of ten high risk sites in Carroll, Rockingham, and Strafford counties. Traps were deployed from May to September, depending on the species. Samples were collected every 1-2 weeks. Samples were screened, sorted, and identified by the SSC and other Division staff. Collected samples were negative for all targets.

There was a flight of *Lymantria dispar dispar*, in New Hampshire in 2022, and all Flighted Spongy Moth Complex (FSMC) traps captured a few to hundreds of male moths. Samples were collected, frozen, and submitted to the OTIS lab for DNA analysis. Of the 347 samples run by the lab, all were determined to be *Lymantria dispar dispar*.

Retail Nursery Survey:

Spotted lanternfly, *C. Rallis, DAMF*

Spotted lanternfly nymph, *C. Rallis, DAMF*

Funding was requested to survey retail and wholesale nurseries specifically targeting spotted lanternfly (*Lycorma delicatula*) (SLF) and *Phytophthora ramorum*. Both of these plant pests have been introduced into New Hampshire through nursery stock in recent years—SLF multiple times. Nurseries were selected for inclusion in the survey by querying the Plant Dealer database. Those nurseries that received trees and shrubs from states with established SLF were surveyed. Likewise, those nurseries that received nursery stock from California, Oregon, and Washington were also included in survey for *P. ramorum*.

The SLF portion of the survey started in April. The goal was to identify potential introductions of SLF egg masses on nursery stock and remove those egg masses prior to hatch. This was largely successful. Four nurseries in the state received nursery stock with SLF egg masses. Egg masses were removed and monitored in the lab for emergence. In all cases, eggs were viable and nymphs hatched. There were periodic surveys during the season at each of the nurseries that received egg masses. Circle traps and limb traps were deployed at the nurseries with interceptions of SLF egg masses. A single SLF nymph was detected at one nursery on a red maple next to a staging area for landscaping equipment. A single SLF adult was found in a

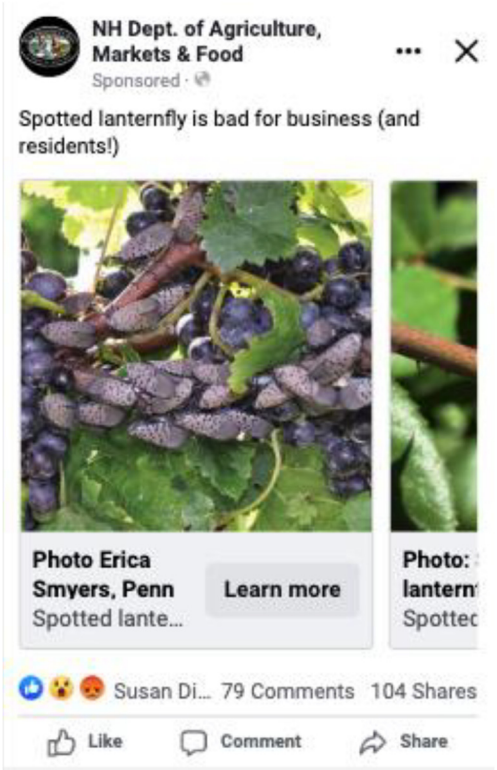
Table 8: § PPA 7721 Asian Defoliator / Bark Beetle Survey *images not to scale*

Common Name	Scientific Name	Trap	# Confirmed Suspects
Pine-tree lappet 	*Dendrolimus pini*		0
Siberian silk moth 	*Dendrolimus sibiricus*		0
Pine sawfly 	*Diprion pini*		0
Okinawa spongy moth 	*Lymantria albescens*		0
Asian spongy moth 	*Lymantria dispar asiatica*		0
Japanese spongy moth 	*Lymantria dispar japonica*		0
White-winged spongy moth 	*Lymantria polstalba*		0
Hokkaido spongy moth 	*Lymantria umbrosa*		0
Rosy moth 	*Lymantria mathura*		0
Nun moth 	*Lymantria monacha*		0
Oak processionary moth 	*Thaumetopoea processionea*		0

circle trap on an emergent maple on the entry road to the nursery. It is not possible to determine if these finds were related to introductions of egg masses earlier in the season or represented additional interceptions from neighboring states with SLF. Beyond the single nymph and the single adult, surveys did not detect life stages of SLF. There was an end of season egg mass survey in November at each of the nurseries that received egg masses in the spring. No new egg masses were detected.

Spotted lanternfly, *C. Rallis, DAMF*

The *P. ramorum* survey started in June. This was the first year for this specific survey, and it needed to be modified to make it operationally functional for 2022 and in future years. One of the original intents of the survey was to increase coordination with the new UNH Plant Diagnostic Lab Director, provide funding for sample processing as the lab rebuilt, and provide training opportunities for anticipated new lab staff. The newly hired Director left in June prior to the start of the survey, making it challenging to complete the survey as originally envisioned. The state procurement process made it challenging to simply shift sample processing to another willing cooperator. Other diagnostic labs were able to take suspect positives for sampling, but not process bulk asymptomatic samples as originally intended. To accommodate the change to the process, as well to ensure a straightforward regulatory response in the case of a positive, only suspect positive samples were collected for testing. Those samples were sent to Cornell for processing, and the sampled plants placed on stop sale. No positives were confirmed.



Social media ad campaign. September 2022.

National Spotted Lanternfly Survey

Division staff participated in the National Spotted Lanternfly in 2022. This survey is for states without known established populations of SLF. Div. Plant Industry staff have been mapping tree of heaven in New Hampshire for several years and locations are recorded on EDDMapS. Inspectors took tablets into the field and were able to readily find tree of heaven to survey. Survey was focused in areas of the state with known high tree of heaven populations and along the shared border with Massachusetts. The nearest known established population of SLF in Massachusetts is 10 miles from the shared border. No life stages of spotted lanternfly were identified as part of the survey.

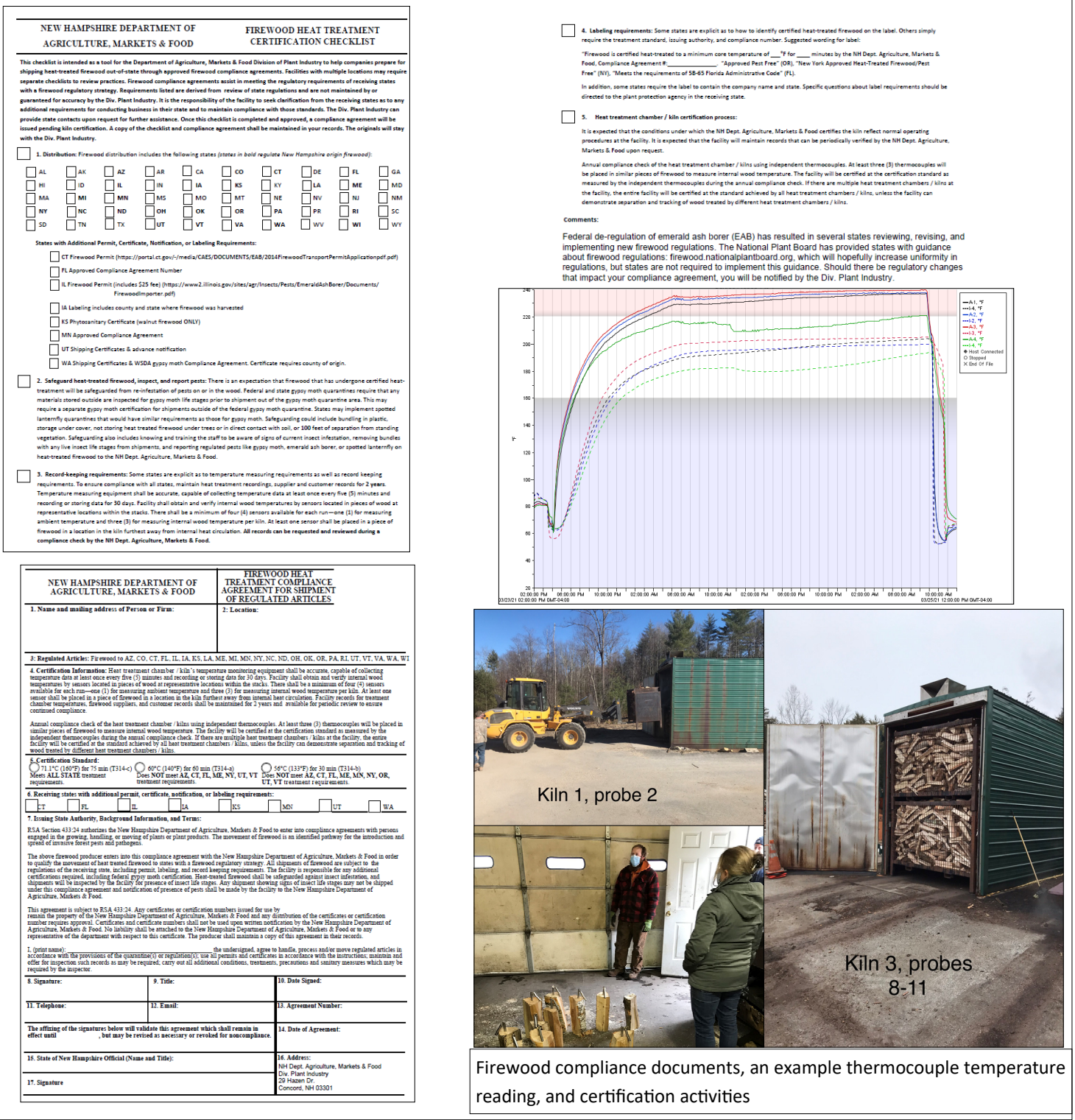
Spotted Lanternfly Outreach project:

The Division received funding to provide outreach primarily to the green industries, the public and travelers about the risks from spotted lanternfly and steps to reduce introduction. The project started July 1, 2022 and will continue through June 30, 2023. Activities in 2022 included design of a scraper card, design of advertising in the NH Camping Guide, and a very successful social media campaign. Presentations, participation in expos, design of additional outreach materials, and another social media campaign are planned in 2023.

Compliance Agreements and Certification Programs

Kiln Certification Program:

The Division performs this certification function with temperature thermocouples borrowed from the USDA and USDA personnel assistance to perform the certification. Six kilns were certified to the highest treatment standard (T314-c: 71°C/160°F for 75 minutes) required by receiving states. One kiln was certified to the previous emerald ash borer standard (T314-a: 60°C/140°F for 60 minutes). The kiln certified to the lower standard does not distribute to a state requiring the higher treatment standard. Certifications were conducted from late January to early March, 2022.



NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE, MARKETS & FOOD

FIREWOOD HEAT TREATMENT CERTIFICATION CHECKLIST

This checklist is intended as a tool for the Department of Agriculture, Markets & Food Division of Plant Industry to help companies prepare for shipping heat-treated firewood out-of-state through approved firewood compliance agreements. Facilities with multiple locations may require separate checklists to review practices. Firewood compliance agreements assist in meeting the regulatory requirements of receiving states with a firewood regulatory strategy. Requirements listed are derived from review of state regulations and are not maintained by or guaranteed for accuracy by the Div. Plant Industry. It is the responsibility of the facility to seek clarification from the receiving states as to any additional requirements for conducting business in their state and to maintain compliance with those standards. The Div. Plant Industry can provide state contacts upon request for further assistance. Once this checklist is completed and approved, a compliance agreement will be issued pending kiln certification. A copy of the checklist and compliance agreement shall be maintained in your records. The originals will stay with the Div. Plant Industry.

1. **Distribution:** Firewood distribution includes the following states *(states in bold regulate New Hampshire origin firewood)*:

AL AK AZ AR CA CO CT DE FL GA
HI ID IL IN IA KS KY LA ME MD
MA MI MN MS MO MT NE NV NJ NM
NY NC ND OH OK OR PA PR RI SC
SD TN TX UT VT VA WA WV WI WY

States with Additional Permit, Certificate, Notification, or Labeling Requirements:

- CT Firewood Permit (https://portal.ct.gov/-/media/CAES/DOCUMENTS/EAB/2014FirewoodTransportPermitApplicationpdf.pdf)
- FL Approved Compliance Agreement Number
- IL Firewood Permit (includes $25 fee) (https://www2.illinois.gov/sites/agr/Insects/Pests/EmeraldAshBorer/Documents/FirewoodImporter.pdf)
- IA Labeling includes county and state where firewood was harvested
- KS Phytosanitary Certificate (walnut firewood ONLY)
- MN Approved Compliance Agreement
- UT Shipping Certificates & advance notification
- WA Shipping Certificates & WSDA gypsy moth Compliance Agreement. Certificate requires county of origin.

2. **Safeguard heat-treated firewood, inspect, and report pests:** There is an expectation that firewood that has undergone certified heat-treatment will be safeguarded from re-infestation of pests on or in the wood. Federal and state gypsy moth quarantines require that any materials stored outside are inspected for gypsy moth life stages prior to shipment out of the gypsy moth quarantine area. This may require a separate gypsy moth certification for shipments outside of the federal gypsy moth quarantine. States may implement spotted lanternfly quarantines that would have similar requirements as those for gypsy moth. Safeguarding could include bundling in plastic, storage under cover, not storing heat treated firewood under trees or in direct contact with soil, or 100 feet of separation from standing vegetation. Safeguarding also includes knowing and training the staff to be aware of signs of current insect infestation, removing bundles with any live insect life stages from shipments, and reporting regulated pests like gypsy moth, emerald ash borer, or spotted lanternfly on heat-treated firewood to the NH Dept. Agriculture, Markets & Food.

3. **Record-keeping requirements:** Some states are explicit as to temperature measuring requirements as well as record keeping requirements. To ensure compliance with all states, maintain heat treatment recordings, supplier and customer records for 2 years. Temperature measuring equipment shall be accurate, capable of collecting temperature data at least once every five (5) minutes and recording or storing data for 30 days. Facility shall obtain and verify internal wood temperatures by sensors located in pieces of wood at representative locations within the stacks. There shall be a minimum of four (4) sensors available for each run—one (1) for measuring ambient temperature and three (3) for measuring internal wood temperature per kiln. At least one sensor shall be placed in a piece of firewood in a location in the kiln furthest away from internal heat circulation. **All records can be requested and reviewed during a compliance check by the NH Dept. Agriculture, Markets & Food.**

4. **Labeling requirements:** Some states are explicit as to how to identify certified heat-treated firewood on the label. Others simply require the treatment standard, issuing authority, and compliance number. Suggested wording for label:

"Firewood is certified heat-treated to a minimum core temperature of ___°F for ____ minutes by the NH Dept. Agriculture, Markets & Food, Compliance Agreement #:_____. "Approved Pest Free" (OR). "New York Approved Heat-Treated Firewood/Pest Free" (NY). "Meets the requirements of 5B-65 Florida Administrative Code" (FL).

In addition, some states require the label to contain the company name and state. Specific questions about label requirements should be directed to the plant protection agency in the receiving state.

5. **Heat treatment chamber / kiln certification process:**

It is expected that the conditions under which the NH Dept. Agriculture, Markets & Food certifies the kiln reflect normal operating procedures at the facility. It is expected that the facility will maintain records that can be periodically verified by the NH Dept. Agriculture, Markets & Food upon request.

Annual compliance check of the heat treatment chamber / kilns using independent thermocouples. At least three (3) thermocouples will be placed in similar pieces of firewood to measure internal wood temperature. The facility will be certified at the certification standard as measured by the independent thermocouples during the annual compliance check. If there are multiple heat treatment chambers / kilns at the facility, the entire facility will be certified at the standard achieved by all heat treatment chambers / kilns, unless the facility can demonstrate separation and tracking of wood treated by different heat treatment chambers / kilns.

Comments:

Federal de-regulation of emerald ash borer (EAB) has resulted in several states reviewing, revising, and implementing new firewood regulations. The National Plant Board has provided states with guidance about firewood regulations: firewood.nationalplantboard.org, which will hopefully increase uniformity in regulations, but states are not required to implement this guidance. Should there be regulatory changes that impact your compliance agreement, you will be notified by the Div. Plant Industry.

NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE, MARKETS & FOOD

FIREWOOD HEAT TREATMENT COMPLIANCE AGREEMENT FOR SHIPMENT OF REGULATED ARTICLES

1. **Name and mailing address of Person or Firm:**

2. **Location:**

3. **Regulated Articles:** Firewood to AZ, CO, CT, FL, IL, IA, KS, LA, ME, MI, MN, NY, NC, ND, OH, OK, OR, PA, RI, UT, VT, VA, WA, WI

4. **Certification Information:** Heat treatment chamber / kiln's temperature monitoring equipment shall be accurate, capable of collecting temperature data at least once every five (5) minutes and recording or storing data for 30 days. Facility shall obtain and verify internal wood temperatures by sensors located in pieces of wood at representative locations within the stacks. There shall be a minimum of four (4) sensors available for each run—one (1) for measuring ambient temperature and three (3) for measuring internal wood temperature per kiln. At least one sensor shall be placed in a piece of firewood in a location in the kiln furthest away from internal heat circulation. Facility records for treatment chamber temperatures, firewood suppliers, and customer records shall be maintained for 2 years and available for periodic review to ensure continued compliance.

Annual compliance check of the heat treatment chamber / kilns using independent thermocouples. At least three (3) thermocouples will be placed in similar pieces of firewood to measure internal wood temperature. The facility will be certified at the certification standard as measured by the independent thermocouples during the annual compliance check. If there are multiple heat treatment chambers / kilns at the facility, the entire facility will be certified at the standard achieved by all heat treatment chambers / kilns, unless the facility can demonstrate separation and tracking of wood treated by different heat treatment chambers / kilns.

5. **Certification Standard:**

◯ 71.1°C (160°F) for 75 min (T314-c) Meets **ALL STATE** treatment requirements.

◯ 60°C (140°F) for 60 min (T314-a) Does **NOT** meet **AZ, CT, FL, ME, NY, UT, VT** treatment requirements.

◯ 56°C (133°F) for 30 min (T314-b) Does **NOT** meet **AZ, CT, FL, ME, MN, NY, OR, UT, VT** treatment requirements.

6. **Receiving states with additional permit, certificate, notification, or labeling requirements:**

CT FL IL IA KS MN UT WA

7. **Issuing State Authority, Background Information, and Terms:**

RSA Section 433:24 authorizes the New Hampshire Department of Agriculture, Markets & Food to enter into compliance agreements with persons engaged in the growing, handling, or moving of plants or plant products. The movement of firewood is an identified pathway for the introduction and spread of invasive forest pests and pathogens.

The above firewood producer enters into this compliance agreement with the New Hampshire Department of Agriculture, Markets & Food in order to qualify the movement of heat treated firewood to states with a firewood regulatory strategy. All shipments of firewood are subject to the regulations of the receiving state, including permit, labeling, and record keeping requirements. The facility is responsible for any additional certifications required, including federal gypsy moth certification. Heat-treated firewood shall be safeguarded against insect infestation, and shipments will be inspected by the facility for presence of insect life stages. Any shipment showing signs of insect life stages may not be shipped under this compliance agreement and notification of presence of pests shall be made by the facility to the New Hampshire Department of Agriculture, Markets & Food.

This agreement is subject to RSA 433:24. Any certificates or certification numbers issued for use by remain the property of the New Hampshire Department of Agriculture, Markets & Food and any distribution of the certificates or certification number requires approval. Certificates and certificate numbers shall not be used upon written notification by the New Hampshire Department of Agriculture, Markets & Food. No liability shall be attached to the New Hampshire Department of Agriculture, Markets & Food or to any representative of the department with respect to this certificate. The producer shall maintain a copy of this agreement in their records.

I, (print name): _____ the undersigned, agree to handle, process and/or move regulated articles in accordance with the provisions of the quarantine(s) or regulation(s); use all permits and certificates in accordance with the instructions; maintain and offer for inspection such records as may be required; carry out all additional conditions, treatments, precautions and sanitary measures which may be required by the inspector.

8. Signature:	9. Title:	10. Date Signed:
11. Telephone:	12. Email:	13. Agreement Number:
The affixing of the signatures below will validate this agreement which shall remain in effect until _____, but may be revised as necessary or revoked for noncompliance.		14. Date of Agreement:
15. State of New Hampshire Official (Name and Title):		16. Address: NH Dept. Agriculture, Markets & Food Div. Plant Industry 29 Hazen Dr. Concord, NH 03301
17. Signature		

Firewood compliance documents, an example thermocouple temperature reading, and certification activities

Table 9: 2022 NH Certified Firewood Kilns

Company	Town (Kiln)	Certification Standard	Issue Date
Burbee Firewood	Brookline	T314-c (71°C/160°F for 75 min)	March 7, 2022
Country Comfort Firewood	Landaff	T314-c (71°C/160°F for 75 min)	March 23, 2022
New London Wood Products	New London	T314-c (71°C/160°F for 75 min)	March 23, 2022
Ossipee Mountain Land Co.	Tamworth	T314-c (71°C/160°F for 75 min)	March 10, 2022
Province Kiln Dried Firewood	Belmont	T314-a (60°C/140°F for 60 min)	March 23, 2022
RC Conner	Exeter	T314-C (71°C/160°F for 75 min)	March 11, 2022
Treehugger Farms	Westmoreland	T314-C (71°C/160°F for 75 min)	March 11, 2022

Compliance Agreements:

Several nurseries have agreements in place with the Division of Plant Industry to demonstrate compliance with receiving state quarantines, including those for Japanese beetle and other invasive chafers, spongy moth, spotted lanternfly, European corn borer, and onion white rot stem & bulb nematode.

Table 10: 2022 NH Compliance Agreements

Company	Japanese beetle and other chafers	Spongy moth	Spotted lanternfly	European corn borer	Onion white rot & stem & bulb nematode
DS Cole Growers	X	X	X	X	X
Marlborough Greenhouse	X				
Pleasant View Gardens	X	X		X	X
Studley Gardens	X	X			

STATE QUARANTINES Firewood Quarantine | Plant Industry | NH Department of Agriculture, Markets and Food Firewood | NHBugs

Exterior Firewood Quarantine: New Hampshire prohibits the entry of firewood which has not been certified heat-treated to 60°C/140°F for 60 minutes or which is not moved under a compliance agreement. Compliance agreements are available to kilns agreeing to heat-treat out-of-state firewood, for transporters delivering firewood to compliant heat-treatment kilns, and in circumstances where wood harvested within New Hampshire is taken out-of-state for processing and then delivered back into New Hampshire.

Table 11: 2022 NH Certified Firewood Kilns

	2018	2019	2020	2021	2022
Certified HT kilns	2	3	3	7	7
Transporters to certified HT kilns	5	11	6	5	1
NH firewood processed out-of-state	0	1	1	1	2
Total	7	15	10	9	10

EAB adult (top), and larva (bottom), *NW Siegert, USFS*

NHBugs Facebook page: NHBugs uses Facebook to provide periodic messaging about forest health risks from insects and direct internet traffic to the www.NHbugs.org website. Partners from Div. Plant Industry and UNH Cooperative Extension have access to manage the page and promote content. The page is a mixture of fun and facts about forests, forest health, forest pests, and insects. Currently the site has an estimated 1,400+ followers, most from New Hampshire.

Firewood Scout: New Hampshire joined Firewood Scout Home — Firewood Scout a smartphone-friendly website designed to connect campers to campfire wood in the spring of 2016. More than 500 New Hampshire vendors of locally-sourced or certified heat-treated wood have been listed on the site. Participation in Firewood Scout has been promoted on local radio shows, through NHBugs, at expos, through sponsored Facebook posts, and direct outreach to campgrounds.

PEST UPDATES

Emerald ash borer: Emerald Ash Borer | Plant Industry | NH Department of Agriculture, Markets and Food Emerald Ash Borer | NHBugs *Agrilus planipennis* continues to be detected in new towns in the state through trapping and visual survey conducted by the NH Div. Forests and Lands and UNH Cooperative Extension. The only county

Table 12: Emerald ash borer detections in New Hampshire

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
# New Counties	1	2	1	0	1	2	2	0	0	0
# New Towns	2	5	7	12	15	24	26	59	20	15
Total Counties	1	3	4	4	5	7	9	9	9	9
Total Towns	2	7	14	26	41	65	91	150	170	185
% Towns Infested	<1%	3%	6%	11%	18%	28%	39%	64%	72%	79%

Internal quarantine (2013–2018) | No internal quarantine (2019–2022)

without detections of emerald ash borer is Coös. Emerald ash borer is considered widely distributed throughout the state, south of the White Mountains.

It should be noted that elimination of both the federal and New Hampshire emerald ash borer quarantines does not mean that emerald ash borer is unregulated within New Hampshire:

- RSA 433:28 prohibits the sale of nursery stock infested with dangerous plant pests or diseases.
- RSA 433:29-433:30 provides the authority to inspect and require treatment or disposal of infested nursery stock.
- RSA 430:51-430:55 provides the authority to protect the state from the spread of invasive species, with emerald ash borer listed as a prohibited invasive species.
- RSA 227-K:17 prohibits the sale, offering for sale, giving away, moving or shipping any tree of forest product into or within New Hampshire that is known or believed to be infested with a forest pest declared as a dangerous insect or disease.
- New Hampshire's exterior firewood quarantine prohibits the importation of firewood from out-of-state, unless under compliance agreement.

Management Program: Emerald ash borer management on state lands is conducted by the Division of Forests and Lands and focuses on survey, release of bio-control agents, and chemical treatment of select trees. Extension foresters and the green industry provide landowner management recommendations.

Outreach Program: The keystone for emerald ash borer outreach in the state is Emerald Ash Borer | NHBugs. This website has content related to forest pests that threaten New Hampshire and the information on the website is reviewed by the participating agencies. As expected, EAB has continued to spread in the state, making the outreach component of the multi-agency response even more critical as more New Hampshire residents and municipalities make management decisions about their ash trees.

Hemlock woolly adelgid Hemlock Wooly Adelgid | Plant Industry | NH Department of Agriculture, Markets and Food Hemlock Woolly Adelgid | NHBugs *Adelges tsugae* continues to be detected in new towns in the state via visual survey conducted by the NH Div. Forests and Lands. The only county without detections of hemlock woolly adelgid is Coös. Hemlock woolly adelgid was first detected in Portsmouth in 2000. There was a quarantine on nursery stock and forest products until 2018.

Table 13: Hemlock woolly adelgid detections in New Hampshire

	Pre-2010	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
# New Towns	31	11	13	7	10	11	8	21	8	2	4	5	15	6
Total Towns	31	42	55	62	72	83	91	112	120	122	126	131	146	152
% Towns Infested	13%	18%	24%	26%	31%	35%	39%	48%	51%	52%	54%	56%	62%	65%
					Internal quarantine						No internal quarantine			

It should be noted that elimination of the hemlock woolly adelgid quarantine does not mean that the pest is unregulated in New Hampshire:

- RSA 433:28 prohibits the sale of nursery stock infested with dangerous plant pests or diseases.
- RSA 433:29-433:30 provide the authority to inspect and require treatment or disposal of infested nursery stock.
- RSA 227-K:17 prohibits the sale, offering for sale, giving away, moving or shipping any tree or forest product into or within New Hampshire that is known or believed to be infested with a forest pest declared as a dangerous insect or disease.
- RSA 430:51-430:55 provides the authority to protect the state from the spread of invasive species, with hemlock woolly adelgid listed as a prohibited invasive species.

Elongate hemlock scale Elongate Hemlock Scale | NHBugs *Fiorinia externa* continues to be detected in new towns in the state via visual survey conducted by the NH Div. Forests and Lands. It is primarily known from the southern and eastern counties, with two towns with detections in Carroll County. Elongate hemlock scale was first detected in Nashua in 2006.

Table 14: Elongate hemlock scale detections in New Hampshire

	Pre-2010	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
# New Towns	4	2	2	4	4	2	3	21	24	1	3	3	6	3
Total Towns	4	6	8	12	16	18	21	42	66	67	70	73	79	82
% Towns Infested	2%	3%	3%	5%	7%	8%	9%	18%	28%	29%	30%	31%	34%	35%

Invasive jumping worms Jumping Worms | NHBugs Invasive jumping worms have been reported primarily by backyard gardeners throughout the state. They have also been found in the vicinity of nurseries. Invasive jumping worms are primarily reported through the Reporting Form | NHBugs reporting form. There are best management practices posted on the website. These primarily relate to not moving invasive jumping worms as part of plant swaps. Div. Forests and Lands, USFS, UNH Extension, Div. Plant Industry, Div. Pesticide Control, and Natural Heritage Bureau representatives meet periodically to discuss concerns about invasive jumping worms, including spread to and potential impacts on New Hampshire's forests. Invasive jumping worms are not currently regulated within the State of New Hampshire.

Spotted lanternfly: Spotted Lanternfly | Division of Plant Industry | NH Department of Agriculture, Markets and Food Spotted Lanternfly | NHBugs *Lycorma delicatula* was intercepted on nursery stock entering New Hampshire in 2020, 2021, and 2022. Follow-up survey has not found any evidence of establishment of spotted lanternfly.


Spotted lanternfly, *D. Kuzyk*

Following the 2020 interception, the nursery that received nursery stock with spotted lanternfly (SLF) egg masses on them implemented best management practices (BMPs) SLF_BMPs_for_Nurseries.pub (nh.gov) to reduce their risk of being a pathway of introduction of this pest into the state. These BMPs focused on prevention, scouting, reporting, and response. In 2022, more than 300 egg masses were intercepted on nursery stock. With an average of 50 eggs/mass, that is more than 15,000 eggs introduced into New Hampshire nurseries removed prior to hatch. Div. Plant Industry staff collected removed egg masses and allowed them to hatch within the lab to determine viability. All egg masses were viable, and emerged SLF neonates were destroyed. Div. Plant Industry followed-up with the shipping states and conducted surveys and inspections throughout the season. Utilizing best management practices provided protection from this invasive pest.

The use of the BMPs successfully reduced the nursery industry's risk of spreading SLF to their customers in New Hampshire and other northeastern states. Plans to continue promoting the use of BMPs and continue survey efforts in 2023. This is an example of industry and state regulators working together to reduce the risk of introduction of a significant nuisance pest.

Although New Hampshire does not have an exterior spotted lanternfly quarantine, that does not mean that spotted lanternfly is unregulated within New Hampshire:

- RSA 433:28 prohibits the sale of nursery stock infested with dangerous plant pests or diseases.
- RSA 433:29-433:30 provides the authority to inspect and require treatment or disposal of infested nursery stock.
- RSA 430:51-430:55 provides the authority to protect the state from the spread of invasive species, with spotted lanternfly listed as a prohibited invasive species.

EXPORT CERTIFICATION Nursery/Plant Dealer Licensing Program | Plant Industry | NH Department of Agriculture, Markets and Food

Numbers of federal certificates issued through PCIT has declined since 2014. This is primarily due to market changes for NH greenhouses as well as participation of one greenhouse in the United States-Canada Greenhouse-Grown Plant Certification Program (GCP). Shipments are certified through the GCP rather than via a phytosanitary certificate.

The Division oversaw a compliance agreement for export of bedding plants to Canada through the GCP. In 2020, the authorized facility became the first in the country dually-certified through the GCP and SANC (Systems Approach to Nursery Certification) programs. In 2022, the Division conducted four audits of the grower, two full-systems audits and two surveillance audits. Audits were conducted based on the pest

management plan approved for the greenhouse upon acceptance into the programs. Successful completion of audits allowed the facility to successfully apply to move from conditional certification status in order to reduce the number of required annual audits from four to two.

Participation in these programs has resulted in improved communication between the facility and the Division of Plant Industry, improvements in the facility's pest scouting program, and the ability of the exporter to have greater flexibility in when orders are shipped as well as accommodating last minute order changes. The Division of Plant Industry has benefited by an improved understanding of the pest detection and control systems in place within the facility that define the risk of the facility.

Participation in these voluntary certification and compliance programs does require staff time from both the facility in the program and the regulatory staff. The facility needs to maintain and be able to retrieve records as required by the certification programs, as well as conduct the operations (scouting, treating, etc.) as outlined within the Facility Manual. The regulatory staff needs to prepare audits, conduct audits, review records for compliance, and prepare reports. In the case of the GCP, the regulatory staff also needs to review the plants on the Plants in Production list to a range of databases to ensure eligibility into both Canada and the U.S. specific to each plant and its origin. If the facility changes countries of origins or plants offered for sale on a regular basis, revising this list can be a significant effort. There is no cost-recovery system in place that allows the Division to cover costs of oversight of this program and that is a potential consideration for future participation in similar programs.

One of the 2022 full-systems audits served as the pilot audit for the SANC Governing Board. The SANC Governing Board is the oversight entity tasked with ensuring that the SANC program is implemented equally in all states. The SANC Governing Board audit reviews oversight by the NH Department of Agriculture, Markets & Food to ensure compliance of the facility with the SANC Standard. This included a review of the Program Manual, previous audit reports, and observations of Division staff conducting an audit. Two auditors from the SANC Governing Board participated in the audit. The audit found that the Department met the SANC Program Standards requirements.

Table 15: Export certification activity

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
State certificates issued through PCIT	20	22	36	21	3	10	7	7	2	18	201	183
Exporters requesting inspection for international shipments	3	5	8	4	7	5	6	7	4	4	3	5
Federal certificates issued through PCIT	85	86	129	123	16	10	7	8	4	7	10	14
Orders shipped under Compliance Agreement in US Canadian Greenhouse Certification Program	-	-	-	-	82	79	93	104	119	109	200	200
Total nursery stock international exports (Federal Phytosanitary Certificates + USCGCP Compliance Agreement shipments)	85	86	129	123	98	89	100	112	123	126	210	214

PERMITS

Table 16: Permits issued

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*
525: Permit to receive soil	2	5	.	2	3	3	3	4	4	0	5	1
526: Plant Pests and Biological Control Organisms	40	55	30	32	41	34	38	35	54	58	100	16
BRS: Regulated Genetically	25	17	9	7	3	3	2	1	3	0	0	0
588: Controlled Import Permit	.	1	2	2	3	4	5	5	7	1	0	2

*Permitting platform transitioned to eFile in 2022. Permits previously issued through ePermits are now applied for and approved via eFile. Reported permits are those issued through eFile. Permits reported through the ePermits system are not recorded in 2022 numbers.

IDENTIFICATIONS Insect & Spider Identification | Plant Industry | NH Department of Agriculture, Markets and Food Tick Identification | Plant Industry | NH Department of Agriculture, Markets and Food

In addition to receiving physical specimens of ticks, insects, and other arthropods, the Division performs identification services through email, and the NHBugs Facebook page. Additionally, the NHBugs website has an on-line photo submission portal and is the recommended location for concerned residents to upload pictures of forest pests. Use of those digital identification services is not represented here.

Table 17: Identifications

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Ticks	62	54	30	61	38	34	62	36	47	36	37	32
Other arthropods	68	26	17	24	9	24	12	14	6	2	33	27

Clockwise from top left: *Harrisimemna trisignata, Paraphidippus aurantius*, *Atalantycha* sp., *Orthophagus orpheus, Tetramorium immigrans*, *C. Rallis, DAMF*

All insect images by C. Rallis, DAMF, in this report were created using an imaging system based on the USGS Bee Inventory Monitoring Lab's (BIML) setup, which includes a Canon DSLR and a Canon mp-e 65mm 1-5x macro lens mounted on a Cognisys Trackshot motorized rail. The images were photostacked using Zerene Stacker software, with final touchup in Adobe Photoshop.