APPENDIX N
CASE 10-T-0189
INVASIVE SPECIES CONTROL PLAN

Champlain Hudson Power Express

Overland Invasive Species Control Plan

Case 10-T-0139
Putnam - Queens, New York

CHA Project Number: 066076

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TABLE OF CONTENTS

1.0 INTRODUCTION....4
1.1 Purpose & Goal....5
1.2 Applicable laws and regulations....5

2.0 INVASIVE SPECIES MONITORING....6
2.1 Pre-construction baseline survey....6
2.2 Construction Monitoring....7
2.3 Post-Construction Monitoring....8

3.0 CONTROL MEASURES....9
3.1 Construction measures for overland activities....9
3.2 Construction measures within the adirondack park....11
3.3 Additional construction measures for aquatic communities....11
3.4 Additional construction measures to prevent or control the transport of invasive insect species....12

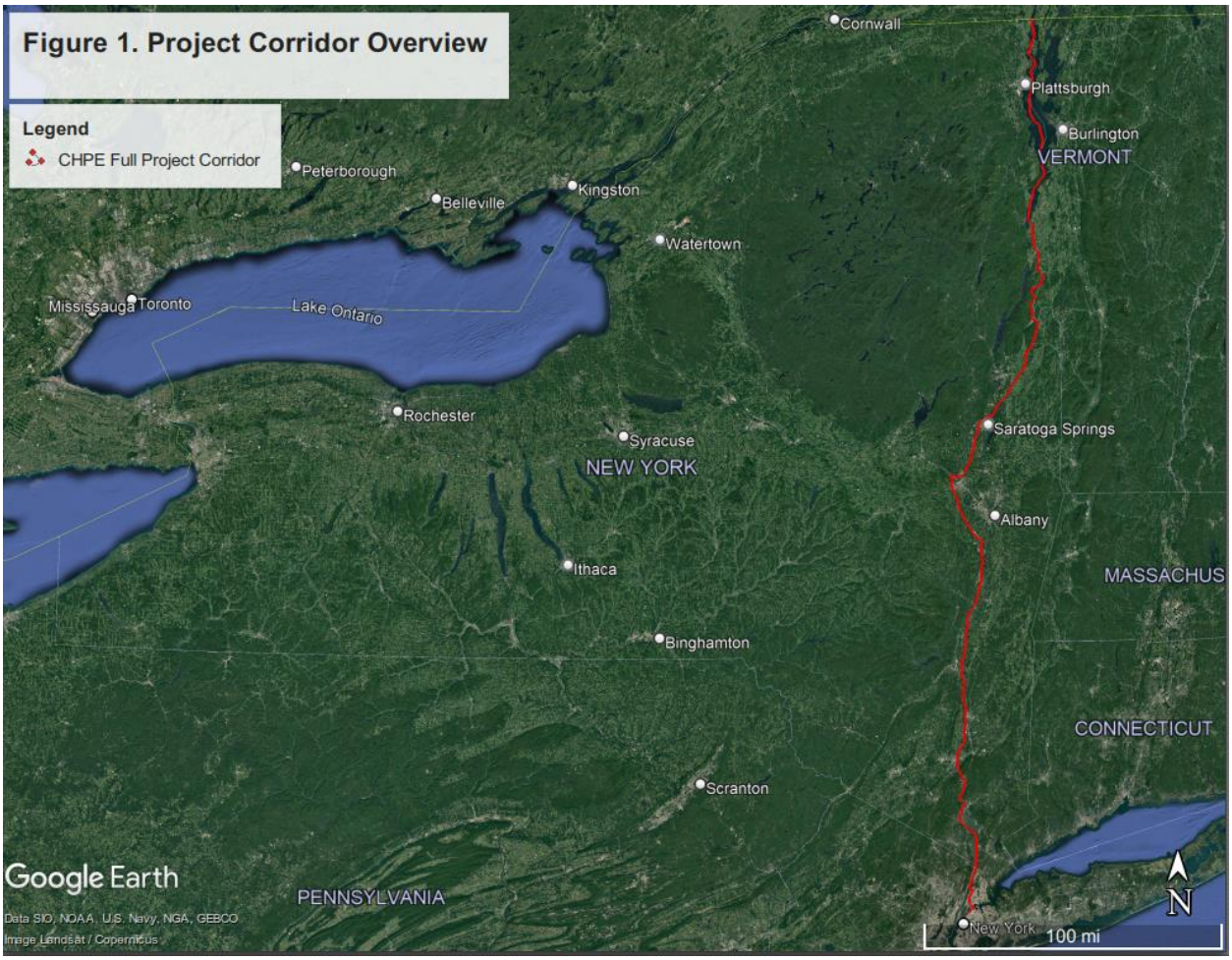
4.0 REFERENCES....13

LIST OF ATTACHMENTS

Attachment 1 Prohibited and Regulated Invasive Species
Attachment 2 New York Utility Company Best Management Practices for Preventing the Transportation of Invasive Plant Species
Attachment 3 Invasive Insect Fact Sheets

1.0 INTRODUCTION

CHA Consulting, Inc. (CHA) has prepared this Invasive Species Control Plan on behalf of Champlain Hudson Power Express, Inc. (CHPE) and Kiewit Construction (Kiewit) for the Champlain Hudson Power Express Project (Project) overland segments. The CHPE project involves the construction of ±339 miles of high voltage direct current underground and underwater transmission line from Montreal, Quebec, to Queens, New York (See Figure 1 – Project Corridor Overview). The overland portion is approximately 146 miles. It will bring 1,250 megawatts of renewable energy into New York by the end of year 2025, the anticipated Project Commercial Operation Date, to reduce the dependency on fossil fuels and carbon emissions. The proposed Project will provide enough power for more than 1 million homes, along with numerous environmental and economic benefits to millions of residents in New York State communities.



1.1 PURPOSE & GOAL

The New York State Department of Environmental Conservation (NYSDEC) defines an invasive species as "…a species that is non-native to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health" (6 NYCRR Part 575, 2014). The overall project will involve both aquatic and land disturbance within the Project Corridor using equipment and construction practices with the potential to relocate or spread invasive species. This Overland Invasive Species Control Plan (ISCP) is intended to prevent the spread of invasive species, focusing on the Limits of Work (LOW) within the overland portion of the project. It is not the intent of this plan to control or eliminate existing populations of invasive species, but rather to prevent their spread as a result of construction activities. A separate ISCP will be developed for the aquatic portions of the project.

1.2 APPLICABLE LAWS AND REGULATIONS

There are several federal and state laws and regulations governing the control of invasive species that are applicable to this project, including Sections 401 and 404 of the Clean Water Act and Article 15 and Article 24 of the Environmental Conservation Law. Both the Environmental Conservation Law and the Agriculture and Markets Law authorize the NYSDEC and the NYS Department of Agriculture and Markets (NYSDAM) to regulate invasive species. These agencies are also party to the Article 7 (Public Service Law) process by which this project was approved.

The Part 575 Invasive Species Regulations are intended to control invasive species by reducing the introduction and spread of invasive species populations by limited commerce in such species, thereby having a positive impact on the environment. The list of Prohibited and Regulated Invasive Species (September 10, 2014) is provided in Attachment 1.

2.0 INVASIVE SPECIES MONITORING

The following monitoring measures will be employed for the project.

2.1 PRE-CONSTRUCTION BASELINE SURVEY

Baseline surveys were not included as a Certificate requirement and were not conducted for the Project Corridor. However, during site investigations for all packages and segments, several invasive plant species were identified. Their locations were not recorded at the time. The Project Corridor involves lands within and adjacent to roads and railroads, which tend to support many types of wetland and upland invasive plants. These areas are frequently disturbed, contain fill material, and are subject to pollutants from vehicles, trains, and maintenance activities. These conditions tend to foster the spread of invasives, further exacerbated by long, cleared corridors for transport of seed and plant material.

The vegetative communities within the Project Corridor contain upland, wetland, and some aquatic communities primarily limited to streams. Their cover types include emergent wetlands, meadows and fields, scrub-shrub, forested, and disturbed roadside and railroad ballast with sparse vegetation. The list of observed invasive plants within the Project Corridor include:

- Norway maple (*Acer platanoides*)
- Garlic mustard (*Alliaria petiolata*)
- Mugwort (*Artemisia vulgaris*)
- Japanese barberry (*Berberis thunbergii*)
- Oriental bittersweet (*Celastrus orbiculatus*)
- Spotted knapweed (*Centaurea stoebe*)
- Canada thistle (*Cirsium arvense*)
- Black swallow-wort (*Cynanchum louiseae*)
- Cut-leaf teasel (*Dipsacus laciniatus*)
- Autumn olive (*Elaeagnus umbellata*)
- Cypress spurge (*Euphorbia cyparissias*)
- Yellow iris (*Iris pseudacorus*)
- Morrow's honeysuckle (*Lonicera morrowii*)
- Purple loosestrife (*Lythrum salicaria*)
- Japanese stilt grass (*Microstegium vimineum*)

- Common reed (*Phragmites australis*)
- Japanese knotweed (*Reynoutria japonica*)
- Common buckthorn (*Rhamnus cathartica*)
- Black locust (*Robinia pseudoacacia*)
- Multi flora rose (*Rosa multiflora*)

These species occur as individuals or dense groupings throughout the Project Corridor.

The only invasive animal that was positively identified within the Project Corridor was the spongy (formerly gypsy) moth (*Lymantria dispar*), identified by egg masses on trees and as larvae and adult moths, particularly in the Phase 1A/B project area.

2.2 CONSTRUCTION MONITORING

A third-party Environmental Inspector will be retained and engaged in the project to ensure compliance with all the environmental components/requirements of the Environmental Management and Construction Plan (EM&CP) for each Package/Segment. This will include monitoring construction for invasive species.

a) Prior to construction, an Environmental Inspector or other qualified professional will conduct training to educate the Project Contractor(s) and subcontractor(s) on identifying invasive species and the site-specific protocol for preventing or controlling their transport throughout or off the Project Site as identified in the *Environmental Energy Alliance of New York (EEANY), New York Utility Company Best Management Practices for Preventing the Transportation of Invasive Species* (2015) (Attachment 2). These protocols include the various cleaning or decontamination methods to be used on the Project. In addition, the Contractors will be instructed to stay within access paths and work areas that are designated on the EM&CP Plan & Profile drawings to minimize ground disturbance (2012 BMPs, Section 21.1.1.). The Environmental Inspector will also provide field training for the work crews that will include invasive species identification, specific locations of invasive species and flagging used to demarcate these areas. The crews will be trained in the methods of safely removing and disposing of invasive plants and trees known or expected to be carrying invasive invertebrates, such as the emerald ash borer (*Agrilus planipennis*) or gypsy moth.

b) The Environmental Inspector will inspect work areas prior to work beginning to identify invasive species. This effort will include flagging the subject area, GPS locating the area, and noting the specie(s) and approximate area(s). This will serve as the baseline data for future comparison with post-construction monitoring. The Environmental Inspector will notify the Contractor of the type and location of the invasive species prior to work beginning and the procedures needed to remove these species from the work area and properly dispose of them in a licensed landfill.

2.3 POST-CONSTRUCTION MONITORING

Post construction invasive plant species surveys will be conducted each year within the first four years following construction. Note that since this is a large, multi-year construction project, post-construction monitoring will occur by Package/Segment following completion of each. Survey methods will include the following:

- Visually identify and estimate the area of invasive species listed in Part 575, including prohibited and regulated plant species.
- GPS locate the center point of the sites and sketch the locations on the project plans.
- Photograph representative species.

Prepare a post construction invasive plant species monitoring report, comparing each year's monitoring results with the pre-construction baseline data. The report will also identify and evaluate any significant deviations in the extent of invasives within each Package/Segment and measures that can be taken to control spread, if necessary.

3.0 CONTROL MEASURES

Control measures will be focused on removal and disposal of invasive plant materials and soils contaminated with invasive plants and preventive methods for spreading invasive species through construction equipment. The project involves the excavation of a trench to install conduit through which with transmission cables will be pulled. This activity will result in the removal of vegetation from the work area and the removal of excess soils. Within areas of high concentrations of invasive species, the vegetation, which could contain seeds (depending on time of year), and the soils will be considered contaminated with seed and rhizomes and will need to be disposed of at a licensed landfill. Contaminated soils and vegetation will also be attached to construction vehicles and equipment and must be removed before leaving each location.

3.1 CONSTRUCTION MEASURES FOR OVERLAND ACTIVITIES

a) Vehicles (including trailers) machinery, equipment, and materials (including timber mats) will be inspected for, and cleaned of, any visible soils, vegetation, and debris **before** bringing them to the Site or moving them to the next construction area along the construction right of way (ROW). The above measures are specified under the *EEANY, New York Utility Company Best Management Practices for Preventing the Transportation of Invasive Species* (2015) (EM&CP Appendix N) and the BMP Document (2012 BMPs, Section 19).

   Equipment used in areas containing invasive plant species will be cleaned using pneumatic brushes and brooms. If sufficient space is not available or is precluded by terrain to provide a cleaning station on site, upon approval of the Environmental Inspector, cleaning may occur adjacent to the infested area provided that the wash water does not discharge within 100 feet of any stream or stormwater conveyance. Hand tools (brush, broom, screwdriver, shovel,) may be allowed per direction of the Inspector and must also be thoroughly cleaned after work is complete.

   Loose plant and soil material that has been removed from clothing, boots and equipment, or generated from cleaning operations will be a) rendered incapable of any growth or reproduction, b) appropriately disposed of off-site, or c) handled as follows.

In the areas that remain infested with invasive plant species following completion of work, the invasive material cleaned from equipment used within the same construction area may remain within the infested area.

If disposed of off-site, the plant and soil material will be transported in a secure manner. Any off-site disposal must occur at either a landfill-incinerator or a State-approved disposal facility.

Revegetation of wetlands will be expedited by stripping the topsoil from over the trench, except in areas with standing water or heavily inundated soils, or where no topsoil layer is evident or where it exceeds the depth of the trench. Topsoil will then be stockpiled separately from subsoil to insure preservation of the seed bank. It is likely that areas containing invasive species will have a significant invasive species seed bank; however, the intent is not to restore native species to areas of invasive species dominance but rather to prevent the spread of these species to other locations.

b) Following conduit installation, the disturbed areas will be backfilled and the area recontoured to its original grade. Segregated topsoil will be replaced and natural drainage patterns restored to facilitate natural re-establishment of vegetation.

c) The restored ROW will be seeded with an invasive species free seed mix and mulched (See EM&CP Appendix G – SWPPP) immediately after final regrading to create a rapid cover over the disturbed ROW and to encourage the establishment of native species. However, it is recognized that the soils in currently infested areas are likely to have a significant seed bank of invasive species and that they will likely continue to dominate.

d) Expediting construction in and around wetlands and limiting the amount of equipment and construction activities within wetlands will reduce the amount and duration of disturbances. In addition, equipment used will be tracked or balloon-tired, often operating on top of timber mats or corduroy. This will minimize the amount of heavily disturbed soils in which invasive species might colonize.

e) To the extent practicable, water for dust control and other uses will come from municipal water supplies or other potable sources. If surface waters are used, equipment will be disinfected before and afterwards.

f) To the extent practicable, the movement of invasive-plant-infested soils, gravel, rock, and other fill materials to relatively-invasive-plant-free locations will be avoided. Soil, gravel, rock, and other fill material will come from invasive-plant-free sources on and off the site, if such sources are available.

g) Revegetation of disturbed areas will utilize seed and other plant materials that have been checked and certified as "noxious-weed-free", as described in Section 20.6 of the BMP Document (2012 BMPs, Section 20.6) and/or the SWPPP (See EM&CP Appendix G).

3.2 CONSTRUCTION MEASURES WITHIN THE ADIRONDACK PARK

The following additional procedures will be followed to monitor invasive species within and immediately adjacent to the construction ROW along County Route 3, Lake Road, and Route 22 Travel Corridor within Packages 1A and 1B (Segments 1 and 2):

a) The Environmental Inspector will record the presence/absence and abundance of invasive species prior to construction.

b) The Certificate Holders will arrange for post construction annual surveys for a period of up to four (4) years after Segments 1 and 2 are completed.

c) Additional Control Measures will be proposed if the post construction surveys suggest a spread of invasive species as a result of the project.

3.3 ADDITIONAL CONSTRUCTION MEASURES FOR AQUATIC COMMUNITIES

The BMP Document (2012 BMPs, Section 21.4) identifies additional invasive species that are either known to occur or have the potential to occur within the shallow and deep-water habitats within Lake Champlain and the fringing lacustrine wetlands within its embayments. These include zebra mussel (*Dreissena polymorpha*), spiny water flea (*Bythotrephes cederstroemi*), rusty crayfish (*Orconectes rusticus*), Eurasian water milfoil (*Myriophylum spicatum*) and water chestnut (*Trapa natans*). These and other species may also be present within streams and the Hudson River. In accordance with BMP Section 21.4, the Certificate Holders will perform the following measures to prevent or control the transport of these invasive species:

a. All construction equipment that has been in contact with standing or flowing water will be carefully inspected and thoroughly washed-down prior to moving to another location to remove potentially infested water, attached mussels (and other epiphytes), spiny water fleas, rusty crayfish (or other macrocrustaceans), plant materials and soil.
b. Should construction need to occur within an area identified as containing Eurasian water milfoil and/or water chestnut, existing plant beds will be avoided where possible and construction will take place only during the non-germination periods.

As indicated above, a separate ISCP will be developed for the aquatic portions of the project. Please refer to the Aquatic ISCP for additional information about specific control measures for aquatic invasive species.

3.4 ADDITIONAL CONSTRUCTION MEASURES TO PREVENT OR CONTROL THE TRANSPORT OF INVASIVE INSECT SPECIES

The BMP Document (2012 BMPs, Section 21.2) identifies the Asian longhorned beetle (*Anoplophora glabripennis*), currently limited to New York City and Long Island, and the emerald ash borer, found throughout most of New York State, as two invasive insects that the NYSDEC has identified as a potential problem to native trees and vegetation. The current list of invasive species that may be encountered during construction also includes the hemlock woolly adelgid (*Adelges tsugae*), known to occur on Prospect Mountain in the Town of Lake George and more heavily concentrated in southeastern New York; and spongy (gypsy) moth, throughout New York State. Fact sheets on these species are provided in Attachment 3. If, during construction, these insects are found, they will be reported to the NYSDEC regional forester. In addition, prior to construction, training will be conducted to teach project Contractor(s) and subcontractor(s) to identify invasive insect species and the Project-wide protocol for reporting such insects to the NYSDEC regional forester. Unmerchantable timber will be provided as firewood to interested parties pursuant to the substantive requirements of NYSDEC's firewood restrictions to limit the spread of invasive insect species found in 6 NYCRR Part 192.5.

4.0 REFERENCES

6NYCRR Part 575. September 10, 2014. Prohibited and Regulated Invasive Species.

Environmental Energy Alliance of New York. January 2015. New York Utility Company Best Management Practices for Preventing the Transportation of Invasive Species.

New York State Department of Environmental Conservation. 2018. Asian Longhorned Beetle Fact Sheet. https://www.dec.ny.gov/docs/lands_forests_pdf/albfactsheet.pdf

New York State Department of Environmental Conservation. 2018. Hemlock Wooly Adelgid Fact Sheet. https://www.dec.ny.gov/docs/lands_forests_pdf/hwafactsheet.pdf

New York State Department of Environmental Conservation. Emerald Ash Borer Fact Sheet. https://www.dec.ny.gov/animals/7253.html

New York State Department of Environmental Conservation. Spongy Moth Fact Sheet. https://www.dec.ny.gov/animals/83118.html

New York State Department of Environmental Conservation and NYS Department of Agriculture and Markets. September 10, 2014. New York State Prohibited and Regulated Invaasive Plants.

[TDI] Transmission Developers Inc. February 10, 2012. Champlain Hudson Power Express Inc. Best Management Practices.

ATTACHMENT 1
PROHIBITED AND REGULATED INVASIVE SPECIES

6 NYCRR Part 575
Prohibited and Regulated Invasive Species
September 10, 2014

ALGAE AND CYANOBACTERIA

Prohibited:
Caulerpa taxifolia, Killer Green Algae
Didymosphenia geminata, Didymo
Prymnesium parvum, Golden Algae

Regulated:
Cylindrospermopsis raciborskii, Cylindro
Grateloupia turuturu, Red Algae

PLANTS

Prohibited:
Acer pseudoplatanus, Sycamore Maple
Achyranthes japonica, Japanese Chaff Flower
Alliaria petiolata, Garlic Mustard
Ampelopsis brevipedunculata, Porcelain Berry
Anthriscus sylvestris, Wild Chervil
Aralia elata, Japanese Angelica Tree
Artemisia vulgaris, Mugwort
Arthraxon hispidus, Small Carpet Grass
Berberis thunbergii, Japanese Barberry
Brachypodium sylvaticum, Slender False Brome
Cabomba caroliniana, Fanwort
Cardamine impatiens, Narrowleaf Bittercress
Celastrus orbiculatus, Oriental Bittersweet
Centaurea stoebe (C. biebersteinii, C. diffusa, C. maculosa misapplied, C. xpsammogena), Spotted Knapweed
Cirsium arvense (C. setosum, C. incanum, Serratula arvensis), Canada Thistle
Cynanchum louiseae (C. nigrum, Vincetoxicum nigrum), Black Swallow-wort
Cynanchum rossicum (C. medium, Vincetoxicum medium, V. rossicum), Pale Swallow-wort
Dioscorea polystachya (D. batatas), Chinese Yam
Dipsacus laciniatus, Cut-leaf Teasel
Egeria densa, Brazilian Waterweed
Elaeagnus umbellata, Autumn Olive
Euphorbia cyparissias, Cypress Spurge
Euphorbia esula, Leafy Spurge
Ficaria verna (Ranunculus ficaria), Lesser Celandine
Frangula alnus (Rhamnus frangula), Smooth Buckthorn
Glyceria maxima, Reed Manna Grass
Heracleum mantegazzianum, Giant Hogweed
Humulus japonicus, Japanese Hops
Hydrilla verticillata, Hydrilla/ Water Thyme
Hydrocharis morsus-ranae, European Frogbit
Imperata cylindrica (I. arundinacea, Lagurus cylindricus), Cogon Grass
Iris pseudacorus, Yellow Iris
Lepidium latifolium, Broad-leaved Pepper-grass
Lespedeza cuneata, Chinese Lespedeza
Ligustrum obtusifolium, Border Privet
Lonicera japonica, Japanese Honeysuckle
Lonicera maackii, Amur Honeysuckle
Lonicera morrowii, Morrow's Honeysuckle
Lonicera tatarica, Tartarian Honeysuckle
Lonicera x bella, Fly Honeysuckle
Ludwigia hexapetala (L. grandiflora), Uruguayan Primrose Willow
Ludwigia peploides, Floating Primrose Willow
Lysimachia vulgaris, Garden Loosestrife
Lythrum salicaria, Purple Loosestrife
Microstegium vimineum, Japanese Stilt Grass
Murdannia keisak, Marsh Dewflower
Myriophyllum aquaticum, Parrot-feather
Myriophyllum heterophyllum, Broadleaf Water-milfoil
Myriophyllum heterophyllum x M. laxum, Broadleaf Water-milfoil Hybrid
Myriophyllum spicatum, Eurasian Water-milfoil
Nymphoides peltata, Yellow Floating Heart
Oplismenus hirtellus, Wavyleaf Basketgrass
Persicaria perfoliata (Polygonum perfoliatum), Mile-a-minute Weed
Phellodendron amurense, Amur Cork Tree
Phragmites australis, Common Reed Grass
Phyllostachys aurea, Golden Bamboo
Phyllostachys aureosulcata, Yellow Groove Bamboo
Potamogeton crispus, Curly Pondweed
Pueraria montana, Kudzu
Reynoutria japonica (Fallopia japonica, Polygonum cuspidatum), Japanese Knotweed
Reynoutria sachalinensis (Fallopia sachalinensis, Polygonum sachalinensis), Giant Knotweed
Reynoutria x bohemica (Fallopia x bohemica, Polygonum x bohemica), Bohemian Knotweed
Rhamnus cathartica, Common Buckthorn
Rosa multiflora, Multiflora Rose
Rubus phoenicolasius, Wineberry
Salix atrocinerea, Gray Florist's Willow
Silphium perfoliatum, Cup-plant
Trapa natans, Water Chestnut
Vitex rotundifolia, Beach Vitex

Regulated:
Acer platanoides, Norway Maple
Clematis terniflora, Japanese Virgin's Bower
Euonymus alatus, Burning Bush
Euonymus fortunei, Winter Creeper
Miscanthus sinensis, Chinese Silver Grass
Robinia pseudoacacia, Black Locust

FISH

Prohibited:
Channa argus, Northern Snakehead

Channa marulius, Bullseye Snakehead
Channa micropeltes, Giant Snakehead
Clarias batrachus, Walking Catfish
Gambusia affinis, Western Mosquitofish
Gambusia holbrooki, Eastern Mosquitofish
Hypophthalmichthys harmandi, Largescale Silver Carp
Hypophthalmichthys molitrix, Silver Carp
Hypophthalmichthys nobilis, Bighead Carp
Misgurnus anguillicaudatus, Oriental Weatherfish
Mylopharyngodon piceus, Black Carp
Neogobius melanostomus, Round Goby
Petromyzon marinus, Sea Lamprey
Proterorhinus semilunaris (P. marmoratus), Tubenose Goby
Tinca tinca, Tench

Regulated:
Carassius auratus, Goldfish
Cyprinella lutrensis, Red Shiner
Cyprinus carpio, Common Carp/ Koi
Gymnocephalus cernuus, Ruffe
Monopterus albus, Asian Swamp Eel
Oreochromis aureus, Blue Tilapia
Oreochromis niloticus, Nile Tilapia
Pterois miles, Common Lionfish
Pterois volitans, Red Lionfish
Sander lucioperca (Stizostedion lucioperca), Zander
Scardinius erythrophthalmus, Rudd

AQUATIC INVERTEBRATES

Prohibited:
Bellamya chinensis (Cipangopaludina chinensis),Chinese Mystery Snail
Bellamya japonica, Japanese Mystery Snail
Bithynia tentaculata, Faucet Snail
Bythotrephese longimanus (B. cederstroemi), Spiny Water Flea
Cercopagis pengoi, Fishhook Water Flea
Corbicula fluminea, Asian Clam
Crassostrea ariakensis, Suminoe Oyster
Didemnum spp., Carpet Tunicate
Dreissena polymorpha, Zebra Mussel
Dreissena rostriformis bugensis, Quagga Mussel
Eriocheir sinensi, Chinese Mitten Crab
Hemigrapsus sanguineus, Asian Shore Crab
Hemimysis anomala, Bloody Red Shrimp
Orconectes rusticus, Rusty Crayfish
Potamopyrgus antipodarum, New Zealand Mud Snail
Rapana venosa, Veined Rapa Whelk
Styela plicata, Asian Sea Squirt

Regulated:
Carcinus maenas, European Green Crab
Daphnia lumholtzi, Water Flea
Hemigrapsus takanoi (H. penicillatus), Brush-clawed Shore Crab/ Grapsid Crab

TERRESTRIAL INVERTEBRATES

Prohibited:
Achatina achatina, Giant Ghana Snail
Achatina fulica (Lissachatina fulica), Giant African Land Snail
Adelges tsugae, Hemlock Woolly Adelgid
Agrilus planipennis, Emerald Ash Borer
Amynthas spp., Asian Earthworms
Anoplophora glabripennis, Asian Longhorn Beetle
Apis mellifera scutellata x A. mellifera ligustica/ A. mellifera iberiensis, Africanized Honey Bee
Archachatina marginata, Giant West African Snail
Cryptococcus fagisuga, Beech Scale
Lymantria dispar, Asian and European Gypsy Moth
Monochamus alternatus, Japanese Pine Sawyer
Pityophthorus juglandis, Walnut Twig Beetle
Sirex noctilio, Sirex Woodwasp

TERRESTRIAL AND AQUATIC VERTEBRATES

Prohibited:
Cygnus olor, Mute Swan
Lepus europaeus, European Hare
Myocastor coypus, Nutria
Nyctereutes procyonoides, Asian Raccoon Dog
Sus scrofa (excluding Sus scrofa domestica), Eurasian Boar

Regulated:
Alopochen aegyptiacus, Egyptian Goose
Cairina moschata, Muscovy Duck
Myiopsitta monachus, Monk Parakeet
Oryctolagus cuniculus, European Rabbit
Trachemys scripta elegans, Red-eared Slider
Xenopus laevis, African Clawed Frog

FUNGI

Prohibited:
Amylostereum areolatum, Sirex Wasp Fungus
Geomyces destructans, White-nose Syndrome
Geosmithia morbida, Thousand Canker Disease
Phytophthora ramorum, Sudden Oak Death

For the official regulations and species lists please see: http://www.dec.ny.gov/animals/265.html.

New York State Department of Environmental Conservation
Part 575 Invasive Species Regulations
Questions and Answers

What are invasive species?
Invasive species means a species that is non-native to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Why are invasive species a problem?
Invasive species have a detrimental effect upon the State's natural communities and systems by out-competing native species, diminishing biological diversity, altering community structure and, in some cases, changing ecosystem processes. They can even harm human health.

How will these regulations help?
The regulations were developed by the Department of Environmental Conservation, in cooperation with the Department of Agriculture and Markets. These regulations, once implemented, are expected to help control invasive species by reducing the introduction and spread of invasive species populations by limiting commerce in such species, thereby having a positive impact on the environment.

How were the lists of species in the regulations developed?
The lists of prohibited and regulated species were developed using the standardized species assessment and listing process outlined in the 2010 report "A Regulatory System for Non-native Species". Lists of candidate non-native invasive species were compiled by reviewing other state regulations, reports, lists and consulting with agency experts. A rapid assessment was conducted to determine if the species warranted listing and was already federally regulated. Ecological invasiveness assessments were conducted on each potential invasive species followed by a socio-economic assessment for those ranking High or Very High. The assessment team then placed the species in the appropriate regulatory classification of Prohibited or Regulated. The initial recommendations were submitted to the Invasive Species Advisory Committee (25 Non-Government Organizations) and Council (9 State Agencies) for review and comment. The lists were then incorporated into the regulations.

Why isn't a particular species included on the prohibited or regulated lists?
Due to staffing limitations and time constraints, the initial list of prohibited and regulated species is not all-encompassing. We anticipate that the regulations will be updated on a regular basis. The regulations include language for petitioning for addition or removal of species from the prohibited and regulated lists. Some species were assessed, but do not meet the criteria for prohibition or regulation.

Aren't some of the species listed as either prohibited or regulated already established?
Yes, however, there are areas of the State in which they have not yet established populations and these regulations are intended to slow the spread by reducing the number of individuals of a species released into a region, to which they are not native, associated with the sale and introduction of such species.

When did the regulation become final?
The part 575 invasive species regulations were proposed, and a 60 day to public comment held between October and December 2013. During this time, four public hearings were scheduled across the State. All comments received were reviewed and a summary of public comments and agency responses was compiled. Required changes were made to the final regulations. A summary of the final regulations was published in the State Register September 10, 2014 and the full express terms were published on the Department's website.

Once finalized, when will the regulations become implemented?
A summary of the final regulations was published in the State Register September 10, 2014. The part 575 regulations take effect 6 months later (March 10, 2015).

What is the difference between prohibited and regulated invasive species?
Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species. Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state, or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate and transport.

What is considered a free-living state?
A species is considered in a free-living state if it is introduced to public lands or lands connected to public lands, natural areas, and public waters or waters connected to public waters.

Are there any exceptions to the definition of a free-living state?
Yes, such exceptions include artificial ponds and water gardens with no outlet to public waters, waters entirely within private land not connected to public waters, and water-use facilities with outflows not providing access to public waters.

Do the regulations require existing populations of species on the prohibited and regulated lists be managed or destroyed by the land-owner?
No, existing populations of non-native invasive species listed as prohibited or regulated and established prior to the implementation of the final part 575 regulations do not require management by the owner. However, once implemented, the final regulations do prohibit commerce involving those species listed as prohibited species and the release of regulated species into a free-living state.

What species have grace periods established in the regulations?
A one year grace period is included in the regulations for Japanese Barberry (*Berberis thunbergii*), during which existing stock of this species may be sold. In addition, a person may possess, sell, offer for sale, distribute, transport, or otherwise market or trade live Eurasian boars (*Sus scrofa*) until September 1, 2015. No person shall knowingly import, propagate or introduce Eurasian boars into a free-living state.

Will there be a fee for permits? No fee is anticipated for permits issued for research, education or other approved activity.

Who will enforce the final regulations?
The regulations will be enforced by the Department of Environmental Conservation, with assistance from the Department of Agriculture and Markets.

New York State Prohibited and Regulated Invasive Plants

September 10, 2014

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NYS DEPARTMENT OF AGRICULTURE AND MARKETS

New York State Department of Environmental Conservation
NYCRR Part 575 Invasive Species Regulations
Questions and Answers

http://www.dec.ny.gov/regulations/2359.html

What are invasive species?

Invasive species means a species that is nonnative to a particular ecosystem, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Why are invasive species a problem?

Invasive species can harm natural communities and systems (plants and animals found in particular physical environments) by out-competing native species, reducing biological diversity, altering community structure and, in some cases, changing ecosystems. Invasive species threaten New York's food supply, not only agriculture but also harvested wildlife, fish and shellfish; our landscaping, parks, gardens, and pets; and our recreation resources and even animal and human health. All New Yorkers have a stake in the invasive species issue.

How will these regulations help?

These regulations are to help control invasive species by reducing the introduction and spread of them by limiting commerce in such species. By preventing introduction of new invasive species, New York will save time, effort, and money in the future.

How were the lists included in the regulations developed?

The lists of prohibited and regulated species were developed using the species assessment and listing process outlined in the 2010 report "A Regulatory System for Non-native Species," which can be found at http://www.dec.ny.gov/animals/63402.html.

When will the regulations be implemented?

The final regulations (or a summary) were published in the State Register September 10, 2014, they become effective 6 months thereafter.

What is the difference between prohibited and regulated invasive species?

Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species. Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state, or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate and transport.

What species have grace periods established in the regulations?

A one-year grace period is included in the regulations for Japanese Barberry (*Berberis thunbergii*), during which existing stock of this species may be sold.

Who will enforce the regulations?

The regulations will be enforced by the Department of Environmental Conservation, with assistance from the Department of Agriculture and Markets.

TERRESTRIAL PLANTS

PROHIBITED

Amur Cork Tree *Phellodendron amurense*

PROHIBITED

Amur Honeysuckle *Lonicera maackii*

PROHIBITED

Autumn Olive *Elaeagnus umbellata*

PROHIBITED

Beach Vitex *Vitex rotundifolia*

PROHIBITED

Black Swallow-wort *Cynanchum louiseae*
(C. nigrum, Vincetoxicum nigrum)

PROHIBITED

Bohemian Knotweed *Reynoutria x bohemica*
(Fallopia x bohemica, Polygonum x bohemica)

PROHIBITED

Border Privet *Ligustrum obtusifolium*

PROHIBITED

Broad-leaved Pepper-grass
Lepidium latifolium

PROHIBITED

Canada Thistle *Cirsium arvense*
(C. setosum, C. incanum, Serratula arvensis)

TERRESTRIAL PLANTS

PROHIBITED

Chinese Lespedeza *Lespedeza cuneata*

PROHIBITED

Chinese Yam *Dioscorea polystachya (D. batatas)*

PROHIBITED

Cogon Grass *Imperata cylindrica (I. arundinacea, Lagurus cylindricus)*

PROHIBITED

Common Buckthorn *Rhamnus cathartica*

PROHIBITED

Cup-plant *Silphium perfoliatum*

PROHIBITED

Cut-leaf Teasel *Dipsacus laciniatus*

PROHIBITED

Cypress Spurge *Euphorbia cyparissias*

PROHIBITED

Fly Honeysuckle *Lonicera x bella*

PROHIBITED

Garden Loosestrife *Lysimachia vulgaris*

TERRESTRIAL PLANTS

PROHIBITED

Garlic Mustard *Alliaria petiolata*

PROHIBITED

Giant Hogweed *Heracleum mantegazzianum*

PROHIBITED

Giant Knotweed *Reynoutria sachalinensis (Fallopia sachalinensis, Polygonum sachalinensis)*

PROHIBITED

Golden Bamboo *Phyllostachys aurea*

PROHIBITED

Gray Florist's Willow *Salix atrocinerea*

PROHIBITED

Japanese Angelica Tree *Aralia elata*

PROHIBITED

Japanese Barberry *Berberis thunbergii*

PROHIBITED

Japanese Chaff Flower *Achyranthes japonica*

PROHIBITED

Japanese Honeysuckle *Lonicera japonica*

TERRESTRIAL PLANTS

PROHIBITED

Japanese Hops *Humulus japonicus*

PROHIBITED

Japanese Knotweed *Reynoutria japonica*
(Fallopia japonica, Polygonum cuspidatum)

PROHIBITED

Japanese Stilt Grass *Microstegium vimineum*

PROHIBITED

Kudzu *Pueraria montana*

PROHIBITED

Leafy Spurge *Euphorbia esula*

PROHIBITED

Lesser Celandine *Ficaria verna*
(Ranunculus ficaria)

PROHIBITED

Mile-a-minute Weed *Persicaria perfoliata*
(Polygonum perfoliatum)

PROHIBITED

Morrow's Honeysuckle
Lonicera morrowii

PROHIBITED

Mugwort *Artemisia vulgaris*

TERRESTRIAL PLANTS

PROHIBITED

Multiflora Rose *Rosa multiflora*

PROHIBITED

Narrowleaf Bittercress *Cardamine impatiens*

PROHIBITED

Oriental Bittersweet *Celastrus orbiculatus*

PROHIBITED

Pale Swallow-wort *Cynanchum rossicum*
(C. medium, Vincetoxicum medium, V. rossicum)

PROHIBITED

Porcelain Berry *Ampelopsis brevipedunculata*

PROHIBITED

Slender False Brome
Brachypodium sylvaticum

PROHIBITED

Small Carpetgrass *Arthraxon hispidus*

PROHIBITED

Spotted Knapweed *Centaurea stoebe*
(C. biebersteinii, C. diffusa, C. maculosa misapplied, *C. xpsammogena)*

PROHIBITED

Sycamore Maple *Acer pseudoplatanus*

TERRESTRIAL PLANTS

PROHIBITED

Tartarian Honeysuckle *Lonicera tatarica*

PROHIBITED

Wavyleaf Basketgrass *Oplismenus hirtellus*

PROHIBITED

Wild Chervil *Anthriscus sylvestris*

PROHIBITED

Wineberry *Rubus phoenicolasius*

PROHIBITED

Yellow Groove Bamboo
Phyllostachys aureosulcata

TERRESTRIAL PLANTS

REGULATED

Black Locust *Robinia pseudoacacia*

REGULATED

Burning Bush *Euonymus alatus*

REGULATED

Chinese Silver Grass *Miscanthus sinensis*

REGULATED

Japanese Virgin's Bower
Clematis terniflora

REGULATED

Norway Maple *Acer platanoides*

REGULATED

Winter Creeper *Euonymus fortunei*

WETLAND PLANTS

PROHIBITED

Common Reed Grass *Phragmites australis*

PROHIBITED

Marsh Dewflower *Murdannia keisak*

PROHIBITED

Purple Loosestrife *Lythrum salicaria*

PROHIBITED

Reed Manna Grass *Glyceria maxima*

PROHIBITED

Smooth Buckthorn *Frangula alnus (Rhamnus frangula)*

PROHIBITED

Yellow Iris *Iris pseudacorus*

AQUATIC PLANTS

PROHIBITED

Brazilian Waterweed *Egeria densa*

PROHIBITED

Broadleaf Water-milfoil Hybrid
Myriophyllum heterophyllum x M. laxum

PROHIBITED

Curly Pondweed *Potamogeton crispus*

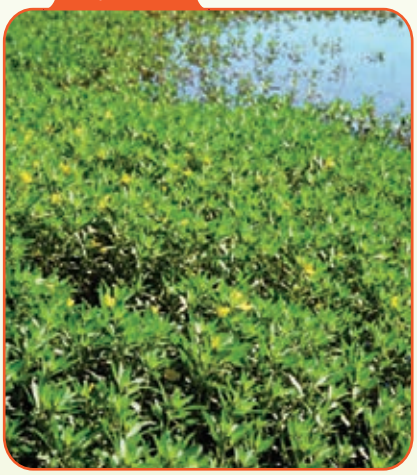
PROHIBITED

Eurasian Water-milfoil
Myriophyllum spicatum

PROHIBITED

Fanwort *Cabomba caroliniana*

PROHIBITED



Floating Primrose Willow
Ludwigia peploides

PROHIBITED

Frogbit *Hydrocharis morsus-ranae*

PROHIBITED

Hydrilla/Water Thyme *Hydrilla verticillata*

PROHIBITED

Parrot-feather *Myriophyllum aquaticum*

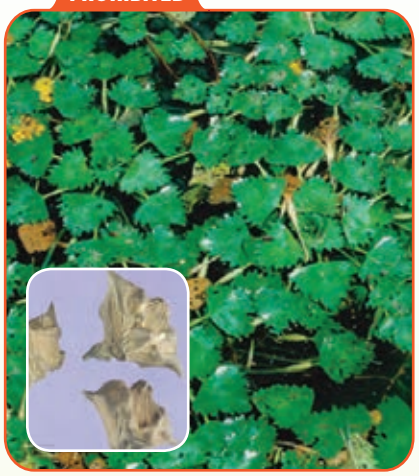
AQUATIC PLANTS

PROHIBITED

Uruguayan Primrose Willow

Ludwigia hexapetala (L. grandiflora)

PROHIBITED



Water Chestnut *Trapa natans*

PROHIBITED

Yellow Floating Heart *Nymphoides peltata*

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Index by Common Name

COMMON NAME	SCIENTIFIC NAME	PAGE
TERRESTRIAL PLANTS		
Amur Cork Tree	*Phellodendron amurense*	3
Amur Honeysuckle	*Lonicera maackii*	3
Autumn Olive	*Elaeagnus umbellata*	3
Beach Vitex	*Vitex rotundifolia*	3
Black Locust	*Robinia pseudoacacia*	9
Black Swallow-wort	*Cynanchum louiseae* (*C. nigrum, Vincetoxicum nigrum*)	3
Bohemian Knotweed	*Reynoutria x bohemica* (*Fallopia x bohemica, Polygonum x bohemica*)	3
Border Privet	*Ligustrum obtusifolium*	3
Broad-leaved Pepper-grass	*Lepidium latifolium*	3
Burning Bush	*Euonymus alatus*	9
Canada Thistle	*Cirsium arvense* (*C. setosum, C. incanum, Serratula arvensis*)	3
Chinese Lespedeza	*Lespedeza cuneata*	4
Chinese Silver Grass	*Miscanthus sinensis*	9
Chinese Yam	*Dioscorea polystachya* (*D. batatas*)	4
Cogon Grass	*Imperata cylindrica* (*I. arundinacea, Lagurus cylindricus*)	4
Common Buckthorn	*Rhamnus cathartica*	4
Cup-plant	*Silphium perfoliatum*	4
Cut-leaf Teasel	*Dipsacus laciniatus*	4
Cypress Spurge	*Euphorbia cyparissias*	4
Fly Honeysuckle	*Lonicera x bella*	4
Garden Loosestrife	*Lysimachia vulgaris*	4
Garlic Mustard	*Alliaria petiolata*	5
Giant Hogweed	*Heracleum mantegazzianum*	5
Giant Knotweed	*Reynoutria sachalinensis* (*Fallopia sachalinensis, Polygonum sachalinensis*)	5
Golden Bamboo	*Phyllostachys aurea*	5
Gray Florist's Willow	*Salix atrocinerea*	5
Japanese Angelica Tree	*Aralia elata*	5
Japanese Barberry	*Berberis thunbergii*	5
Japanese Chaff Flower	*Achyranthes japonica*	5
Japanese Honeysuckle	*Lonicera japonica*	5
Japanese Hops	*Humulus japonicus*	6
Japanese Knotweed	*Reynoutria japonica* (*Fallopia japonica, Polygonum cuspidatum*)	6
Japanese Stilt Grass	*Microstegium vimineum*	6
Japanese Virgin's Bower	*Clematis terniflora*	9
Kudzu	*Pueraria montana*	6
Leafy Spurge	*Euphorbia esula*	6
Lesser Celandine	*Ficaria verna* (*Ranunculus ficaria*)	6
Mile-a-minute Weed	*Persicaria perfoliata* (*Polygonum perfoliatum*)	6
Morrow's Honeysuckle	*Lonicera morrowii*	6
Mugwort	*Artemisia vulgaris*	6
Multiflora Rose	*Rosa multiflora*	7
Narrowleaf Bittercress	*Cardamine impatiens*	7
Norway Maple	*Acer platanoides*	9
Oriental Bittersweet	*Celastrus orbiculatus*	7
Pale Swallow-wort	*Cynanchum rossicum* (*C. medium, Vincetoxicum medium, V. rossicum*)	7
Porcelain Berry	*Ampelopsis brevipedunculata*	7
Slender False Brome	*Brachypodium sylvaticum*	7
Small Carpetgrass	*Arthraxon hispidus*	7
Spotted Knapweed	*Centaurea stoebe* (*C. biebersteinii, C. diffusa, C. maculosa misapplied, C. xpsammogena*)	7
Sycamore Maple	*Acer pseudoplatanus*	7
Tartarian Honeysuckle	*Lonicera tatarica*	8
Wavyleaf Basketgrass	*Oplismenus hirtellus*	8
Wild Chervil	*Anthriscus sylvestris*	8
Wineberry	*Rubus phoenicolasius*	8
Winter Creeper	*Euonymus fortunei*	9
Yellow Groove Bamboo	*Phyllostachys aureosulcata*	8
WETLAND PLANTS		
Common Reed Grass	*Phragmites australis*	10
Marsh Dewflower	*Murdannia keisak*	10
Purple Loosestrife	*Lythrum salicaria*	10
Reed Manna Grass	*Glyceria maxima*	10
Smooth Buckthorn	*Frangula alnus* (*Rhamnus frangula*)	10
Yellow Iris	*Iris pseudacorus*	10
AQUATIC PLANTS		
Brazilian Waterweed	*Egeria densa*	11
Broadleaf Water-milfoil Hybrid	*Myriophyllum heterophyllum x M. laxum*	11
Curly Pondweed	*Potamogeton crispus*	11
Eurasian Water-milfoil	*Myriophyllum spicatum*	11
Fanwort	*Cabomba caroliniana*	11
Floating Primrose Willow	*Ludwigia peploides*	11
Frogbit	*Hydrocharis morsus-ranae*	11
Hydrilla/ Water Thyme	*Hydrilla verticillata*	11
Parrot-feather	*Myriophyllum aquaticum*	11
Uruguayan Primrose Willow	*Ludwigia hexapetala* (*L. grandiflora*)	12
Water Chestnut	*Trapa natans*	12
Yellow Floating Heart	*Nymphoides peltata*	12

Index by Scientific Name

SCIENTIFIC NAME	COMMON NAME	PAGE
TERRESTRIAL PLANTS		
Acer platanoides	Norway Maple	9
Acer pseudoplatanus	Sycamore Maple	7
Achyranthes japonica	Japanese Chaff Flower	5
Alliaria petiolata	Garlic Mustard	5
Ampelopsis brevipedunculata	Porcelain Berry	7
Anthriscus sylvestris	Wild Chervil	8
Aralia elata	Japanese Angelica Tree	5
Artemisia vulgaris	Mugwort	6
Arthraxon hispidus	Small Carpetgrass	7
Berberis thunbergii	Japanese Barberry	5
Brachypodium sylvaticum	Slender False Brome	7
Cardamine impatiens	Narrowleaf Bittercress	7
Celastrus orbiculatus	Oriental Bittersweet	7
Centaurea stoebe (C. biebersteinii, C. diffusa, C. maculosa misapplied, C. xpsammogena)	Spotted Knapweed	7
Cirsium arvense (C. setosum, C. incanum, Serratula arvensis)	Canada Thistle	3
Clematis terniflora	Japanese Virgin's Bower	9
Cynanchum louiseae (C. nigrum, Vincetoxicum nigrum)	Black Swallow-wort	3
Cynanchum rossicum (C. medium, Vincetoxicum medium, V. rossicum)	Pale Swallow-wort	7
Dioscorea polystachya (D. batatas)	Chinese Yam	4
Dipsacus laciniatus	Cut-leaf Teasel	4
Elaeagnus umbellata	Autumn Olive	3
Euonymus alatus	Burning Bush	9
Euonymus fortunei	Winter Creeper	9
Euphorbia cyparissias	Cypress Spurge	4
Euphorbia esula	Leafy Spurge	6
Ficaria verna (Ranunculus ficaria)	Lesser Celandine	6
Heracleum mantegazzianum	Giant Hogweed	5
Humulus japonicus	Japanese Hops	6
Imperata cylindrica (I. arundinacea, Lagurus cylindricus)	Cogon Grass	4
Lepidium latifolium	Broad-leaved Pepper-grass	3
Lespedeza cuneata	Chinese Lespedeza	4
Ligustrum obtusifolium	Border Privet	3
Lonicera japonica	Japanese Honeysuckle	5
Lonicera maackii	Amur Honeysuckle	3
Lonicera morrowii	Morrow's Honeysuckle	6
Lonicera tatarica	Tartarian Honeysuckle	8
Lonicera x bella	Fly Honeysuckle	4
Lysimachia vulgaris	Garden Loosestrife	4
Microstegium vimineum	Japanese Stilt Grass	6
Miscanthus sinensis	Chinese Silver Grass	9
Oplismenus hirtellus	Wavyleaf Basketgrass	8
Persicaria perfoliata (Polygonum perfoliatum)	Mile-a-minute Weed	6
Phellodendron amurense	Amur Cork Tree	3
Phyllostachys aurea	Golden Bamboo	5
Phyllostachys aureosulcata	Yellow Groove Bamboo	8
Pueraria montana	Kudzu	6
Reynoutria japonica (Fallopia japonica, Polygonum cuspidatum)	Japanese Knotweed	6
Reynoutria sachalinensis (Fallopia sachalinensis, Polygonum sachalinensis)	Giant Knotweed	5
Reynoutria x bohemica (Fallopia x bohemica, Polygonum x bohemica)	Bohemian Knotweed	3
Rhamnus cathartica	Common Buckthorn	4
Robinia pseudoacacia	Black Locust	9
Rosa multiflora	Multiflora Rose	7
Rubus phoenicolasius	Wineberry	8
Salix atrocinerea	Gray Florist's Willow	5
Silphium perfoliatum	Cup-plant	4
Vitex rotundifolia	Beach Vitex	3
WETLAND PLANTS		
Frangula alnus (Rhamnus frangula)	Smooth Buckthorn	10
Glyceria maxima	Reed Manna Grass	10
Iris pseudacorus	Yellow Iris	10
Lythrum salicaria	Purple Loosestrife	10
Murdannia keisak	Marsh Dewflower	10
Phragmites australis	Common Reed Grass	10
AQUATIC PLANTS		
Cabomba caroliniana	Fanwort	11
Egeria densa	Brazilian Waterweed	11
Hydrilla verticillata	Hydrilla/ Water Thyme	11
Hydrocharis morsus-ranae	Frogbit	11
Ludwigia hexapetala (L. grandiflora)	Uruguayan Primrose Willow	11
Ludwigia peploides	Floating Primrose Willow	11
Myriophyllum aquaticum	Parrot-feather	11
Myriophyllum heterophyllum x M. laxum	Broadleaf Water-milfoil Hybrid	11
Myriophyllum spicatum	Eurasian Water-milfoil	12
Nymphoides peltata	Yellow Floating Heart	12
Potamogeton crispus	Curly Pondweed	11
Trapa natans	Water Chestnut	12

Sea Grant New York

Cornell University Cooperative Extension

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ATTACHMENT 2
NEW YORK UTILITY COMPANY
BEST MANAGEMENT PRACTICES
FOR PREVENTING THE TRANSPORTATION OF
INVASIVE SPECIES

New York Utility Company Best Management Practices for Preventing the Transportation of Invasive Species

Environmental Energy Alliance of New York

Revisions January 2015

Table of Contents

1.0 Introduction 1
2.0 Definitions 2
3.0 Purpose 3
4.0 Applicability 3
5.0 Procedures 3
5.1 Equipment 3
5.2 Inspection and Cleaning 4
5.3 Disposal of Impacted Material 4
5.4 Other Prevention Measures 4
5.5 Site Restoration 4
5.6 Vegetation Survey (Optional) 5
6.0 Training 5
7.0 Emergency Work 5
8.0 References 6

Appendices

Appendix 1 - Best Management Practices (BMP's) for Invasive Species Transportation Prevention

Appendix 2 - 6 NYCRR Part 575 Prohibited and Regulated Invasive Species, September 10, 2014

1.0 Introduction

Invasive species are non-native plant, animal, or microbial species that cause, or are likely to cause, economic or ecological harm or harm to human health (Presidential Executive Order 13112). Invasive species means, "A species that is nonnative to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Harm must significantly outweigh benefit" [New York Environmental Conservation Law §9-1703(10)(a)] Invasive species have been introduced by human action into a region outside their natural geographic range. Introductions occur along a variety of pathways or vectors, either intentionally such as intentional transport of a species for trade, or by accidental means, as in the case of stowaway species found in the ballast-water of ocean-going vessels.

Most scientists regard invasive species as second only to habitat loss as a threat to biodiversity. The presence of invasive species in a given region is one of the leading causes of endangerment to species native to that region. On a nationwide basis, about half of plant and animal species listed as federally Endangered or Threatened are at risk because of invasive species.

Annual economic losses due to invasive species in the U.S. have been estimated at over $138 billion (Pimentel et al. 2000). These losses include damage to crops and pasture, forest losses, damage from insect and other invertebrate pests, human diseases, and associated control costs.

In an effort, where feasible, to limit the introduction and spread of *invasive species*, this Best Management Practice ("BMP") will be employed when performing activities that occur in *jurisdictional areas* as authorized by the DEC. The BMP identifies procedures that will be incorporated into routine work practices to prevent the introduction and spread of *invasive species*.

2.0 Definitions

The following definitions are applicable to this BMP.

Environmental Energy Alliance of New York (EEANY) – is an association of electric and gas Transmission and Distribution (T&D) companies and electric generating companies that provide energy services in the State of New York. This BMP was prepared by the Land Use Subcommittee of the T&D Committee, which currently represents the following members: Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Long Island Power Authority, National Grid USA Service Company, Inc., New York Power Authority, New York State Electric & Gas Corporation, Orange and Rockland Utilities, and Rochester Gas & Electric Corporation.

Invasive species – species that are non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Management Plan National Invasive Species Council, 2001). For purposes of this document, *invasive species* are those contained on the list contained within 6 NYCRR Part 575 Prohibited and Regulated Invasive Species (Appendix – 2).

Invasive species plant material – seeds, roots, or pieces of plant material that could germinate into live plants.

Jurisdictional Area – lands under the statutory jurisdiction of the NYSDEC such as certain freshwater wetlands and adjacent areas, tidal wetlands, certain water bodies, and any protected and species habitat areas specified by natural resource supervisors.

NYSDEC General Permit – a NYSDEC permit authorizing certain utility line activities under Articles 15, 24, and 25 of NYS Environmental Conservation Law. These activities include: inspection, maintenance, repair, restoration, reconstruction of pre-existing structures, vegetation cutting and trimming, and emergency actions affecting tidal wetlands, protected waters, regulated freshwater wetlands, adjacent areas, and protected habitat areas.

Regulated Activity – an activity taking place within a *jurisdictional area* that requires authorization from the NYSDEC.

Utility Rights-of-Way - is an easement-acquired or fee-owned corridor in which gas or electric transmission facilities are located.

3.0 Purpose

This BMP provides guidance for inspecting and cleaning vehicles and equipment to help prevent the spread of invasive species. The procedures identified within this manual outline cost-effective and realistic practices that *Environmental Energy Alliance of New York (EEANY)* utility members will implement when conducting a *regulated activity* within a *jurisdictional area*.

4.0 Applicability

This management practice applies to all *EEANY* utility members performing NYSDEC *regulated activities* within *jurisdictional areas* with populations of *invasive species*.

5.0 Procedures

There are two procedural options for EEANY companies to follow; one is to conduct the BMPs as detailed in the following sections of this plan or to conduct vegetation surveys for invasive species as outlined in Section 5.6. Field crews will be provided a flowchart to assist with determining when to implement these best management practices (Appendix 1).

The following detailed practices will apply where feasible when invasive species are present and when the work is covered by a GP or individual wetland permit.

5.1 Equipment

a. Equipment must arrive clean without visible soil clumps, plant or animal material.
b. Equipment includes, but is not limited to, vehicles, trailers, machinery, matting, boats, barges, and other watercraft, tools, and other materials.
c. Transporting equipment will be cleaned before accepting a new load.
d. Consider tracking pads as a means to remove soil from equipment. If tracking pads are used they must be cleaned after each use in a specific area.
e. Equipment will be cleaned using one of the methods listed below (use the most effective method that is practical):
    - Brush, broom, shovel or other similar hand tools (used without water)
    - High pressure air (when feasible)
f. Equipment must be cleaned within one of the below areas:
    - the infested work area
    - an area immediately adjacent to the work area that is itself currently infested with *invasive species*
g. Do not clean equipment in or near waterways as it may promote the spread of *invasive species* downstream.
h. Where possible, staging areas will be established in locations that are free of *invasive species*. Otherwise, all equipment will be cleaned using the techniques described in 5.3 before leaving the area.
i. When wetland matting is required, it will arrive on site visibly clean, be installed prior to any activities, and will be appropriately cleaned before leaving the area.

5.2 Inspection and Cleaning

a. Inspections and cleaning should be conducted especially when moving from an infested area to an un-infested area.
b. Prior to exiting work area clothing, footwear, and gear should be cleaned of visible signs of plant material.
c. Carry appropriate cleaning equipment (e.g. wire brush, small screwdriver, boot brush) to help remove soils, seeds, and plant material.
d. Preferred locations for cleaning are those where:
    - Work activities are taking place;
    - *Invasive species* are already established; or
    - An area immediately adjacent to the work site that is itself currently infested with *invasive species*.
e. No cleaning of clothing, footwear, gear in or adjacent to waterways – it may promote the spread of *invasive species* downstream.
f. Cleaning will include brushing or self "pat down" of clothing, footwear, and other personal gear within the infested work area.

5.3 Disposal of Impacted Material

a. Preferred locations for equipment cleaning are those areas where work activities are taking place or immediately adjacent areas currently impacted with *invasive species*.
b. Do not clean equipment, vehicles or trailers in or near waterways.
c. Do not dispose of soil, seeds, or plant material in storm drains.
d. Any plant materials that are incidentally removed after completion of steps a-c from site will be properly disposed of in a manner that prevents viable plant parts and propagules from being spread

5.4 Other Prevention Measures

a. Reasonable steps to avoid transportation of *invasive species,* including small, isolated, populations, will be taken.
b. As an alternative to cleaning, ancillary equipment such as spare tires and winches when feasible will be covered when entering *jurisdictional areas* containing populations of *invasive species*.
c. Vehicular access into areas containing populations of *invasive species* will be reduced or minimized to the maximum extent practical. When practical vehicles will be parked outside of the impacted area and crews will enter on foot.

5.5 Site Restoration

a. Minimize soil disturbances by reducing work areas and reducing activities that may result in soil disturbances.

b. Re-vegetate bare soils as soon as feasible to minimize the possible establishment of *invasive species*. When seeding, non-invasive or local native species must be used (seed mixes will vary from region to region). Seed will be broadcasted over all bare soil areas and covered with a mulch layer such as straw. Choose appropriate seed mixes based on site conditions.

c. On steep sloping areas (i.e. slopes exceeding 20 percent), soil erosion control matting (i.e. jute mesh or straw blankets) must be installed over the seeded area. The matting should be secured with biodegradable tacks.

d. Stabilize disturbed soils using appropriate erosion and sediment control procedures as soon as possible. Use invasive free materials such as straw or wood chips; avoid using hay.

5.6 Vegetation Survey (Optional)

If the above BMPS are not followed, then vegetation surveys of site(s) to detect populations of invasive species should be made in advance prior to any activities. If the optional vegetation survey is performed and no invasive species are found, then the procedures outlined above in section 5.1 through 5.5 will not be followed. Survey inspections can be integrated with other activities such as ROW inspections and should be kept as simple as possible to meet invasive species management objectives. If significant populations of invasive species are detected on surveys, then Sections 5.1 to 5.5 apply.

a. Prior to implementing activities scout for, locate and document significant invasive species infestations.
b. Consider the need for actions based on: 1) the degree of invasiveness; 2) severity of the current infestation; 3) amount of additional habitat or host at risk for invasion; and 4) feasibility of managing the spread.
c. Plan activities to limit the potential for introduction and spread of invasive species, prior to construction.
d. Provide appropriate resources in identification of known invasive species for corridor workers.

6.0 Training

A flowchart (Appendix 1) to assist field crews on when to implement the above procedures will be distributed to all field crews.

All transmission vegetation management planners, foresters, and ROW maintenance personnel will be trained in the procedures outlined in Section 5.0 above. Additionally, training sessions focused on the identification of *invasive species* identified in Appendix 2 will be conducted by the individual utility companies. This may take the form of hard copy materials, tail gate briefings and/or presentations during regular staff meetings.

7.0 Emergency Work

During emergencies, *EEANY* utility members will strictly comply with the Emergency Action condition protocol outlined in the *NYSDEC General Permit*. Appropriate site-specific *invasive species* controls and restoration efforts will be determined on an individual basis in conjunction with the regional NYSDEC office.

8.0 References

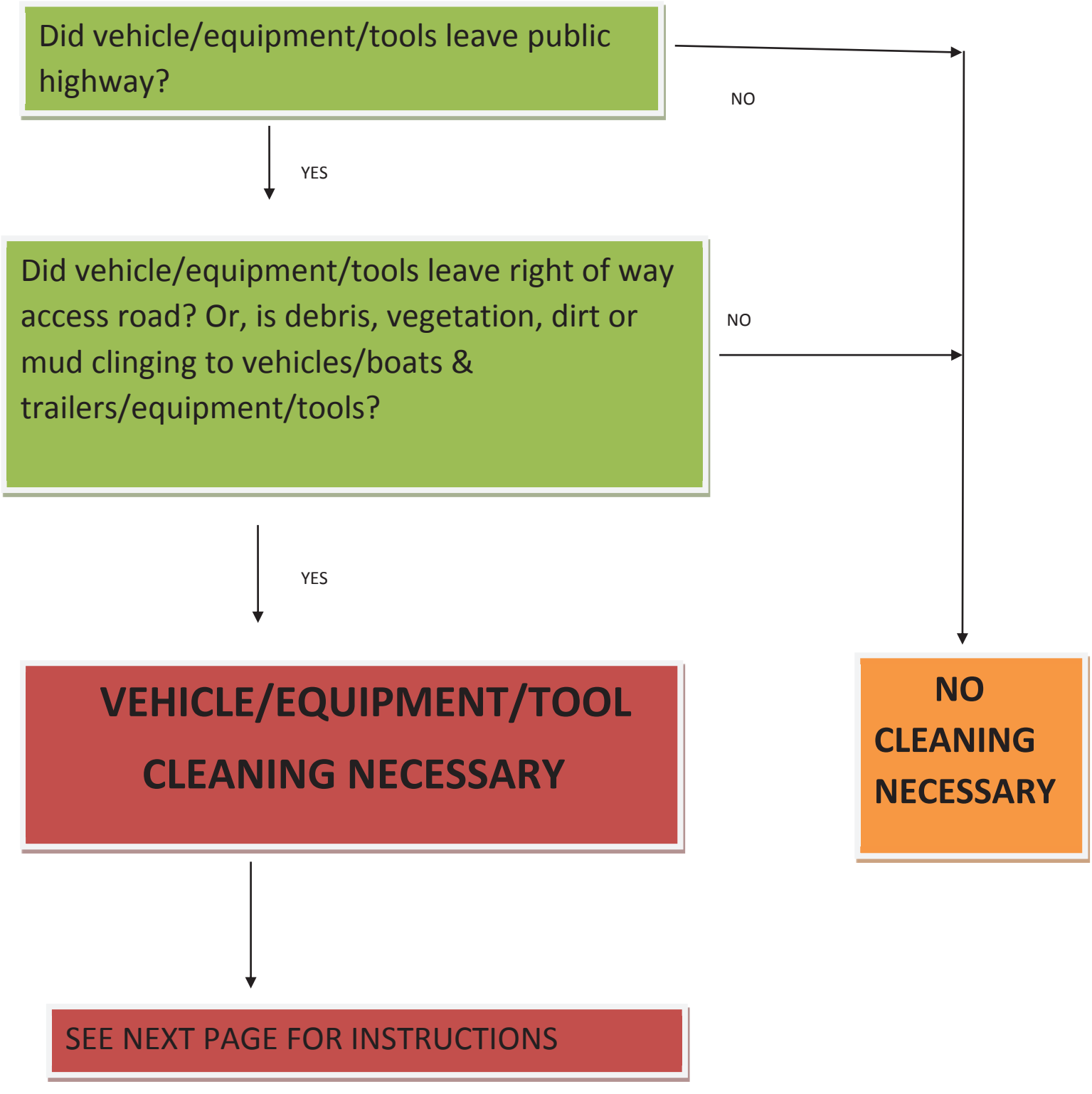
- Electric Power Research Institute, 2008. "Invasive Species and Utility Rights of Way: A Review of the Science". EPRI Publication number 1014032, Palo Alto, CA

- Pimentel, D., Lach, L., Zuniga, R. & Morrison, D**.** 2000. Environmental and economic costs of nonindigenous species in the United States. Bioscience, 50(1): 53-65.

- Presidential Executive Order 13112. Volume 64, Federal Register 1999. Invasive Species.

- Wisconsin Council on Forestry. 2010. *Invasive Species Best Management Practice for Transportation and Utility Rights-of-Way*.

BEST MANAGEMENT PRACTICES (BMP'S) for INVASIVE SPECIES TRANSPORT PREVENTION



PRIOR TO LEAVING THE RIGHT-OF-WAY

- Prior to loading vehicle/equipment/tools remove as much debris, vegetation, dirt and mud clinging to the equipment as feasible using a brush, broom, shovel or other similar hand tool.

- High pressure air can be used on site for cleaning debris, vegetation, dirt and mud off vehicles/equipment/tools.

- Pick-ups and other small road vehicles shall remove on the right-of-way, as much debris, vegetation, dirt and mud clinging to vehicle as feasible prior to entering the highway.

- Small equipment/tools/boots shall be cleaned on site before removal or storage.

- Arrangements can be made for onsite cleaning or washing of vehicles/equipment/tools if deemed necessary.

PRIOR TO LEAVING A BOAT LAUNCH:

CLEAN, DRAIN, DRY -- Prior to leaving a boat launch, **Clean** any visible mud, plants, fish or animals before transporting equipment; **Drain** all water holding compartments including live wells, bait wells and bilge areas; **Dry** the boat, trailer and all equipment before use in another water body

APPENDIX - 2

6 NYCRR Part 575
Prohibited and Regulated Invasive Species
September 10, 2014

ALGAE AND CYANOBACTERIA
Prohibited:
Caulerpa taxifolia, Killer Green Algae
Didymosphenia geminata,
Didymo Prymnesium parvum, Golden Algae

Regulated:
Cylindrospermopsis raciborskii, Cylindro
Grateloupia turuturu, Red Algae

PLANTS
Prohibited:
Acer pseudoplatanus, Sycamore Maple
Achyranthes japonica, Japanese Chaff Flower
Alliaria petiolata, Garlic Mustard
Ampelopsis brevipedunculata, Porcelain Berry
Anthriscus sylvestris, Wild Chervil
Aralia elata, Japanese Angelica Tree
Artemisia vulgaris, Mugwort
Arthraxon hispidus, Small Carpet Grass
Berberis thunbergii, Japanese Barberry
Brachypodium sylvaticum, Slender False Brome
Cabomba caroliniana, Fanwort
Cardamine impatiens, Narrowleaf Bittercress
Celastrus orbiculatus, Oriental Bittersweet
Centaurea stoebe (C. biebersteinii, C. diffusa, C. maculosa misapplied, C. xpsammogena), Spotted Knapweed
Cirsium arvense (C. setosum, C. incanum, Serratula arvensis), Canada Thistle
Cynanchum louiseae (C. nigrum, Vincetoxicum nigrum), Black Swallow-wort
Cynanchum rossicum (C. medium, Vincetoxicum medium, V. rossicum), Pale Swallow-wort
Dioscorea polystachya (D. batatas), Chinese Yam
Dipsacus laciniatus, Cut-leaf Teasel
Egeria densa, Brazilian Waterweed
Elaeagnus umbellata, Autumn Olive
Euphorbia cyparissias, Cypress Spurge
Euphorbia esula, Leafy Spurge
Ficaria verna (Ranunculus ficaria), Lesser Celandine
Frangula alnus (Rhamnus frangula), Smooth Buckthorn
Glyceria maxima, Reed Manna Grass
Heracleum mantegazzianum, Giant Hogweed
Humulus japonicus, Japanese Hops
Hydrilla verticillata, Hydrilla/ Water Thyme
Hydrocharis morsus-ranae, European Frogbit
Imperata cylindrica (I. arundinacea, Lagurus cylindricus), Cogon Grass
Iris pseudacorus, Yellow Iris
Lepidium latifolium, Broad-leaved Pepper-grass
Lespedeza cuneata, Chinese Lespedeza
Ligustrum obtusifolium, Border Privet
Lonicera japonica, Japanese Honeysuckle
Lonicera maackii, Amur Honeysuckle
Lonicera morrowii, Morrow's Honeysuckle
Lonicera tatarica, Tartarian Honeysuckle
Lonicera x bella, Fly Honeysuckle
Ludwigia hexapetala (L. grandiflora), Uruguayan Primrose Willow
Ludwigia peploides, Floating Primrose Willow
Lysimachia vulgaris, Garden Loosestrife
Lythrum salicaria, Purple Loosestrife
Microstegium vimineum, Japanese Stilt Grass
Murdannia keisak, Marsh Dewflower
Myriophyllum aquaticum, Parrot-feather
Myriophyllum heterophyllum, Broadleaf Water-milfoil
Myriophyllum heterophyllum x M. laxum, Broadleaf Water-milfoil Hybrid
Myriophyllum spicatum, Eurasian Water-milfoil
Nymphoides peltata, Yellow Floating Heart
Oplismenus hirtellus, Wavyleaf Basketgrass
Persicaria perfoliata (Polygonum perfoliatum), Mile-a- minute Weed
Phellodendron amurense, Amur Cork Tree
Phragmites australis, Common Reed Grass
Phyllostachys aurea, Golden Bamboo
Phyllostachys aureosulcata, Yellow Groove Bamboo
Potamogeton crispus, Curly Pondweed
Pueraria montana, Kudzu
Reynoutria japonica (Fallopia japonica, Polygonum cuspidatum), Japanese Knotweed
Reynoutria sachalinensis (Fallopia sachalinensis, Polygonum sachalinensis), Giant Knotweed
Reynoutria x bohemica (Fallopia x bohemica, Polygonum x bohemica), Bohemian Knotweed
Rhamnus cathartica, Common Buckthorn
Rosa multiflora, Multiflora Rose
Rubus phoenicolasius, Wineberry
Salix atrocinerea, Gray Florist's Willow
Silphium perfoliatum, Cup-plant
Trapa natans, Water Chestnut
Vitex rotundifolia, Beach Vitex

Regulated:
Acer platanoides, Norway Maple
Clematis terniflora, Japanese Virgin's Bower
Euonymus alatus, Burning Bush
Euonymus fortunei, Winter Creeper
Miscanthus sinensis, Chinese Silver Grass
Robinia pseudoacacia, Black Locust

FISH
Prohibited:
Channa argus, Northern Snakehead
Channa marulius, Bullseye Snakehead
Channa micropeltes, Giant Snakehead
Clarias batrachus, Walking Catfish
Gambusia affinis, Western Mosquitofish
Gambusia holbrooki, Eastern Mosquitofish
Hypophthalmichthys harmandi, Largescale Silver Carp
Hypophthalmichthys molitrix, Silver Carp
Hypophthalmichthys nobilis, Bighead Carp
Misgurnus anguillicaudatus, Oriental Weatherfish
Mylopharyngodon piceus, Black Carp
Neogobius melanostomus, Round Goby
Petromyzon marinus, Sea Lamprey
Proterorhinus semilunaris (P. marmoratus), Tubenose Goby
Tinca tinca, Tench

Regulated:
Carassius auratus, Goldfish
Cyprinella lutrensis, Red Shiner
Cyprinus carpio, Common Carp/ Koi
Gymnocephalus cernuus, Ruffe
Monopterus albus, Asian Swamp Eel
Oreochromis aureus, Blue Tilapia
Oreochromis niloticus, Nile Tilapia
Pterois miles, Common Lionfish
Pterois volitans, Red Lionfish
Sander lucioperca (Stizostedion lucioperca), Zander
Scardinius erythrophthalmus, Rudd

AQUATIC INVERTEBRATES
Prohibited:
Bellamya chinensis (Cipangopaludina chinensis),Chinese Mystery Snail
Bellamya japonica, Japanese Mystery Snail
Bithynia tentaculata, Faucet Snail
Bythotrephese longimanus (B. cederstroemi), Spiny Water Flea
Cercopagis pengoi, Fishhook Water Flea
Corbicula fluminea, Asian Clam
Crassostrea ariakensis, Suminoe Oyster
Didemnum spp., Carpet Tunicate
Dreissena polymorpha, Zebra Mussel
Dreissena rostriformis bugensis, Quagga Mussel
Eriocheir sinensi, Chinese Mitten Crab
Hemigrapsus sanguineus, Asian Shore Crab
Hemimysis anomala, Bloody Red Shrimp
Orconectes rusticus, Rusty Crayfish
Potamopyrgus antipodarum, New Zealand Mud Snail
Rapana venosa, Veined Rapa Whelk
Styela plicata, Asian Sea Squirt

Regulated:
Carcinus maenas, European Green Crab
Daphnia lumholtzi, Water Flea
Hemigrapsus takanoi (H. penicillatus), Brush-clawed Shore Crab/ Grapsid Crab

TERRESTRIAL INVERTEBRATES
Prohibited:
Achatina achatina, Giant Ghana Snail
Achatina fulica (Lissachatina fulica), Giant African Land Snail
Adelges tsugae, Hemlock Woolly Adelgid
Agrilus planipennis, Emerald Ash Borer
Amynthas spp., Asian Earthworms
Anoplophora glabripennis, Asian Longhorn Beetle
Apis mellifera scutellata x A. mellifera ligustica/ A. mellifera iberiensis, Africanized Honey Bee
Archachatina marginata, Giant West African Snail
Cryptococcus fagisuga, Beech Scale
Lymantria dispar, Asian and European Gypsy Moth
Monochamus alternatus, Japanese Pine Sawyer
Pityophthorus juglandis, Walnut Twig Beetle
Sirex noctilio, Sirex Woodwasp

TERRESTRIAL AND AQUATIC VERTEBRATES
Prohibited:
Cygnus olor, Mute Swan
Lepus europaeus, European Hare
Myocastor coypus, Nutria
Nyctereutes procyonoides, Asian Raccoon Dog
Sus scrofa (excluding Sus scrofa domestica), Eurasian Boar

Regulated:
Alopochen aegyptiacus, Egyptian Goose
Cairina moschata, Muscovy Duck
Myiopsitta monachus, Monk Parakeet
Oryctolagus cuniculus, European Rabbit
Trachemys scripta elegans, Red-eared Slider
Xenopus laevis, African Clawed Frog

FUNGI
Prohibited:
Amylostereum areolatum, Sirex Wasp Fungus
Geomyces destructans, White-nose Syndrome
Geosmithia morbida, Thousand Canker Disease
Phytophthora ramorum, Sudden Oak Death

For the official regulations and species lists please see: http://www.dec.ny.gov/regulations/265.html

ATTACHMENT 3
INVASIVE INSECT FACT SHEETS

ASIAN LONGHORNED BEETLE

Anoplophora glabripennis

NEW YORK STATE | Department of Environmental Conservation

What is the Asian longhorned beetle?

The Asian longhorned beetle, or ALB, is an invasive wood-boring insect that feeds on a variety of hardwoods including maple, birch, elm, ash, poplar, horse chestnut and willow, among others. Native to China and Korea, the beetles are approximately 1.5 inches long and shiny black, with white spots on their wing cases. They have black and white antennae that can be up to twice as long as their body.

An adult ALB
Joe Boggs, Ohio State, Bugwood.org

What are the signs of an infestation?

Trees being attacked by ALB often have wilted foliage and canopy dieback, but the main signs to look for include:

1. Round, ½ inch exit holes from adults emerging from trees beginning in late July.
2. Round, ½ inch depressions (egg-laying sites) in the outer bark.
3. Sap oozing from egg-laying sites and exit holes.
4. Deep exit holes, insert a pencil to determine if the hole is at least an inch deep.
5. Sawdust, or frass, collecting at the base of the tree or on branches.

Dennis Haugen, USDA Forest Service, Bugwood.org

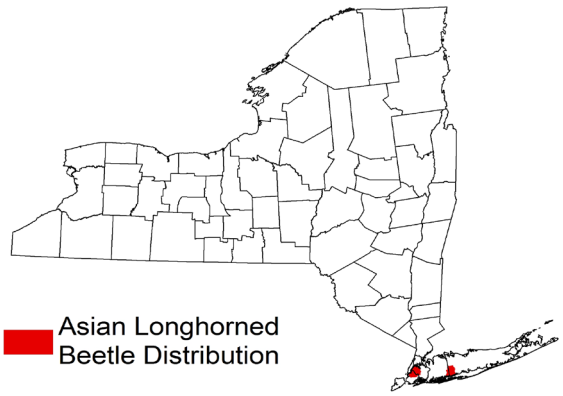
Dennis Haugen, USDA Forest Service, Bugwood.org

Joe Boggs, Ohio State, Bugwood.org

Robert A. Haack, USDA Forest Service, Bugwood.org

Where are ALB located?

In 1996, ALB were found infesting Norway maple trees in Brooklyn. Larvae and pupae likely hitchhiked from China in wooden packing material, and the adult beetles emerged after the materials reached the New York Harbor. Additional infestations were later discovered in Manhattan, Queens, Staten Island, Islip and central Long Island. To date, the Manhattan, eastern Queens, Staten Island and Islip infestation sites have been eradicated.



For more information, or to sign up for email updates from NYSDEC, visit our website: **www.dec.ny.gov**

What do they do to trees?

Females often chew depressions in the bark where they deposit one to two eggs at a time, laying up to sixty eggs on average. After they hatch, the larvae bore into the tree and begin feeding on the living tissue just underneath the bark which disrupts the nutrient and water flow within the tree. The larvae then continue deep into the heartwood where they continue to feed until they are ready to pupate. Repeated attacks from scores of larvae, generation after generation, eventually girdles the tree and kills it. Tree death usually occurs 7-9 years after the initial infestation, depending on site conditions and the tree's overall health.

What is the risk to NYS?

Since maples are a preferred host for ALB, the spread of the beetle into the rest of the state would mean devastating impacts to the maple syrup industry through the loss of healthy sugar bush. Maples are also a valuable hardwood for furniture, flooring, and other uses. Larval galleries through the heartwood may degrade the wood enough to make it useless for milling, costing the forest products industry billions of dollars. The larval galleries also compromise the structural integrity of the tree, resulting in falling limbs and trunks under heavy rain, snow or wind pressure. Removing these hazard trees in parks and towns would be expensive and have serious impacts on property values and tourism.

Before and after the removal of
ALB infested trees in Worchester, MA.
Kenneth R. Law, USDA APHIS PPQ, Bugwood.org

What is being done?

- International standards require wooden packing materials to be chemically treated or kiln dried to help stop new introductions from occurring.
- Quarantines have been established around infested areas to prevent the movement of infested materials.
- The NYS Department of Agriculture and Markets has taken the lead on surveying for infested trees, tree removal and tree treatment to eradicate the ALB populations in New York City and on Long Island.

What can I do?

- Adhere to the NYS firewood regulation which limits untreated firewood movement to no more than 50 miles and obey the rules of the ALB quarantines (https://www.agriculture.ny.gov/PI/alb.html), which prevent regulated materials from leaving those areas.
- If you have a pool, you can participate in the ALB Swimming Pool Survey. Whenever you clean your pool, check your filter and skimmers for anything that resembles an ALB. Send a photo of what you find to foresthealth@dec.ny.gov.

If you believe you have found an ALB…

- Take pictures of the infestation signs as described above (include something for scale such as a coin or ruler).
- Note the location (intersecting roads, landmarks or GPS coordinates).
- Contact DEC (see below) or your local Partnership for Regional Invasive Species Management (PRISM) by visiting www.dec.ny.gov/animals/47433.html.
- Call the ALB tip line at 1-866-702-9938.
- Report the infestation to *i*MapInvasives at www.NYiMapInvasives.org.

CONTACT INFORMATION

Bureau of Invasive Species and Ecosystem Health

Division of Lands and Forests

New York State Department of Environmental Conservation
625 Broadway 5th Floor, Albany, NY 12233-4253
P: (518) 402-9425 | foresthealth@dec.ny.gov
www.dec.ny.gov

Updated November 15, 2018

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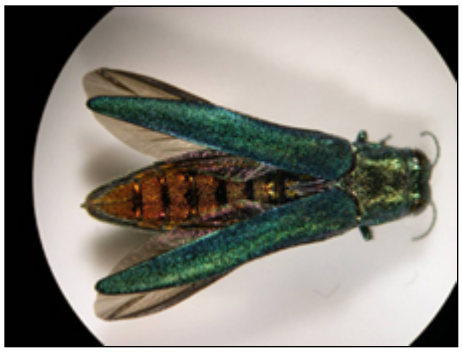
Emerald Ash Borer (EAB)

The emerald ash borer (EAB) (*Agrilus planipennis*) is an invasive beetle from Asia that infests and kills North American ash species (*Fraxinus* sp.) including green, white, black and blue ash. All of New York's native ash trees are susceptible to EAB.



Notice the coppery red color of the EAB's upper abdomen.

EAB are smaller than a penny. (Howard Russell, MI State U. www.forestryimages.org)

EAB Identification

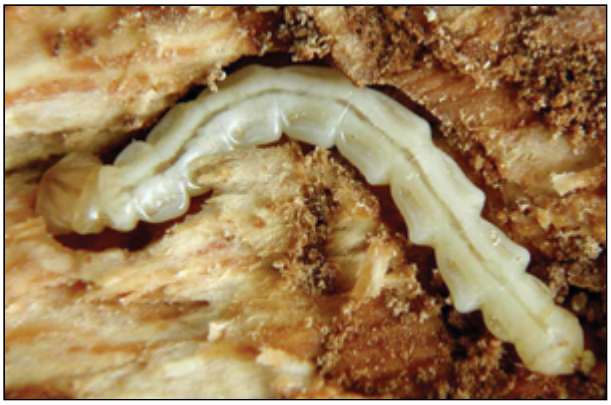
The emerald ash borer is a very small but very destructive beetle. It has four life stages: adult, egg, larva and pupa. The adult beetle has a shiny emerald green body with a coppery red or purple abdomen. Adult beetles leave distinctive D-shaped exit holes in the outer bark of the branches and the trunk. Adults are roughly 3/8 to 5/8 inch long with metallic green wing covers and a coppery red or purple abdomen. The adults may be seen from late May through early September but are most common in June and July.

Signs of Damage

Signs of infestation in the tree canopy include dieback, yellowing, and browning of leaves.

Increased woodpecker activity is often the first sign of an EAB infestation. This activity can lead to "blonding", or large strips of bark falling off. On the trunk and branches, look for small, D-shaped holes that are left by emerging beetles. When the tree's bark splits or falls off, S-shaped larval galleries may be visible.

Most trees die within 2 to 4 years of becoming infested.



EAB larva
Photo: David Cappaert

S-shaped larval galleries may be visible as an infested tree's bark falls off or is removed.

How EAB Spread

Adult EABs typically fly less than ½ mile from their emergence tree. **Most long-distance movement of EAB has been directly traced to ash firewood or ash nursery stock.** Other untreated ash wood, wood chips greater than one inch, and ash product movement (logs, lumber, pallets, etc.) generally present lesser risks. Wood chips less than one inch or mulch are considered to pose little risk of movement. New York State currently has a regulation restricting the movement of firewood to protect our forests from invasive pests.

Confirmed New York State Locations

The first infestation of emerald ash borer (EAB) in New York State was discovered in Cattaraugus County in 2009. As of the spring of 2021, the presence of EAB has been confirmed in **all New York counties except**: Essex, Hamilton, Lewis, and Washington.

DEC works with partners such as NYC Parks and Cornell Cooperative Extension to detect and confirm new infestations across the state.

Current Efforts

While DEC is still collecting new EAB location information, we are not actively managing infestations.

New York has a regulation to restrict the movement of firewood of any tree species to within 50 miles of its source or origin. If you must move ash wood that is not firewood, be sure to follow DEC's guidelines on moving ash wood responsibly. The firewood regulation remains unchanged and in effect despite the changing or lifting of any EAB quarantines.

EAB is listed as a prohibited invasive species by 6 NYCRR Part 575. Under this regulation, no person shall sell, import, purchase, transport, introduce or propagate, or have the intent to take any of these actions on the regulated species, unless issued a permit by DEC for research, education, or other approved activity.

DEC is also cooperating in efforts to identify potentially resistant "lingering ash" trees (leaves DEC website) in areas thoroughly infested with EAB, and to conserve ash seed (leaves DEC website) for future restoration efforts.

What to Do if You Have Found EAB

Visit our webpage on EAB Recommendations and Resources for information on ash tree identification, insecticide options, and other resources for landowners, municipalities, and the wood products industry.

If you confirm your tree is infested with EAB, you do not have to take it down unless the tree could pose a hazard by falling (check for nearby structures, roads, etc.). DEC can confirm if the signs of tree damage are from EAB and provide tree removal information, but unfortunately there are no DEC programs to assist landowners with tree removal. If you choose to have a tree removed, we suggest visiting our tips for selecting an arborist or tree service for guidance.

A D-shaped exit hole from an EAB.

How to Report a New Infestation Location

After reviewing the identification material on this website, if you think you have found EAB and are outside of the counties known to already have infestation areas in New York State:

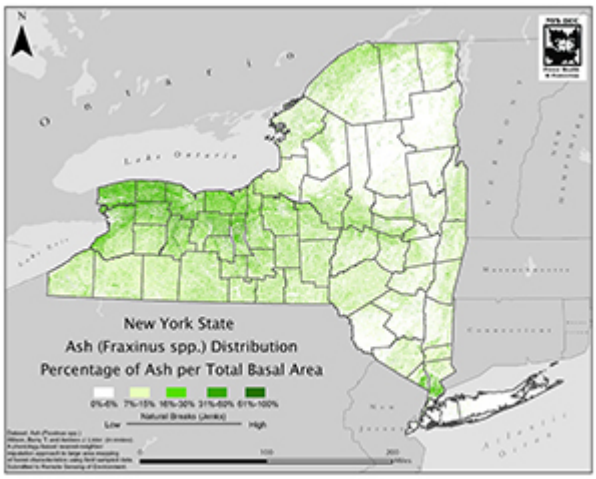
1. Take photos of the insect and/or signs of damage.
2. Email photos and location information to us at foresthealth@dec.ny.gov.

DEC staff will analyze the photos and may reach out for more information to determine if it is EAB. Photos and confirmation from DEC are required for a new location to be added to the infestation map. You may also call DEC's Forest Health information line at 1-866-640-0652.

Importance of Ash

Ash is a very common street tree in many New York communities. It was widely planted to replace native elms lost to Dutch elm disease. In Michigan, the first state in the U.S. infested with EAB, the greatest economic impact has been on communities faced with removal of thousands of dead ash on streets and in yards. Many of these dead trees pose significant public safety hazards and liability problems for municipalities.

Ash is also a common and valuable forest species. Ash seeds are a food source for birds and mammals. Ash species (white, green and black) comprise almost 8% of all trees in NY State. Ash is a commercially-valuable species, and is used for baseball bats, flooring, furniture, lumber, and pallet manufacture. Black ash is also prized by Native American tribes, including the Akwesasne, for traditional basket making. The estimated annual contribution of forest-based manufacturing and forest related recreation and tourism to the New York State economy is over $9 billion.



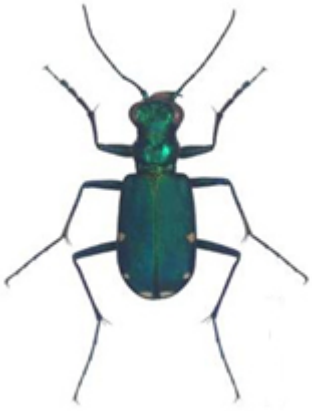
Ash distribution in New York State before EAB.
Click on the above map to view a PDF version

Insects That Look Similar to EAB

The insects below are often mistaken for emerald ash borer beetle.

Bronze birch borer
(Agrilus anxius)

Japanese beetle
(Popillia japonica)



Six-spotted tiger beetle
(Cicendela sexguttata)

Metalic wood borer
(Dicerca divaricate)

Metalic wood borer
(Buprestis striata)

Two-lined chestnut borer
(Agrilus bilineatus)

Additional Resources

- Don't Move Firewood - help protect our forests from invasive insects and diseases
- Multi-state website devoted to EAB information (leaves DEC website)

- EAB Cost Calculator (leaves DEC website) - Purdue University
- USDA APHIS EAB webpage (leaves DEC website) - U.S. Department of Agriculture, Animal and Plant Health Inspection Service
- US Forest Service Northeast Research Station (leaves DEC website) - EAB Research
- Time Magazine (leaves DEC website) - DEC Forestry staff in Region 3 working on the Department's Slow Ash Mortality (SLAM) program to slow the spread of the destructive emerald ash borer
- USDA Animated Video (leaves DEC website) - great for elementary aged children
- Watch a clip about emerald ash borer and check out other clips on DEC's YouTube Channel (leaves DEC website)

More about Emerald Ash Borer (EAB):

Emerald Ash Borer Recommendations and Resources - Recommendations and resources for ash trees infested with the emerald ash borer (EAB) (Agrilus planipennis)

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HEMLOCK WOOLLY ADELGID

Adelges tsugae

NEW YORK STATE | Department of Environmental Conservation

What is the hemlock woolly adelgid?

The hemlock woolly adelgid, or HWA, is an invasive, aphid-like insect that attacks North American hemlocks. HWA are very small (1.5 mm) and often hard to see, but they can be easily identified by the white woolly masses they form on the underside of branches at the base of the needles. These masses or ovisacs can contain up to 200 eggs and remain present throughout the year.

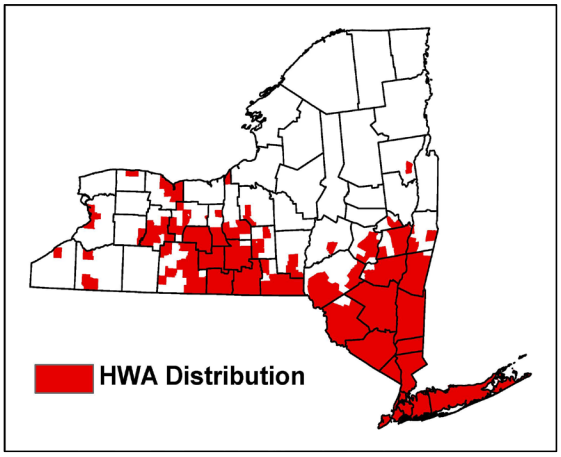
White woolly ovisacs on an eastern hemlock branch
Connecticut Agricultural Experiment Station, Bugwood.org

Where is HWA located?

HWA was first discovered in New York State in 1985 in the lower Hudson Valley and on Long Island. Since then, it has spread north to the Capitol Region and west through the Catskill Mountains to the Finger Lakes Region, Buffalo and Rochester. In 2017, the first known occurrence in the Adirondack Park was discovered in Lake George.

Where does HWA come from?

Native to Asia, HWA was introduced to the western United States in the 1920s. It was first observed in the eastern US in 1951 near Richmond, Virginia after an accidental introduction from Japan. HWA has since spread along the East Coast from Georgia to Maine and now occupies nearly half the eastern range of native hemlocks.



What does HWA do to trees?

Once hatched, juvenile HWA, known as crawlers, search for suitable sites on the host tree, usually at the base of the needles. They insert their long mouthparts and begin feeding on the tree's stored starches. HWA remain in the same spot for the rest of their lives, continually feeding and developing into adults. Their feeding severely damages the canopy of the host tree by disrupting the flow of nutrients to its twigs and needles. Tree health declines, and mortality usually occurs within 4 to 10 years.

What trees are affected?

All species of hemlock are vulnerable to attack, but severe damage and death typically occurs in eastern (Tsuga canadensis) and Carolina (Tsuga caroliniana) hemlocks only. Eastern hemlock is the most common species of hemlock in New York State.

HWA damage to needles and branches
Chris Evans, University of Illinois, Bugwood.org

What are the signs of an infestation?

- White woolly masses (ovisacs) about one-quarter the size of a cotton swab on the underside of branches at the base of needles
- Needle loss and branch dieback
- Gray-tinted foliage

What is the impact on NYS ecosystems?

Hemlocks are ecologically important due to the unique environmental conditions they create under their dense canopies. These cooler, darker and sheltered environments are critical to the survival of a variety of species that rely on them for food, protection, and ideal growing conditions. Moose, black bears, salamanders, and migrating birds, as well as unique lichen and plant communities, are all closely associated with the hemlock ecosystem. Well suited for growing on steep slopes where not many other species can grow, hemlocks stabilize shallow soils and provide erosion control. In addition, they are often found along streams, where their shade helps moderate water temperatures, maintaining a suitable environment for cold-water species such as trout. Removal of hemlocks from NYS ecosystems can dramatically change ecosystem processes and may result in the loss of unique plants and wildlife.

What is being done?

Biological Control

Several predators from Asia have been successfully introduced in HWA- infested areas. In addition, Laricobius nigrinus, a beetle native to the Pacific Northwest, has been released at various locations in the Finger Lakes region with promising results, though more controls are needed to stop HWA.

Laricobius nigrinus feeding on HWA
US Forest Service, Bugwood.org

Chemical Control

Chemical insecticides can be used to treat an already infested tree or as a preventive measure in a high-risk infestation area. They are useful for treating individual, ornamental, or high-value trees, but are not practical or economical in a forest setting. Two insecticides that have shown promising results are Imidacloprid and Dinotefuran. Both must be applied by a licensed pesticide applicator, and either can kill HWA on its own. Applying both insecticides to an infested tree, however, combines the immediate effectiveness of the fast-acting Dinotefuran with the long-term protection of Imidacloprid, leaving the tree adelgid free for up to seven years.

Integrated Pest Management

The most effective management strategy for controlling HWA combines the short-term protection of insecticides with the long-term solution of biological control agents. As research continues on the effectiveness of natural enemies to control HWA populations, chemical insecticides can keep trees alive and free of infestation until natural enemies take over.

What can I do?

If you believe you have found HWA…

- Take pictures of the infestation signs as described above (include something for scale such as a coin or ruler).
- Note the location (intersecting roads, landmarks or GPS coordinates).
- Contact DEC (see below) or your local Partnership for Regional Invasive Species Management (PRISM) by visiting www.dec.ny.gov/animals/47433.html.
- Report the infestation to *i*MapInvasives at www.NYiMapInvasives.org.
- Slow the spread of HWA in our forests by cleaning equipment or gear after it has been near an infestation, and by leaving infested material where it was found.

CONTACT INFORMATION

Bureau of Invasive Species and Ecosystem Health
Division of Lands and Forests

New York State Department of Environmental Conservation
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www.dec.ny.gov

Updated January 8, 2018

NEW YORK STATE | Department of Environmental Conservation

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SPONGY MOTH (FORMERLY KNOWN AS GYPSY MOTH)

(*Lymantria Dispar dispar*)

NEW YORK STATE | Department of Environmental Conservation

What are spongy moths?

Spongy moths are defoliating insects native to France that were first introduced to the United States in 1869. They are now widespread in the Northeast and considered "naturalized," meaning they will always be a part of our ecosystem. Spongy moth populations rise and fall in cycles, varying over the years from very few (most years) to large numbers, which cause very noticeable leaf damage and tree defoliation. In New York, we tend to see regional outbreaks, or large spikes in population numbers, every 10–15 years. Outbreaks usually end when disease and predator populations increase to a level at which they can naturally control the LDD population.

New Common Name

The Entomological Society of America removed the former common name from its Common Names of Insects and Related Organisms list in July 2021 due to it being a derogatory term for the Romani people.

Identification

Spongy moth caterpillars (larval stage) can be seen starting in early to mid-May, grow to about 2.5 inches in length, and are black and hairy, with five pairs of raised blue spots followed by six pairs of raised red spots along their backs. Adult moths can usually be seen starting in July. Females are white with brown markings, have a 2-inch wingspan, and cannot fly. Males are brownish, have a 1.5-inch wingspan, and have feathery antennae.

Egg masses are light brown and covered with a dense mat of fine hairs. They are often laid on tree trunks and branches, but can also be found on sheltered surfaces, from firewood to lawn furniture.

Caterpillars start off completely black, with the blue and red spots showing up after their second molt. Photo by Karla Salp, Washington State Department of Agriculture, Bugwood.org

What Do They Do?

Spongy moth caterpillars feed on more than 300 species of trees and shrubs, eating the young, tender leaves in the spring. In New York, they are known to feed on oak, maple, apple, crabapple, hickory, basswood, aspen, willow, and birch, although oak is their preferred species. When populations of spongy moths are high, or when oak and other preferred trees are limited, they will eat conifer species, including pine, spruce, and hemlock. During outbreaks, they can damage thousands of acres of trees.

Adult female moths lay egg masses on trees and other hard surfaces.

Can Trees Recover?

While the caterpillars pupate and turn into moths, a healthy tree that has been fed on will grow new leaves and have a full canopy again within a few weeks. However, defoliation (loss of leaves) can reduce the health and vigor of a tree, causing it to become more susceptible to other stressors such as extreme drought, flooding, or attacks by disease or other insects. Tree death can occur when one or more of these stressors is present at the same time as spongy moth caterpillars. Long-term damage depends on the type of tree, as well as the amount of defoliation.

- **Conifers:** If a needle-bearing tree loses more than 50% of its needles, it probably won't recover. Check it for new needle growth in the months after the caterpillars are gone.
- **Hardwoods:** If there are no other stressors, deciduous/hardwood trees can usually withstand 2–3 successive years of defoliation, though new leaves will probably be smaller than usual. If a tree loses ALL its leaves and does not grow any new ones in late summer, it could still be alive. Check it in the spring, and if it still does not leaf out, it has died.

Control Options for Landowners

Note: Although these options may help protect individual trees or small areas, they will not eliminate a local spongy moth population. In most cases, spongy moth outbreaks end naturally as disease becomes more prevalent and predator populations increase in response to the larger amount of available host/prey.

Egg masses can contain 600–700 eggs, so destroying them when you see them can have a big impact. Photo by Karla Salp, Washington State Department of Agriculture, Bugwood.org

Squishing and Scraping

You can help decrease future spongy moth populations by squishing the caterpillars and moths and destroying egg masses when you see them. To make sure an egg mass is destroyed, scrape the mass into a bucket of warm, soapy water and then leave it overnight before discarding it in the trash.

Using Traps

In late April, before spongy moth eggs hatch, you can place sticky/barrier bands around a tree's trunk to prevent the caterpillars from crawling up the tree and into the canopy. You can buy these bands or make them at home using common household materials. Check sticky/barrier bands often, in case unintended wildlife, such as birds and small mammals have been caught; to remove debris that would act as a bridge for caterpillars over the band; and to replace as needed, such as after rain events. The hairs on the caterpillars can cause skin irritation, so wearing gloves is recommended when handling used traps.

In mid-June, when caterpillars are larger, replace sticky/barrier bands with a burlap trap. These traps do not prevent the caterpillars from going into the canopy but provide excellent shelter when they rest during the day, making it easier to collect and destroy the caterpillars, pupae, adults, and eggs found in the burlap. This should be done at least several times a week so that the trap doesn't just become a shelter for them. Detailed instructions for making your own sticky/barrier bands and burlap traps are available on DEC's website: https://www.dec.ny.gov/animals/83118.html.

Insecticide Options

Treating an individual property with an insecticide is unlikely to impact a larger, regional outbreak, but may impact other invertebrates. **Carefully consider these potential impacts prior to application.**

Microbial insecticides are biopesticides made from naturally occurring bacteria, viruses, fungi, or protozoans that can be targeted to a specific pest. The most common of these is *Bacillus thuringiensis* (Bt), which occurs naturally in soil and on plants. The Bt subspecies kurstaki (Btk) is the most appropriate to use for spongy moth control and works best on young caterpillars since they become more resistant to treatment as they mature. When a caterpillar eats Btk, it becomes paralyzed, stops feeding, and dies of starvation. Btk is harmless to people, animals, and plants, but does affect other young moth and butterfly larvae. Proper timing of application will help limit exposure to non-spongy moth larvae.

Horticultural oil insecticides (aka dormant oils) are solutions refined from petroleum or plants, and when applied, can smother insects or disrupt the protective coating around their eggs. Horticultural oils will impact any insects that they are sprayed on, not just spongy moths, but they are relatively safe for humans and other wildlife. The oils should be applied to egg masses in late March–early April before caterpillars emerge, and again in October–early November after adults have ceased activity.

Chemical insecticides are contact poisons. These chemicals can have a serious impact on a variety of beneficial, native insects (such as bees), as well as nesting birds and other wildlife, **so use should be limited**. Spraying is not effective against spongy moth pupae or egg masses, and it is less effective once caterpillars reach one inch in length.

More Information

Visit DEC's spongy moth webpage for more information, including how to help trees recover from spongy moth damage, how to help predict next year's caterpillar populations, and annual outbreak updates: https://www.dec.ny.gov/animals/83118.html.

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