

SLELO PRISM

St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management
Teaming Up to Stop the Spread of Invasive Species

Tug Hill ISPZ Signs: Coming Soon to a Trailhead Near You!

By Katie Malinowski, Tug Hill Commission

Tug Hill is the third largest intact forest in New York State, and the Tug Hill Invasive Species Prevention Zone (ISPZ) was the first ISPZ identified by the SLELO PRISM. This spring, residents of and visitors to Tug Hill will begin to see interpretive signs at 18 trailheads and fishing access sites around the region. Two designs, one for terrestrial sites like the one pictured here, and another for aquatic sites, will be installed at the appropriate locations. Funded by a SLELO project grant, Tug Hill Tomorrow Land Trust and the Tug Hill Commission partnered with CCE of Jefferson County, NYS DEC, and NY Sea Grant to identify locations and develop the content. Additionally, town highway superintendents in core Tug Hill towns will be asked to install smaller metal road signs around the perimeter of the ISPZ.

TUG HILL INVASIVE SPECIES PREVENTION ZONE (ISPZ)

A Place For All Seasons

Let's Keep it That Way!

What is Tug Hill?

Tug Hill is the third largest intact forest in New York State. It is a region of northern hardwood forests and pristine wetlands that drain to Lake Ontario and the Mohawk River through a network of coldwater streams and rivers.

The forest on Tug Hill is a mix of public and private lands that provide recreation and economic benefits, as well as valuable habitat for wildlife.

Invasive Species Threaten Tug Hill

Invasive species are non-native species that have the potential to cause harm to the economy, environment or to human health. Once invasive species become established they often out-compete native species for resources like habitat and sunlight.

Prevent the Spread

Luckily Tug Hill is still relatively free of invasive species. The goal of invasive species prevention is to contain infestations where they are, and keep pristine habitats free of invasive species. Prevention methods can minimize and possibly stop the significantly negative impacts of invasive species.

Prevention practices are quick, easy and inexpensive. Once an invasive becomes well established, eradication is often not possible.

An Invasive Species Prevention Zone (ISPZ) was established in 2012 to monitor and prevent the spread of invasive species within the Tug Hill core forest.

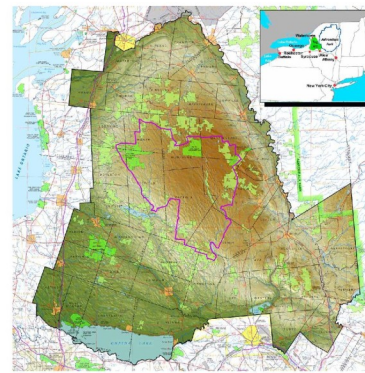
Ways to Keep Tug Hill a Place For All Seasons

Because invasive species can spread a number of ways, everyone can help prevent their spread. Invasive species can hitchhike to new areas by attaching to any surface they come in contact with, such as animals, footwear and clothing, firewood, kayaks, canoes and boats, ATVs, trucks, logging and road building equipment.

Public awareness and the use of prevention practices are important lines of defense in the fight against invasive species. Implementing simple and inexpensive prevention tips will help you be an active part of the solution.

- Learn more about invasive species in your community.
- Remove plant pieces and seeds from clothing and boots.
- Don't transport firewood. Buy it where you burn it.
- Clean, rinse and dry your boots and anything that comes in contact with the woods.
- Use native plants in landscaping.
- Learn how to properly identify and report invasives.
- Be persistent! Preventing the further spread of invasive species on Tug Hill and other areas is a long-term commitment.

For more information on invasive species and prevention practices please visit the St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management website at: WWW.SLELOINVASIVES.ORG.



The Tug Hill Invasive Species Prevention Zone (ISPZ) is the purple line located northeast of the hamlet of Redfield, NY on the Tug Hill Plateau.

TUG HILL FOREST SPECIES MOST UNWANTED

JAPANESE KNOTWEED

Japanese knotweed is a herbaceous perennial plant with heart-shaped leaves. It typically grows in thickets three to six feet tall, but can reach three feet tall. It spreads via joint rhizomes. Small root fragments can start a new plant.

IMPACTS
Japanese knotweed can spread rapidly, resulting in thick monocultures and crowding out native native plants. These thickets also impact property values and can be a nuisance to landowners. Knotweed can also cause soil erosion and damage to infrastructure.

WHAT WE CAN DO
Mechanical control such as cutting and pulling can be effective over the long term, but herbicides should be used. Small root fragments must be removed and properly disposed of. In areas where there are large populations of Japanese knotweed, combinations of cutting and approved herbicides are required.



BLACK AND PALE SWALLOW-WORT

Black and pale swallow-wort are also known as "dog strangling weeds." These perennials, having once been grown from here to sea level in length, they eventually die and can completely smother native vegetation.

IMPACTS
Black and pale swallow-wort are aggressive vines that smother native plants. They can also crowd out native plants, resulting in a loss of biodiversity. Swallow-wort can also cause soil erosion and damage to infrastructure.

WHAT WE CAN DO
Early detection of new populations allows easy control and removal. Small plants may be pulled out by the root system. Mature or cutting as well as just remove entire seedling - can prevent dispersal early on. Approved herbicides should be applied when the plants begin to flower.



GIANT HOGWEED

Giant hogweed is a tall (up to 15 to 20 feet) herbaceous, biennial plant, often found in open fields and meadows, and along streams in wooded areas.

IMPACTS
Giant hogweed can be a serious threat to human health. It is a skin irritant and can cause severe allergic reactions. It can also crowd out native plants, resulting in a loss of biodiversity. Giant hogweed can also cause soil erosion and damage to infrastructure.

WHAT WE CAN DO
The plant can be pulled out by the root system. Approved herbicides should be applied when the plants begin to flower. Approved herbicides should be applied when the plants begin to flower.

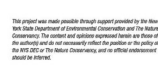
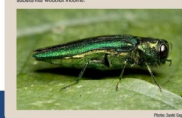


EMERALD ASH BORER (EAB)

Emerald ash borer (EAB) was first discovered in the U.S. in 2002 in southeastern Michigan and in Ontario, Canada. EAB has since spread to several other states and provinces.

IMPACTS
Adult beetles are roughly 5/8 to 5/16 inches long, with metallic green wings and a coppery red or purple abdomen. They have distinctive D-shaped exit holes in the outer bark of tree trunks and twigs. Signs of infestation include tree canopy dieback, wilting and crowning of trees, and woodpecker activity.

WHAT WE CAN DO
The Emerald ash borer is responsible for the destruction of over 70 million ash trees in the U.S. since its discovery. EAB can spread via firewood and other wood products.



Too Cold for Emerald Ash Borers in Northern NY

Paul Hetzler, Cornell Cooperative Extension of St. Lawrence County

In many states, including Indiana, Illinois and Ohio, “emerald cities” are becoming all too common.

Unlike the fabled city in the Land of Oz, their “emerald” designation refers not to their hue, but to the fact they've suffered through an emerald ash borer (EAB) infestation, losing thousands of ash trees in the span of a few years. Since its discovery in 2002, EAB has drastically altered the look of many communities as tree-lined streets are stripped bare by the emerald invader, leaving entire neighborhoods bereft of trees.

For such a destructive pest, this Asian beetle is quite beautiful. It's small (3/8" to 1/2"), bullet-shaped and would be easy to overlook if not for its bright, metallic, emerald-green color with shiny copper highlights. The beetles themselves do little harm, but their immature stage (larvae) feed on the cambium, the layer of live tissue just beneath the bark, which girdles and thus kills ash trees.

Since the EAB kills only true ash in the genus *Fraxinus*, mountain ash is safe. But unless an effective biocontrol (a disease, parasite or predator that kills EAB) is found soon, NY State's 900 million ash trees will vanish. On average, ash represent about 7% of northern NY forests, but certain habitats have much higher concentrations.

With EAB closing in on the north country from the west, south and north, there's no way to stop it. In 2013 it was confirmed in multiple sites in southern Ontario, Canada, including Cornwall, just across the St. Lawrence River. EAB are quite capable of flying over the river, and you can bet they won't register with the Border Patrol. It would seem the EAB's arrival in northern NY is close at hand.

However, a significant bright spot has developed that should warm our hearts—this winter's frigid weather and wild temperature swings. A study conducted by the USDA Forest Service and Minnesota Department of Agriculture concludes EAB are not as cold-hardy as previous research suggested. According to au-

thors Robert C. Venette and Mark Abrahamson, "...when larvae reach -17.8°C (0°F), 5% will die; at -23°C (-10°F), 34% will die; at -29°C (-20°F), 79% will die; and at -34°C (-30°F), 98% will die."

Furthermore, the study found that when cooled quickly, EAB don't have time to acclimate and will die at much "warmer" temperatures. In other words, this is a great winter for delaying the arrival of EAB in NNY! But the study cautions that "...air temperatures, recorded at standard meteorological weather stations, are not necessarily the most reliable measure of the temperature experienced by overwintering emerald ash borer larvae... [they] may be afforded some protection against brief drops in temperature."



The emerald ash borer is smaller than a penny. Photo: Howard Russell, MI State U., www.forestryimages.org

This winter will buy us time, but the borers will get here eventually. It's important to learn the signs of infestation and scout frequently. When an adult EAB emerges from a tree it makes a distinctive D-shaped exit hole, with the straight part of the 'D' on the bottom. The hole is tiny—1/8" across—and hard to see.

Sprouts growing out of a trunk or large branch are called epicormic shoots, and are a good indicator of EAB infestation. Another conspicuous sign easiest to see in winter is woodpecker activity on ash bark (not deep cavities). Report all suspected infestations to NYSDEC or your Cooperative Extension office.

It's suggested homeowners not treat ash trees until EAB is confirmed within 10 miles. Keep in mind that even trees with early infestations can be saved through treatment, at considerable expense. Insecticide options can be found at www.emeraldashborer.info or call Cornell Cooperative Extension for details.

Planning, cooperation and community involvement are the keys to weathering the inevitable EAB storm. EAB-ravaged cities are already replacing trees (employing a far greater diversity of species), returning the emerald color to their neighborhoods. Dorothy would approve.

News and Notes

- ♦ *May 21, 2014, 10 am, **Spring iMap Training**, CCE of Jefferson County, Watertown, NY. This event is free, but you must pre-register at www.nyimainvasives.org.*
- ♦ *June 11, 2014, 8:30 am to 4 pm, **Eastern Lake Ontario Invasive Species Symposium**, at the Robert G. Wehle State Park. Sponsored by the partners of the SLELO PRISM. Watch your email for a registration form, contact Katie Malinowski at katie@tughill.org for more information.*
- ♦ ***Invasive Species Awareness Week** July 6-12, 2014—stay tuned for details!*

Environmental DNA: An Early Detection Tool

Rob Williams, SLELO Coordinator

Early detection, which is spotting and responding to the presence of a low-abundance invasive species before it becomes established, is a key first step in prevention and possible eradication. However, the amount of time that we can realistically spend monitoring vulnerable waterbodies, wetlands and upland areas is often limited. When the size of a land area or body of water makes it unfeasible to conduct a full survey, it makes sense to focus investigative efforts on Highly Probable Areas (HPAs) or those areas where invasions are most likely to occur. Developing efficient tools that allow natural resource managers to detect the arrival of an invasive species prior to their establishment can both prevent their complete introduction and allow sufficient time to develop an eradication plan. Environmental DNA (eDNA) sampling is becoming an accurate tool for true early detection in aquatic systems.

The SLELO PRISM encompasses numerous water bodies, including Lake Ontario, the St. Lawrence River and portions of the Erie Canal. These water bodies are prime conduits for the introduction and import/export

of invasive species (Breheny, 2012). Several regional aquatic invasive species of concern include water chestnut, Eurasian water milfoil, and European frogbit. Although not documented, didymo is believed to be threatening the Lake Ontario shoreline. Several aquatic animal species documented include spiny waterflea, fishhook waterflea, zebra mussel, quagga mussel, round goby, and the bloody red shrimp. Other aquatic species that pose a potential threat to our region include Chinese mitten crab, ruffe, Asian carp, and northern snakehead.

Environmental DNA refers to DNA that is not collected directly from the tissue of an organism, but residual DNA that can be filtered from a water sample. Based on the premise that aquatic organisms shed DNA through decomposition, feces

and secretions, water samples are collected and analyzed to extract eDNA. As new technologies are developed, critics rightfully question whether eDNA can be trusted, but now many say that this technology can shift from questioning the science to focusing on procedure, policy

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Water samples being collected from the Oswego River for eDNA analyses.

COORDINATOR'S COLUMN



Rob Williams, SLELO PRISM Coordinator
The Nature Conservancy (315)387-3600, ext. 25

Manual, mechanical and chemical are the types of control mechanisms most often found in our

toolbox for managing populations of invasive species. What if we could add another type of control that was low risk, dependable and cost effective?

Before the mid-1950s, chemical and mechanical control techniques were the primary tactics used to suppress invasive species in the U.S. Since then the use of biological controls has become better regulated and more commonly used, especially in the management of terrestrial plants.

When biological controls were first introduced and not well regulated, there were cases where the biological controls themselves became a nuisance. For example, in the 1930's Cane toads (native to south and Central America) were introduced to Australia as a biological control method against the Greyback Cane beetle that was destroying sugar cane crops. The end result was devastating in that there was no net benefit to the sugar cane and the Cane Toads populated to become invasive themselves.

Biological control is the science of reconnecting invasive species with the specialized natural enemies that limit

their density in their native ranges. This process consists of field surveys in the area of origin to determine natural enemies, studies on their biology, host specificity, release and evaluation of their impacts on the target species.

Today, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is responsible for controlling introductions of species brought into the U.S. for use as biological controls. In accordance with the requirements of quarantine laws, the National Environmental Policy Act, and the Endangered Species Act, petitions are required for release of biological control agents in the U.S. These petitions are judged by a technical advisory committee which represents the interests of a diverse set of agencies.

Approvals for the use of biological controls now require due diligence which was lacking in the pre-regulated days. Although time consuming, this process results in another mechanism which natural resource managers can comfortably add to the invasive species management toolbox.

Rob Williams

Reference:

<http://www.invasiveplants.net/biologicalcontrol/HTML/Introduction.html>

SLELO PRISM

Partners

- ◆ Cornell Cooperative Extension County Offices
- ◆ The Nature Conservancy
- ◆ NYS Department of Environmental Conservation
- ◆ NYS Office of Parks, Recreation & Historic Preservation
- ◆ NYS Department of Transportation
- ◆ NY Sea Grant
- ◆ Ducks Unlimited
- ◆ County Soil & Water Conservation Districts
- ◆ Fort Drum Military Installation
- ◆ Tug Hill Tomorrow Land Trust
- ◆ Tug Hill Commission
- ◆ Save The River
- ◆ Audubon - Central NY Chapter
- ◆ Thousand Islands Land Trust

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and management solutions (Chadderton, 2011). This technology has now reached a level of accuracy and functionality that can be cost-effectively used at many levels. Within New York there may be opportunities to coordinate a statewide citizen science effort to utilize eDNA sampling as an efficient early detection tool especially in the Great Lakes, the St. Lawrence River and the Erie Canal, each of which are major North American, whole-system pathways.