

NEW YORK STATE

Conservationist

for Kids!



Invasive Species:

What YOU can do to help stop the spread!

Hydrilla

NEW YORK STATE Conservationist *for Kids!*

IN THIS ISSUE, we learn about invasive species, their impacts, and what we can do to help stop their spread.



Oak Wilt



Eurasian Boar



Wild Parsnip

Steven Katovich, USDA Forest Service, Bugwood.org



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What are invasive species?

Invasive species are non-native plants, animals, and diseases that cause harm to the environment, human health and the economy.

**Alien, exotic
or non-native:**

**originating from
somewhere else
and introduced to a
new area**

Why are invasive species a problem?

- Due to a lack of natural predators, invasive populations grow quickly and outcompete native species for resources, disrupting food webs and even endangering some species.
- Some invaders threaten human health. For instance, introduced mosquitoes can carry diseases such as the West Nile and Zika viruses.
- Invasive species cost the U.S. about \$120 billion annually between the damage they cause and control efforts.

Are all species that come from different countries considered invasive?

No. Some non-native species are beneficial, such as honeybees, which are important pollinators. Other exotic species, like Queen Anne's lace, may be considered a nuisance but don't cause any real harm.



How do invasive species get here?

Exotic plants and animals can arrive here in many ways. Some arrive by accident like insects hitching a ride in wooden crates or aquatic animals and plants carried over in the ballast water of cargo ships.

Sometimes they are intentionally brought here like landscape plants that are sold at nurseries which eventually escape from gardens.

Species Profiles

Hydrilla

- Hydrilla is an aquatic plant from Asia that is extremely difficult to get rid of once it invades a waterbody. It is a popular plant used in aquariums that was likely dumped into lakes and rivers by aquarium owners discarding their pets. It is very easily spread—small fragments of the plant can sprout and be easily carried elsewhere by boats, trailers and more. It can grow up to an inch a day and creates a thick mat of vegetation that makes it hard to fish, swim and paddle. Hydrilla shades out native aquatic plants which provide food and shelter to native wildlife.

Photo Credit:
Robert Vidéki, *Doronicum Kft.*, Bugwood.org



Wild parsnip

- Wild parsnip, native to Europe and Asia, can grow 2-5 feet tall and has small yellow flowers that are clustered together. It belongs to the same family as carrots, celery, and parsley, but unlike its relatives, wild parsnip has a bad reputation. If you see this plant, **do not touch it!** The sap significantly increases your skin's sensitivity to sunlight, so if you get it on your skin and your skin is exposed to sunlight, it causes painful burns and blisters.
- If you think you've touched wild parsnip, wash your skin with warm water and mild soap, then avoid sunlight on that area for a couple days.

Photo Credit: (Middle Image)
Andrew Link, *Lacrosse Tribune* 2013



Hemlock woolly adelgid

- Hemlock woolly adelgid (HWA) is an insect that feeds on eastern hemlock trees. It arrived in the U.S. from Japan on infested landscape trees. HWA are so tiny (1.5 mm) that you may not even see them attached at the base of a hemlock needle. You're more likely to spot their woolly egg sacs which look like the end of a Q-tip.
- Hemlocks are an important keystone species that help stabilize soils on steep slopes and provide habitat and food for many types of wildlife. Hemlocks often grow along streams where their shade helps keep the water cool, which is what many trout species prefer. The loss of hemlocks in NY from HWA attack has already had negative impacts on stream bank erosion and native trout populations.

Photo Credits:
Michael Montgomery, *USDA Forest Service*, Bugwood.org
Kelly Oten, *North Carolina Forest Service*, Bugwood.org



DYK:

Keystone species play a unique and extremely important role in an ecosystem. They create the conditions that other species depend on for survival. The loss of a keystone species can drastically change an ecosystem.

Oak wilt

- Oak wilt is a fungal disease that kills thousands of oak trees in the U.S. each year. While you cannot see the fungus just by looking at the tree, you can see signs that indicate your tree is sick. An infected oak's leaves will turn brown and fall off the tree in the middle of summer, often so quickly that there will still be some green on them. Some oak species are killed in just a few months, while it may take years for other oaks to die.

Photo Credit:
C.E. Seliskar, Bugwood.org



Spotted lanternfly

- Spotted lanternfly is an insect from Asia that feeds on a variety of plants including grape vines, apple trees and maples. They steal nutrients from plants and secrete a liquid called honeydew. This liquid promotes the growth of mold which ruins fruit.
- Although not in New York yet, lanternflies are close by in Pennsylvania. They lay their eggs on any flat surface so they are easily transported on anything from cars and trailers to lawn furniture and firewood. It is important to find infestations early so they can be dealt with quickly to protect New York's forest and agricultural industries.

Photo Credit:
Lawrence Barringer,
Pennsylvania Department of
Agriculture, Bugwood.org



Eurasian boar

- Eurasian boar, also known as wild boar or feral pigs, are native to Europe and Asia. These large animals have razor-sharp tusks and black or brown fur. They are incredibly destructive—they harm or kill native plants and wildlife, damage crops, and act aggressively toward humans. It is believed that wild boar escaped or were purposely released from game farms. Hunting wild boar scatters them into smaller groups, costing more time and money to track them down. As a result, New York State has made it illegal to hunt or possess Eurasian boar.

Photo Credit:
The Nature Conservancy, Bugwood.org
Billy Higginbotham, Texas AgriLife Extension Service, Bugwood.org



DYK:

Eurasian boar are dangerous on roadways because their eyes do not reflect headlights at night, making them hard for drivers to see.

Success!

A state and federal trapping program coupled with the ban on hunting led to the eradication of boar in NY. Constant monitoring for new populations is necessary to make sure they stay out!

What can I do to help prevent

Invasive Yellow Iris



Native Blue Flag Iris



Invasive Burning Bush



Native Highbush Blueberry



FOR GARDENERS

- Use native or non-invasive plants for gardens and landscaping. For example, choose the native blue flag iris instead of the invasive yellow iris or plant the native highbush blueberry instead of the invasive burning bush.
- Check the contents of seed mixes and use only those without invasive plants.

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org
Rob Routledge, Sault College, Bugwood.org

FOR BOATERS

- Clean, drain, and dry your boats, canoes, kayaks, paddleboards and jet skis before and after you head out on the water. They can all carry invasive species.

Cleaning Watercraft



FOR PET OWNERS

- If you own an exotic pet and are unable to take care of it any longer, do not release it into the wild.
- If you own an aquarium, do not dump unwanted plants and animals into lakes, rivers and other bodies of water.
- Donate unwanted plants and animals to a school, nature center, aquarium or zoo, or return them to the place where you bought them. Contact a veterinarian or pet store for help if you can't find your pet a new home.



DYK:

Red-eared sliders, which are popular pets, outcompete our native turtles for food and habitat. They can also carry Salmonella bacteria which can be passed on to other turtles and humans who handle them.

DYK:

Goldfish, which are native to Asia, outcompete our native fish for resources. Female goldfish can produce up to 40,000 eggs each year!

Invasive Goldfish



Joy Viola, Northeastern University, Bugwood.org

U.S. Geological Survey, Bugwood.org

the spread of invasive species?



FOR ANGLERS

- When you're finished fishing, be sure to dispose of unwanted bait in trash cans, at disposal stations or on dry land.
- Clean off fishing equipment, such as rods and reels, before moving to another fishing spot.



DYK:

Rusty crayfish are an invasive species from the Midwest that are often used as bait and dumped into lakes and rivers. They are super aggressive and can outcompete our native crayfish.

U.S. Geological Survey, Bugwood.org



FOR CAMPERS

- When using firewood, keep it local. Firewood may contain invasive species such as the emerald ash borer and Asian longhorned beetles that attack and kill our native trees. Check out www.dontmovefirewood.org for more information!



FOR HIKERS

- When hiking, be sure to clean your boots and other equipment before and after your hike to make sure you're not transporting invasive seeds and plant pieces.

Donald Duerr, USDA Forest Service, Bugwood.org
Debbie Miller, USDA Forest Service, Bugwood.org

DYK:

Emerald ash borer is responsible for the death of hundreds of millions of ash trees in the U.S.

FOR EVERYONE

- Report invasive species in your neighborhood. Email details about what you found and where you found it to DEC's Bureau of Invasive Species and Ecosystem Health at isinfo@dec.ny.gov. Send in photos when possible.



Invasive Species Word Search



S	S	Q	E	R	G	X	P	D	N	S	A	T	E	M
O	O	T	U	V	H	A	O	X	F	A	L	D	U	C
J	A	O	O	J	I	O	U	K	O	W	L	Q	R	Q
I	L	K	B	P	W	S	K	Z	I	V	I	I	A	L
L	B	C	W	E	T	E	A	L	L	V	R	Q	S	C
M	M	T	R	I	Y	H	D	V	N	W	D	E	I	Z
T	H	I	U	T	L	P	E	S	N	X	Y	O	A	N
V	F	P	A	G	A	T	D	S	V	I	H	C	N	A
A	Q	U	A	R	I	U	M	U	P	R	E	X	B	T
P	S	U	S	K	I	T	X	M	E	R	Y	X	O	I
X	G	N	Q	T	S	K	H	P	V	X	E	Y	A	V
S	I	E	T	E	P	M	O	C	T	U	O	A	R	E
P	S	A	J	L	F	R	C	K	R	H	N	H	D	R
V	U	G	V	M	T	R	K	C	O	Z	Z	F	Z	Z
S	I	C	F	K	C	G	N	G	P	H	H	P	T	I

AQUARIUM

HYDRILLA

OAKWILT

STOPHESPREAD

FIREWOOD

NATIVE

EURASIANBOAR

INVASIVE

OUTCOMPETE

WILDPARSNIP

REPORT

Create your own invader!

Draw or use art supplies (such as feathers, paper towel rolls, rhinestones, etc.) to create your own invasive animal, plant or disease. Where is your invader from? How did it get here? What traits does your species have that make it successful at invading? What can you do to stop its spread? Use species we mentioned in this issue for inspiration!



Photo Credit: NYS Parks

New York State *CONSERVATIONIST FOR KIDS*
Volume 11, Number 3, Spring 2018
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**Environmental
Conservation**



This issue of *Conservationist for Kids* was funded by NYSDEC's Division of Lands & Forests. Special thanks to Emma Antolos and Erin Brady for their help preparing this issue.

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Conservationist for Kids **Supplement for Classroom Teachers – Invasive Species** **April 2018**

Why learn about invasive species?

Invasive species are non-native plants, animals, insects and diseases that threaten our environment, health and economy. Due to a lack of predators, invasive species' populations grow quickly and outcompete our native species for resources, disrupting food webs and even endangering some species. Invaders can be introduced intentionally (like when non-native plants are sold at nurseries and escape from gardens) or unintentionally (like when insects hitch rides in wooden crates). Since New York State is a hub for international trade and travel, our state has one of the highest rates of non-native introductions and invasive species are a constant threat to our resources. It is crucial that students have a basic understanding of invasive species and what they can do to help stop the spread. By instilling this knowledge at an early age, we can help them become good stewards of the environment.

This Issue's "Outside Page"

The "Outside Page" in this issue of *Conservationist for Kids* encourages kids to create their own invasive species using art supplies. By doing this activity, students will not only get a chance to be creative but they'll also engage in discussion about what characteristics make for a successful invader. We've provided a lesson plan to assist teachers in leading this discussion. The "Outside Page" also includes a word search with key words used throughout the magazine.

Supplemental Activities for the Classroom

Wanted Poster

Encourage students to create a "Wanted" poster of a specific invasive species. Students can either use a species discussed in this issue or do research about an invasive species that is found in their neighborhood. Include a picture, what the species is "wanted" for, and what people can do to help stop the spread. Hang the finished products in your school to showcase your student's artwork and help spread the word about invasive species.

Report invasive species to iMapInvasives

Teachers can take students on a guided nature walk to search for invasive species. Utilize guides (see 'Online Resources') to help you become familiar with common invaders near you. You may also want to contact your local Partnership for Regional Invasive Species Management (PRISM) for information and guidance (see 'Online Resources'). If you spot an invader, you and your students can record your observations in the iMapInvasives database. iMapInvasives is an online mapping tool that is used to collect and share invasive species information throughout New York State. Student-contributed data helps add to statewide efforts and encourages a generation of early detectors. Teachers can download the iMap app to tablets or smartphones or create paper forms and record your observations in the field

and input them into iMap on a computer later. Before you use the database, contact imapinvasives@nynhp.org to request an account. For more additional information, visit www.imapinvasives.org/.

Are you interested in taking a field trip to search for invasive species in a New York State Park, Nature Center, or Historic Site (Parks), or a Department of Environmental Conservation (DEC) Environmental Education Center, fish hatchery, or selected DEC sites? Apply for the “The Connect Kids to Parks Field Trip Grant Program” and you may be eligible to be refunded up to \$1,000 for field trip costs. For more information, visit <https://parks.ny.gov/environment/connect-kids/grant-program.aspx>.

Design an Invasive Species

See the *Conservationist for Kids* section of the DEC website for a lesson plan for a “Design an Invasive Species” activity that you can do with your students! The lesson plan is available as a PDF download at www.dec.ny.gov/education/40248.html under “Other Resources” on the left side of the page.

Online Resources*

DEC’s Nuisance & Invasive Species webpage: www.dec.ny.gov/animals/265.html

Partnerships for Regional Invasive Species Management (PRISM):

www.dec.ny.gov/animals/47433.html

Hungry Pests: www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests

iMapInvasives: www.imapinvasives.org/

Invasive species identification guides: www.imapinvasives.org/identification-guides

Nab the Aquatic Invader: Great Lakes Region: www.iiseagrant.org/NabInvader/great_lakes.html

National Invasive Species Information Center: www.invasivespeciesinfo.gov/index.shtml

PBS Kids: Invaders! Interactive game: <http://pbskids.org/plumlanding/games/invaders/>

Books*

Invasive plant species (Invaders from Earth) by Richard Spilsbury, PowerKids Press, 2015

Invasive species underwater (Invaders from Earth) by Richard Spilsbury, PowerKids Press, 2015

Science Warriors: The Battle Against Invasive Species (Scientists in the Field Series) by Sneed B. Collard III, HMH Books for Young Readers, 2008

The threat of invasive species (Animal 911: Environmental Threats) by Karen O’Connor, Gareth Stevens Pub Learning library, 2013

What can we do about invasive species (Protecting Our Planet) by Lorijo Metz, PowerKids Press, 2009

What is the threat of invasive species? (Sci-Hi: Science Issues) by Eve Hartman, Wendy Meshbesh, Raintree, 2012

Video Resources*

Cooperative Extension: <http://articles.extension.org/pages/62762/videos-power-points-and-dvds-about-invasive-species>

National Invasive Species Information Center: www.invasivespeciesinfo.gov/resources/cdrom.shtml

U.S. Forest Service: www.fs.fed.us/invasivespecies/prevention/playingSMART.shtml

**Please note, the listing of websites, books, and video resources is not to be considered an endorsement, as not all have been reviewed by the editor.*

***Conservationist for Kids* and an accompanying teacher supplement are distributed free of charge to 4th-grade classes throughout New York State three times per school year (fall, winter and spring).** If you would like to be added to or removed from the distribution list, need to update information, or if you have questions or comments, please e-mail the editor at KidsConservationist@dec.ny.gov or call 518-402-8047. Limited quantities of some back issues are also available on request. The full archives can be found online at www.dec.ny.gov/education/100637.html

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“Design an Invasive Species” Activity—30 minutes

Materials: art supplies, items to make 3-D figures (i.e. pipe cleaners, paper towel paper rolls, scissors, glue, tape, construction paper, google eyes, buttons, fake flowers, etc.)

Intro: Discuss what an invasive species is, give three examples (terrestrial or aquatic, plant, animal, insect or disease) and the characteristics that make them successful invaders.

Terrestrial plant example—Wild parsnip

- Wild parsnip is an invasive plant from Europe and Asia. This plant comes from the Apiaceae family which includes carrots, celery, and parsley. It can grow to be 2-5 feet tall and has small yellow flowers that are clustered together.
- What makes them successful invaders:
 - Its seeds are flat and slightly winged which means the seeds are easily dispersed by wind, wildlife and humans.
 - It can grow well in areas with frequent disturbance, like roadsides, fields, and lawns, giving it a head start over more site sensitive natives.
 - If you get the sap on your skin and your skin is exposed to sunlight before you wash it off, it causes painful burns and blisters. This adaption provides the plant with protection.

Aquatic plant example—Hydrilla

- Hydrilla is an aquatic plant from Asia that is extremely difficult to get rid of once it invades a waterbody. It is a popular aquarium plant and was likely dumped into our waterbodies by aquarium owners.
- What makes them successful invaders:
 - It is very easily spread—small fragments of the plant can sprout and be easily carried elsewhere by boats, trailers, and more.
 - It can grow up to an inch a day and creates a thick mat of vegetation that shades out many native aquatic plants, killing them or preventing them from growing. This reduces its competition for resources from surrounding vegetation.

Insect example—Hemlock woolly adelgid (HWA)

- Hemlock woolly adelgid (HWA) is an insect that feeds on hemlock trees. It arrived in the U.S. from Japan on infested hemlocks from tree nurseries. The insects are so tiny (1.5

mm) that you may not even see them at the base of a hemlock needle. You're more likely to spot their egg masses—they look like the cotton of a Q-tip.

- What makes them successful invaders:
 - Lays eggs twice annually—once in late winter and again in late spring. HWA can lay up to 300 eggs.
 - They reproduce asexually, so there only needs to be one to start a population.
 - HWA has no native predators in New York to keep population numbers low.

Activity description:

- Students will gain a basic understanding of invasion ecology, what make some species successful invaders.
- Students will work in small groups to design their own invasive plant, pest or animal.
- Present 'new' species to the larger group, explain its characteristics and how those make the species likely to outcompete its native neighbors.