NEW YORK STATE
Conservationist
for Kids!

The Great Lakes
a shared resource...
a shared responsibility

In this issue:

Discover how we all can take care of the GREAT LAKES as we share them with our neighbors and with the plants and animals they support, including those we might think of as pests.

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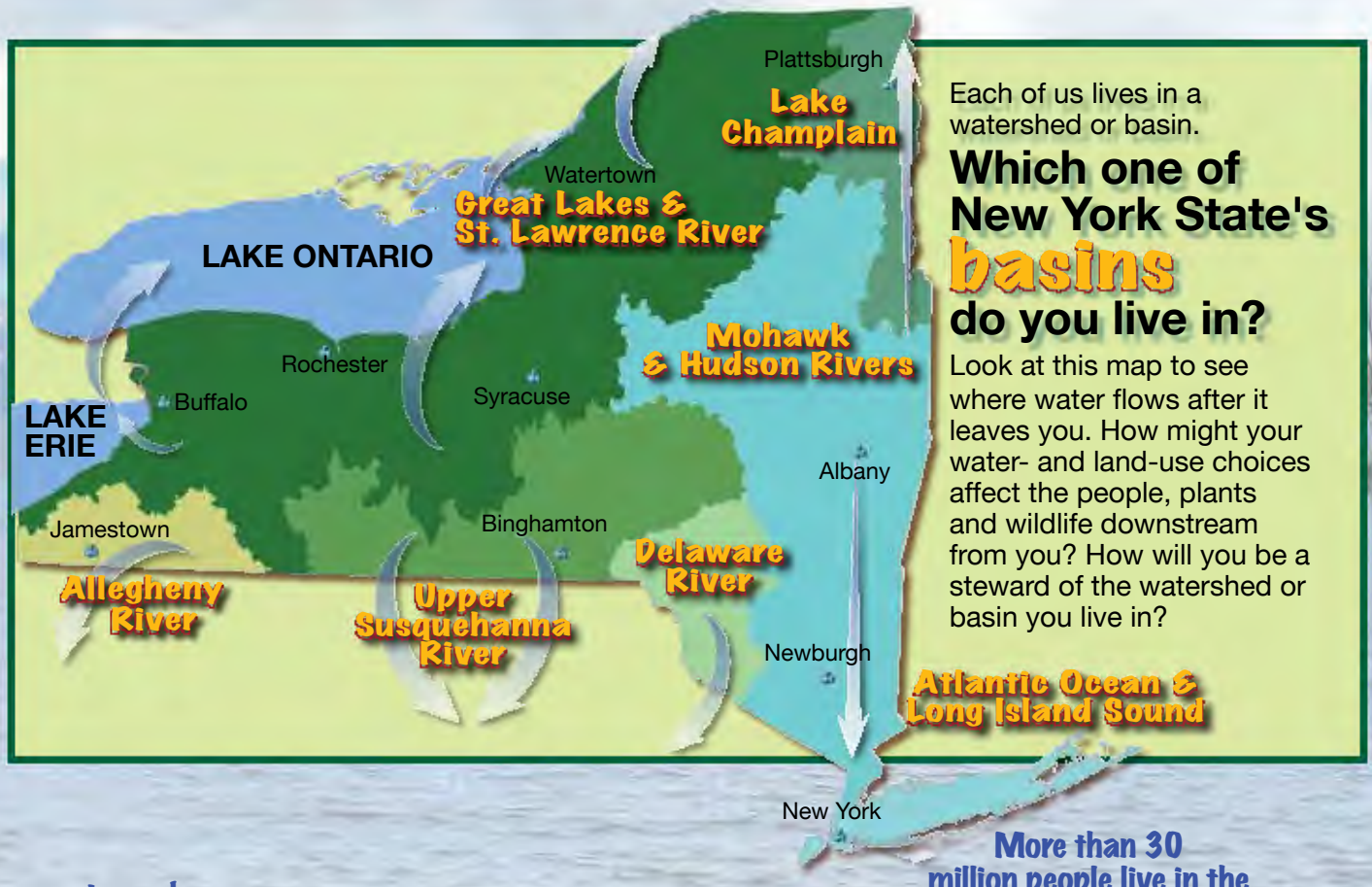
Visit www.dec.ny.gov for information for kids interested in the environment. Search for *Conservationist for Kids* to find activity sheets and cool Internet links.

The Great Lakes Ecosystem

An **ecosystem** is a natural community that includes all of the organisms (plants, animals, fungi, etc.) which interact with each other in an area, and the nonliving components they rely upon. **The Great Lakes Ecosystem contains many different kinds of organisms.** While we enjoy and benefit from many plants, animals and other organisms, there are some that people find bothersome and refer to as "**pests**." Plants, insects, mice and other rodents—even fungi and bacteria—can all be pests.

Chemical **pesticides** can be useful in helping to manage pests. They are used in and around homes to control pests (e.g., wasps) and on farms to keep pests from damaging or destroying crops (e.g., European corn borer). When used wisely, pesticides can be helpful, but if we're not careful, they may be carried by surface waters and groundwater into waterbodies and their tributaries, harming them. **When coping with pests, we should learn about the role of each in the ecosystem and consider how best to deal with it—whether and how we can live with it, how we can prevent it from becoming a problem, or how to remove it.**



Each of us lives in a watershed or basin.

Which one of New York State's basins do you live in?

Look at this map to see where water flows after it leaves you. How might your water- and land-use choices affect the people, plants and wildlife downstream from you? How will you be a steward of the watershed or basin you live in?

A **steward** is someone who takes care of things. An **environmental steward** is someone who recognizes their actions affect the environment and cares for it in a way that ensures people in the future will be able to enjoy it as we do today. There are lots of things for an environmental steward to think about: land, water, air and all the living organisms that depend upon them. The health of the Great Lakes is the responsibility of all people who live within the Great Lakes Basin or benefit from it.

More than 30 million people live in the Great Lakes Basin in the United States and Canada, four million of them in New York State. Great Lakes waters flow past the homes of New Yorkers every day where our state borders Lakes Erie and Ontario and the Niagara and St. Lawrence rivers. The lakes are used for drinking water for people living nearby, for recreation and for shipping. We depend upon some of the animals and plants in and near the Great Lakes for food.

How you care for the land in one place can affect places far away and the animals and plants that live there.

As water flows across the land, it picks up all kinds of things, from litter to chemicals, and carries them along tributaries to larger water bodies. The health of animals and plants throughout the watershed could be affected.

Be smart when your family uses pesticides. Leave this job for adults.

Bats around the barn? They help us by eating insects at night.

No matter where you live, you can be an environmental steward by caring for the land and water. This includes learning the best ways to live with and, if needed, manage the organisms some call pests. Consider the effects your actions may have on the environment as you and your family decide which pests you can tolerate, which you can tolerate in smaller numbers, and which you can't tolerate at all.

Phragmites australis, non-native common reed, is easily confused with native common reed. It crowds out native reeds, reducing habitat and food sources for native animals. Professionals use pesticides to kill it, but removing this pest is tricky to do without harming native species growing nearby.

Most pesticides may not be used in schoolyards.

Quagga mussels and round goby (a small fish) were accidentally transported to the Great Lakes from western Russia. The mussels consume vast amounts of plankton, leaving little for native aquatic life to eat. Gobies are aggressive and compete with native fish for food and for space.

Got weeds? Pulling them out by hand can be the best way to get rid of them.

Sea lamprey are parasitic fish that entered the Great Lakes from the Atlantic Ocean. They feed upon large fish including top predators, such as lake trout.

Ladybugs eat aphids. They are a natural way of controlling garden pests. Other insects help in the garden, too. Bees pollinate many of the vegetables and fruits we grow.

Photographic landscape composite by Frank Herec

Photo Credits:
Ladybug - Scott Bauer, USDA Agricultural Research Service, Bugwood.org
Round goby - Eric Engbretson, US Fish & Wildlife Service, Bugwood.org
Sea lamprey - T. Lawrence, GLFC

Weeds to some are beautiful flowers to others. How do you feel about dandelions?

European water chestnut crowds out native plants and food sources for native animals. Its hard, pointy, nut-like seeds and mats of floating leaves make boating and swimming difficult in areas where it is growing. People often pull this pest from the water, like weeding a garden.

Invasive animals and plants— species that arrived from far away—have disrupted the natural food webs in the Great Lakes. Aquatic pests are difficult to control. It's best to prevent their arrival in the first place.

MANAGING PESTS

Pests are living things that harm people or the environment or simply bother us. They may spread disease, trigger allergies, damage plants in the garden or cause other problems. How people manage pests and take care of the land in a watershed or basin affects the health of the water and the creatures that depend upon it. Many organisms we call pests have helpful roles in the ecosystem. As environmental stewards, we consider the roles of other living things before deciding whether they truly are pests.

If an organism is a pest, we must choose wisely whether and how to treat it. Think like an environmental steward when deciding how best to handle pests without harming the environment.

ASSESS THE ORGANISM

1. Identify the living thing.

- **What is it?**
- **Is it a nuisance,** or is it harmful?

Bee - Carl Dennis, Auburn Univ., Bugwood.org

2. Does the organism benefit the environment?

- **How?** (See "Pest or Pal" on page 7.)
- **Can you live with it** (tolerate having it around)? If you can, you don't need to do anything. If you can't, you must find a suitable way to help manage the pest.

MANAGE THE PEST

1. Are there barriers you can use to prevent the pest from affecting you?
Window screens keep insects outdoors.

2. Can you limit the pest's numbers by removing the things that are attracting it?
Pests need food, water and shelter to survive. Getting rid of these things can help control them. Start by removing possible food sources.

3. If you need to remove a pest from your surroundings, can you do so by hand?
Can anyone do it or just adults? Children can pull dandelions, but only adults should remove poison ivy.

POISON IVY

4. Only adults may use pesticides to control a pest. They should consider the possible side effects to people and the environment and choose the least harmful option to do the job. It's important adults read labels and understand the proper use of pesticides.

Frank Herec

Pest or Pal? *That depends.*

A pal is helpful; *a pest is not.*

MUSHROOM

Fungi, including mushrooms, are important decomposers. They break down dead plants and animals and return their nutrients to the soil, helping the soil support new plant growth.

Dave Powell, USDA Forest Service, Bugwood.org

MILKWEED

While many people don't like **milkweed** in their yards, it is an essential source of food for monarch butterflies. Is it okay to let part of the yard go wild and allow milkweed to grow there?

Robert Moses State Park L.I..jpg

PURPLE LOOSESTRIFE

In its native Europe, **purple loosestrife** provides food for many kinds of insects. Here in North America, it's an invasive species and a pest. No native insects eat it, and it crowds out native wetland plants that are food for our wildlife. Insects that eat purple loosestrife have been brought here from Europe. This seems to have limited the spread of the plant.

MOSQUITO

While most people don't like **mosquitoes**, they are an important food source for many animals, including dragonflies, songbirds and bats. You can help limit the numbers of mosquitoes in your yard by making sure they have no standing water, such as in a bucket or old car tire, in which to lay their eggs.

David Cappaert, Michigan State Univ., Bugwood.org

SKUNK

What are **skunks** looking for when they dig in yards? They're looking for **grubs** (beetle larvae). Grubs eat the roots of grass from underground, and skunks eat grubs.

Alfred Viola, Northeastern Univ., Bugwood.org

Students—For more information:

Lake Erie: Great Lakes of North America, by Harry Beckett (The Rourke Corporation, Inc., Vero Beach, Florida, 1999)

Lake Ontario: Great Lakes of North America, by Harry Beckett (The Rourke Corporation, Inc., Vero Beach, Florida, 1999)

Slugs, Bugs, and Salamanders: Discovering Animals in Your Garden, by Sally Kneidel (Fulcrum Publishing, Golden, Colorado, 1997)

What About Ladybugs? by Celia Godkin (Sierra Club Books for Children, San Francisco, 1995)

www.dec.ny.gov/lands/25562.html DEC's Great Lakes webpage

www.epa.gov/students/homework.html EPA's Student Homework Resources information and activities webpage about water and the water cycle

http://glin.net/ Great Lakes Information Network

www.mda.state.mn.us/en/plants/pestmanagement/ipm/ipmpubs.aspx Minnesota Dept. of Agriculture's *Join Our Pest Patrol* backyard activity book (scroll down page to reach)

http://pested.unl.edu/pestpi University of Nebraska-Lincoln's online "Pest Private Eye" game and comic book

Parents and Schools—For more information:

www.dec.ny.gov/chemical/41822.html DEC's Pest Management for Schools, Day Care Centers and Parents webpage

The Outside Page

Ideas for Exploring Your Environment!

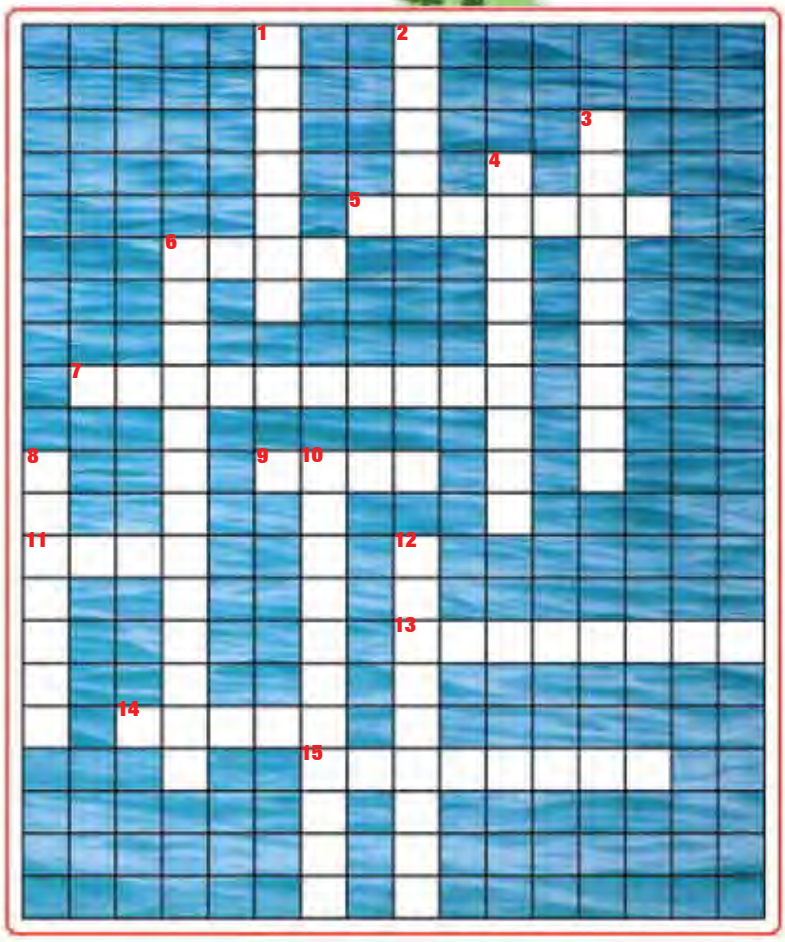
Pest Patrol

Keep an eye open for plants and animals (or signs that they've been near) as you explore outdoors. Are they pests or pals? Why? When might a pest also be a pal—a good thing to have around? For example, milkweed in the garden may be a weed, but it's also food for monarch caterpillars. A mouse in the house is not good, but one in the wild eats lots of insects and weeds and is, itself, food for many predators.

Rob Routledge, Sault College, Bugwood Org.

Great Lakes Crossword

Read this issue of ***Conservationist for Kids*** to find the answers to the clues.



Across:

5. A Great Lake which borders New York State
6. A plant which is growing where it is not wanted
7. This group of lakes contains 18% of the world's surface fresh water
9. A plant or animal that is bothersome to people
11. Buffalo sits at this lake's eastern end
13. The largest of the Great Lakes
14. Water from this lake flows into Lake Erie
15. The only Great Lake which is entirely within the United States

Down:

1. Sea _____ is an invasive animal that feeds upon fish
2. A group of watersheds that drain into the same area
3. A stream or river that drains into a lake
4. An area of land where all the water drains to the same place
6. An invasive aquatic plant with hard, nut-like seeds
8. Someone who takes care of things
10. What 8 Down may take care of
12. A chemical used to control pests

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Great Lakes RESTORATION

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