

Citizen Scientists

Method

Students will find out about monitoring programs around the state and consider how invasive species might impact the populations being studied.

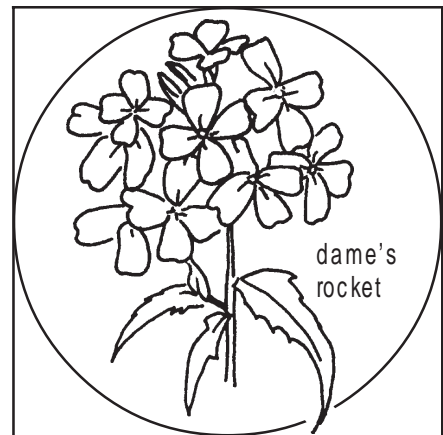
Introducing the Activity

Monitoring plant and animal populations has traditionally been the job of scientists, resource specialists, and other trained professionals. However, the need for monitoring has skyrocketed at the same time that funding for monitoring has decreased. The Wisconsin Department of Natural Resources (WDNR), other state and federal agencies, and private nature organizations conduct regular surveys to collect valuable information about Wisconsin's natural resources. Many of these surveys depend on citizens (including students) to collect information from around the state. See the list on page 91.

In 2004, the WDNR introduced the Wisconsin Invasive Plants Reporting and Prevention Project. Early detection of invasive plants is crucial. If a new infestation is discovered before the plants go to seed, we can stop the plant from becoming established. But new infestations are difficult to locate. Informed volunteers who can locate and report these infestations can make a huge difference in stopping the spread of invasive weeds.

Doing the Activity

1. **Pass out or display the list of monitoring programs available around the state.** See pages 91 – 92.
2. **Ask students, working individually or in pairs, to pick one of the surveys.** Students should determine what information the survey is tracking, who conducts the survey, and how the information is used.
3. **Share information in class.**
4. **Discuss the impacts of invasive species.** While some of the monitoring programs focus on invasive species, most do not. Discuss how invasive species might change the focus of other monitoring programs. How do invasive plants impact the animals or plants being watched? Discuss how scientists might use information collected in the past to help show the impact of invasive species on a population of plants or



Objectives

- Become aware of the need for citizens to be involved in monitoring plant and animal populations.
- Explore one or more monitoring programs to determine how to get involved.
- Realize the impact of invasive species on native wildlife and habitats.

Grades

5 – adult

Group Size

Individuals or pairs

Activity Time

One or two 50-minute periods

Setting

Classroom

Materials

- List of monitoring programs (pages 91 – 92)
- Access to Internet

Connections

See next page.

Academic Standards

Grades 5 – 8

- Environmental Education: B.8.8, B.8.21, B.8.22, B.8.23, C.8.2, D.8.5
- Science: B.8.5, F.8.8, F.8.9
- Social Studies: A.8.5

Grades 9 – 12

- Environmental Education: B.12.5
- Science: A.12.5, F.12.6, F.12.7, F.12.8

Scout Connections

- Boy Scouts: Environmental Science, Fish and Wildlife Management
- Cadette and Senior Girl Scouts: Wildlife

animals. Monitoring the populations of endangered or threatened plants and animals is especially critical. For example, could monitoring show that a population of endangered frogs declined at the same time that the population of an invasive plant increased? What other factors might have led to the decline of the frogs?

This activity is adapted from “Wisconsin Wildlife Watching.” **Go Wild with Wisconsin Wildcards.** Wisconsin Environmental Education Board, Wisconsin Department of Natural Resources, and Friends of Wisconsin State Parks. 2005.

Assessing the Learning

Ask students to write a short paragraph describing the monitoring program they researched. They should include a statement about how invasive species might impact the plants or animals being watched.

Extending the Learning

Get involved! Choose one of the surveys listed in this lesson and see if your group can get involved. The surveys marked with a (!) are recommended for individuals with little or no scientific monitoring experience. If you can't be a part of a survey, invite a citizen scientist to visit your classroom or meeting. Ask them to share how they became involved in the research, how they gather information, and what they have learned as a result of their involvement.

Finding Out More!

Wisconsin NatureMapping. Beaver Creek Reserve, Wisconsin Department of Natural Resources, and the Aquatic and Terrestrial Resources Inventory. 2005. Links to online species lists, maps, surveys, and other information maintained by partner organizations. <www.wisnatmap.org/index.htm>

WISFLORA: Wisconsin State Herbarium. University of Wisconsin – Madison. 2005. Online photos, habitat information, distribution maps, herbarium specimen data, and more. <www.botany.wisc.edu/wisflora>

Citizen Scientists

There are more people watching, monitoring, and surveying Wisconsin's plants and animals than most people realize. And that is a very good thing, because there are a lot of plants and animals to keep track of – many more than scientists and resource specialists can possibly cover! Thanks to a growing number of citizen monitoring programs, we are learning more about plants, animals, and habitats in Wisconsin. Join the fun, help collect valuable information, and discover that we really have a lot to learn about the plants and animals in Wisconsin.

Surveys marked with a (*) depend on citizen scientists. Surveys marked with a (!) are recommended for people with little or no scientific monitoring experience. Visit the **Wisconsin NatureMapping** Web site for a more comprehensive list of citizen-based inventory and monitoring programs, including some local and regional programs. <<http://atriweb.info/cbm/InvMon/index.cfm>>

Invasive Species

Wisconsin Invasive Plants Reporting and Prevention Project*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/invasives/futureplants>

Clean Boats, Clean Waters*

University of Wisconsin – Extension and Wisconsin Department of Natural Resources <www.uwsp.edu/cnr/uwexplakes>

Purple Loosestrife Detectives*

Beaver Creek Citizen Science Center <<http://beavercreekreserve.org/BCR/Purple%20Loosestrife%20-%20CSC.htm>>

Zebra Mussel Watch*

University of Wisconsin – Sea Grant Institute <<http://seagrant.wisc.edu/zebramussels>>

Rare Plants

Rare Plant Field Reports*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/er/forms/1700-049.pdf>

Trees

Wisconsin's Champion Trees*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/forestry/UF/champion>

General Animals

Summer Wildlife Inquiry*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/wildlife/harvest/harvest.htm>

Rare Animal Field Reports*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/er/forms/1700-048.pdf>

Wisconsin NatureMapping*!

Beaver Creek Reserve, Wisconsin Department of Natural Resources, Aquatic and Terrestrial Resources Inventory <www.wisnatmap.org/index.htm>

Mammals

Wisconsin Statewide Mammal Inventory

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/es/science/inventory/Mammals.pdf>

Wisconsin's Carnivore Tracking Program*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/er/mammals/volunteer>

Rare Mammal Observation Cards*

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/er/forms/raremammal.asp>

Winter Track Counts

Wisconsin Department of Natural Resources <www.dnr.wi.gov/org/land/wildlife/harvest/harvest.htm>

Birds

- Wisconsin Checklist Project*
Wisconsin Society for Ornithology
<www.wisconsinbirds.org/WSOChecklist.htm>
- Christmas Bird Count*
National Audubon Society
<www.audubon.org/bird/cbc>
- Bird Nest Monitoring Program*
Wildlife Habitat Council
<www.wildlifehc.org/nestmonitoring>
- Great Backyard Bird Count*!
Cornell Lab of Ornithology
<www.birdsource.org/gbbc>
- Project FeederWatch*!
Cornell Lab of Ornithology
<<http://birds.cornell.edu/pfw>>
- Wisconsin LoonWatch*
Sigurd Olson Environmental Institute
<www.northland.edu/soei/loonwatch.asp>
- North American Breeding Bird Survey*
Patuxent Wildlife Research Center
<www.pwrc.usgs.gov/bbs/>
- Project PigeonWatch*!
Cornell Lab of Ornithology
<www.birds.cornell.edu/programs/urbanbirds/ubs_PiWMMainEN.html>
- Ruffed Grouse Drumming Survey*
Wisconsin Department of Natural Resources
<www.dnr.wi.gov/org/land/wildlife/harvest/harvest.htm>
- Rural Mail Carrier Pheasant Survey*
Wisconsin Department of Natural Resources
<www.dnr.wi.gov/org/land/wildlife/harvest/harvest.htm>
- Wisconsin Shorebird Survey*
Wisconsin Department of Natural Resources
<www.uwgb.edu/birds/shorebird/>

Fish

- Fish and Habitat Surveys
Wisconsin Department of Natural Resources
<www.dnr.wi.gov/org/water/fhp/fish/pages/reports/index.shtml>
- Fish Kill Network*
Izaak Walton League
<www.iwla.org/fishkill>

Reptiles and Amphibians

- Wisconsin Herpetological Atlas Project*
Milwaukee Public Museum
<www.mpm.edu/collect/vertzo/herp/atlas/atlas.html>

Frogs and Toads

- Wisconsin Frog and Toad Survey*
Wisconsin Department of Natural Resources <www.mbr-pwrc.usgs.gov/wifrog/frog.htm>
- FrogWatch USA*
National Wildlife Federation
<www.nwf.org/frogwatchUSA>

Invertebrates

- Wisconsin's Odonata Survey*
Wisconsin Department of Natural Resources <<http://ATRIweb.info/Inventory/Odonata>>
- Butterfly Counts*
North American Butterfly Association
<www.naba.org>
- Citizen Stream Monitoring*
University of Wisconsin – Extension
and Wisconsin Department of Natural Resources <<http://clean-water.uwex.edu/wav/monitoring/index.htm>>
- Minnesota Worm Watch*
The Natural Resources Research Institute <www.nrri.umn.edu/worms>