



What a Nuisance!

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Grade Level
Middle School (6-8)

Duration
One to two 45-minute
class periods

Subject Area
Inquiry
Life Science
Environmental Science
Creative Arts
Language Arts

Materials List

- *Oh No! Hannah's Swamp is Changing*
- Enviro-Tacklebox video, *Non-Native Invasion*
- Sample of brochures
- Various printed materials necessary to conduct research
- Construction paper or other paper for brochures
- Crayons or colored pencils
- Nonindigenous species list (BM #1)
- Brochure rubric (BM #2)

Grade/Benchmark/GLE Science
6-8/SI-M-A1/3
6-8/SI-M-A2/4
6-8/SI-M-A7/19
7/SE-M-A4/39
LS-M-C3
7/LS-M-C4/29
7/LS-M-D1/31
7/LS-M-D2/32,33
HS/SE-H-A6/7 (enviro sci)

Language Arts
6/ELA-1-M3/6
6/ELA-1M4/7
7,8/ELA-1-M3/4
7,8/ELA-1-M4/5
9,10/ELA-1-H3/4
9-12/ELA-1-H4/5

Creative Arts
CE-1VA-M2
CE-1VA-M3

BM = Blackline Master

Focus/Overview:

Students of all ages love to listen to stories read aloud. Through the book *Oh No! Hannah's Swamp is Changing*, students will be introduced to an ever-growing problem facing Louisiana today. The purpose of this lesson is to introduce students to nonindigenous, or non-native, species found in Louisiana. Students will research a specific nonindigenous plant or animal and use the information to create a brochure to present to the class. Students will then use the information to infer how these non-native species affect native populations, including paddlefish.

Background Information:

Nonindigenous species are plants and animals that live outside their natural geographic boundaries. They are called by many other names: exotic, introduced, non-native and nuisance. Humans have intentionally introduced some of these organisms for agriculture, the garden and pet industries, and fish and wildlife management. Some have entered accidentally in ships ballast water, in packing materials, as hitchhikers on other plants and animals, or even in hurricanes.

When these nonindigenous species make their way into natural ecosystems, they can threaten native habitats and the organisms that live there. Once established, nonindigenous species can displace native plants and animals, alter ecosystems, cause disease and interfere with industry, agriculture and recreation.

The Gulf Coast region has been particularly susceptible to the invasion of many nonindigenous species due to its major shipping corridors and mild climate.

Learning Objectives:

Students will:

- Define nonindigenous species.
- Conduct research on at least one nonindigenous species found in Louisiana.
- Infer how native populations are affected by nonindigenous species, especially paddlefish.



Procedure:

Introduce a nonindigenous species to the class by reading the book *Oh No! Hannah's Swamp is Changing*. Ask students to brainstorm meanings of unfamiliar words. Develop a list of these words so students can operationally define them as the lesson progresses.

1. Distinguish between nonindigenous species and native species. Have students predict how nonindigenous species may have been introduced to a new area and some of the problems that may develop as a result of their introduction. Record these ideas either in front of the classroom or have students record them in their student journals.
2. View the Enviro-Tacklebox video *Non-Native Invasion* (or another similar video containing information about the impact of invasive species). Discuss the impact and control of invasive plant and animal species.
3. Distribute samples of brochures to students and discuss the similar elements of the brochure format. Note: Brochures can be on other subjects besides nonindigenous species.
4. Students will choose a nonindigenous plant or animal species found in Louisiana that interests them from the list (BM #1). Have students create original brochures containing the following information:

- Place of origin of the plant/animal
- Method of arrival (known or speculated)
- Background information on the plant/animal species
- Problems caused (if any) by the plant/animal
- Identifying features
- Prevention and control

Bonus questions:

- What features does this species have that allow it to reproduce rapidly, affecting the success of the population?
 - What characteristics does this plant or animal have that make it an opportunist here?
5. Students will present their brochures to the class. Discuss characteristics that these nonindigenous species have in common. Discuss the impacts these species have on native species. Suggest potential effects on paddlefish.

Assessment:

Use rubric to assess brochures. (See BM #2.)

Extensions:

- Students can investigate nonindigenous species that are found locally and create posters to alert the public to be on the lookout for these plants or animals.
- Students can create a slide presentation to share with other teachers and students using the information they found on nonindigenous species.
- Students can research and compare nonindigenous species problems outside of Louisiana. Are there native species here that are a problem elsewhere? What species? Example: Smooth cordgrass (*Spartina alterniflora*)
- Students can hypothesize methods of eradicating nonindigenous species, design experiments to test their hypotheses, and communicate their findings to the class.



TEACHER REFERENCES:

Publications

Barrett-O'Leary, M. 2002. *OH NO! Hannah's Swamp is Changing*. Louisiana Sea Grant College Program: Baton Rouge, LA. 30 pp.

Hannah the heron experiences changes in the swamp she lives in when a non-native plant begins growing and spreading. To order, call (225) 578-6448, or email jsche15@lsu.edu, cost \$10.00.

Be on the Look Out...: Invasive Species on the Move in Louisiana (brochure). 2002. Louisiana Sea Grant College Program: Baton Rouge, LA.

Focuses on invasive species that threaten habitats and ecosystems. Includes photographs and a brief profile of various threatening species. To order, call (225) 578-6448, or email jsche15@lsu.edu.

Nonindigenous Species Activities for Youth. Mississippi State University Extension Service publication #2286. 78 pp.

Activities geared to help students understand what exotics are and the impact they have on an area. Profiles of selected species are also provided.

Soniat, L. 1996. *Project TELLUS Teaching Modules for Global Change Issues: Exotic Species*. Louisiana Sea Grant College Program: Baton Rouge, LA.

Understanding Invasive Aquatic Weeds. Aquatic Plant Management Society, Inc. Vicksburg, Miss. 2002. 15pp.

Activity book to increase awareness of the importance of native plant in lakes, rivers and wetlands, and the destructive potential of invasive weeds to these areas.

Wetland and Invasive Plants of the Southeast. University of Florida Center for Aquatic and Invasive Plants. University of Florida publication # SP276. 37pp.

Coloring book includes drawing of 59 native wetland plants of the southeastern United States.

Multimedia

Louisiana Public Broadcasting Television Network. *Enviro-Tacklebox Module #3: Non-Native Invasion* (video). 2000. Ordering information at <http://www.envirotacklebox.org>.

Internet sources

The Bridge, Ocean Sciences Education Teacher Resources. *Exotic Species*. <http://www.vims.edu/bridge/exotic.html>. Accessed June 14, 2004.
Numerous links to exotic species sites.

Louisiana Sea Grant College Program. *LaMER: Louisiana Marine Education Resources Gateways to Aquatic Science*. <http://lamer.lsu.edu/>. Accessed June 14, 2004.

Aquatic education projects, classroom resources and aquatic links.

National Aquatic Nuisance Species (ANS) Task Force. *Aquatic Nuisance Species*.

<http://www.anstaskforce.gov/species.htm>. Accessed June 14, 2004.

This site has profiles of selected aquatic nuisance species.

National Invasive Species Council. *Invasivespecies.gov*.

<http://www.invasivespecies.gov>. Accessed June 11, 2004.

Profiles terrestrial plants and animals, aquatic plants and animals and microbes.



National Sea Grant College Program and the Great Lakes Sea Grant Network. *Sea Grant Nonindigenous Species Site (SGNIS)*. <http://sgnis.org>. Accessed June 14, 2004. Research publications and educational materials on aquatic nuisance species, including links to other related sites.

Wisconsin Department of Natural Resources. *Alien Invaders, "EEK! Environmental Education for Kids"*. <http://www.dnr.state.wi.us/org/caer/ce/eeek/earth/aliens.htm>. Accessed June 4, 2004. Environment and environmental issues – spotlights alien species in Wisconsin.



Blackline Master #1

Nonindigenous Species List

Plants	
Aquatic	Terrestrial
Alligatorweed (<i>Alternanthera philoxeroides</i>)	Chines tallow (<i>Sapium sebiferum</i>)
Common salvinia (<i>Salvinia minima</i>)	Cogon grass (<i>Imperata cylindrical</i>)
Giant salvinia (<i>Salvinia molesta</i>)	Kudzu (<i>Pueraria montana</i>)
Hydrilla (<i>Hydrilla verticillata</i>)	Torpedograss (<i>Panicum repens</i>)
Purple loostrife (<i>Lythrum salicaria</i>)	
Water hyacinth (<i>Eichhornia crassipes</i>)	
Water lettuce (<i>Pistia stratiotes</i>)	
Animals	
Aquatic	Terrestrial
Asian clam (<i>Corbicula fluminea</i>)	Africanized honey bees (<i>Apis mellifera scutellata</i>)
Bighead carp (<i>Hypophthalmichthys nobilis</i>)	Argentine fire ants (<i>Solenopsis invicta</i>)
Black carp (<i>Mylopharyngodon piceus</i>)	Formoson termite (<i>Coptotermes formosanus</i>)
Brown mussel (<i>Perna perna</i>)	Nutria (<i>Myocaster coypus</i>)
Chinese mitten crab (<i>Eriocheirus sinensis</i>)	
Grass carp (<i>ctenopharyngodon idella</i>)	
Green crab (<i>Carcinus maenas</i>)	
Marine swimming crab (<i>Charybdis hellerii</i>)	
Rio Grande cichlid (<i>Cichlasoma cyanoguttatum</i>)	
Round goby (<i>Neogobius melanstomus</i>)	
Silver carp (<i>Hypophthalmichthys molitrix</i>)	
Spotted jellyfish (<i>Phyllorhiza punctata</i>)	



Blackline Master #2

Exotic Species Brochure Rubric

Name: _____

Date: _____

CATEGORY	5	4	3	2	1	Student Evaluation	Teacher Evaluation
Required Elements	The brochure includes all six required elements as well as additional information.	Five - six required elements are included in the brochure.	Four required elements are included on the brochure.	Three - two required elements are included on the brochure.	One required element is included in the brochure.		
Content/ Accuracy	All facts in the brochure are accurate.	99-90 percent of the facts in the brochure are accurate.	89-80 percent of the facts in the brochure are accurate.	79-70 percent of the facts in the brochure are accurate.	Fewer than 70 percent of the facts in the brochure are accurate.		
Graphics/ Pictures	Graphics go well with the text and at least five graphics have been included.	Graphics go well with the text and at least four graphics have been included.	Graphics go well with the text and at least three graphics have been included.	Graphics go well with the text and at least one - two graphics have been included.	No graphics have been included.		
Attractiveness Organization	The brochure has exceptionally attractive formatting and well-organized information.	The brochure has attractive formatting and well-organized information.	The brochure has well-organized information.	The brochure's formatting and organization of material are confusing to the reader.	The brochure lacks any organization.		
Timeliness	The brochure was turned in on time.	The brochure was turned in one day late.	The brochure was turned in two days late.	The brochure was turned in three days late.	The brochure was turned in more than three days late.		
Student Comments						Total points:	Total points:
Teacher Comments							