

NEH Hudson River Workshop Lesson Plan 2011

Teacher: Kimberly Salma

Subject: Environmental Science

Grade Level: 9th Grade

Summary: Using interdisciplinary education to relate the effect of invasive species to their environments to the human species colonization of the Hudson River using history, science and writing. This is more of an encompassing final project for a biodiversity unit.

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NJCCCS:

Standard	5.3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.
Strand	E. Evolution and Diversity: Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.

Essential Questions: How have this invasive species effected the ecosystem? What role do humans play in this? How can you relate this to humans colonizing new land?

Extension: Relate invasive species to technology

Objectives:

- Describe and explain how an invasive species affects its ecosystem
- Relate human influence on this and compare to history.

Materials/Sources:

<http://www.invasivespeciesinfo.gov/>

<http://www.dec.ny.gov/lands/25998.html>

<http://www.ecostudies.org/>

<http://www.invasivespeciesinfo.gov/unitedstates/nj.shtml>

www.defenders.org/resources/publications/invasives/new_jersey.pdf Similar

<http://www.nj.gov/dep/njisc/>

Procedure:

Around the time that history classes would be talking about colonization of the Hudson science teachers can start this project to conclude the biodiversity unit.

Day 1 – Introduction – Students will be introduced to the concept of invasive species.

Day 2 – Looking at Zebra Mussels in the Hudson and their effects

- [Reading](#)

- [Questions](#)

Day 3 – Explain project – [Introduction](#)

Day 4 – 5 – RESEARCH on species

Day 7 – 9 – Presentation on species and their major effects to the Hudson.

During projects and at end to tie it in

- *Extension*: Can technology be considered an invasive species?
- *Conclusion*: How do we solve/prevent this issue? Discussion on environmental Law about foreign goods.

Assessment:

Presentation on their invasive species. [Rubric](#)

List of Common Hudson Watershed Alien Species with Scientific Names

zebra mussel, *Dreissena polymorpha*

water chestnut, *Trapa natans*

European green crab, *Carcinus maenus*

common reed, *Phragmites australis*

purple loosestrife, *Lythrum salicaria*

rusty crayfish, *Orconectes rusticus*

Eurasian watermilfoil, *Myriophyllum spicatum*

common carp, *Cyprinus carpio*; grass carp, *Ctenopharyngodon idella*

Japanese knotweed, *Polygonum cuspidatum*

Chinese Mitten crab, *Eriocheir sinensis*

Japanese barberry, *Berberis thunbergii*

Japanese honeysuckle, *Lonicera japonica*; Shrub or Bush Honeysuckle, *Lonicera spp.*

Mile-a-minute, *Persicaria perfoliata*

Garlic mustard, *Alliaria petiolata*

Russian olive, *Eleagnus angustifolia*

Multiflora Rose, *Rosa multiflora*

Oriental Bittersweet, *Celastrus orbiculata*

Dames Rocket, *Hesperis matronalis*

Tree of Heaven, *Ailanthus altissima*

Common Buckthorn, *Rhamnus cathartica*

Spotted Knapweed, *Centaurea maculosa*

Pale Swallowwort, *Cynanchum rossowii*

Norway Maple, *Acer platanoides*