

Lesson #3 and 4: They're HEERrrre!
Finding Local Aliens

EXPLORE!

Overview: A scholarly article is studied and the students will use it to begin to define and take notes on the various topics involved with invasive species. They will also spend 2 days conducting internet research and will compile a bank of credible resources for further use during the course of this unit, concentrating specifically on their own geographic region of the world. Part II of the story of the New Kid is read.

Objectives: The students will read and organize existing data, taken from the most current scientific research, surrounding the phenomena of invasive species. The students will compile notes and condense scientifically collected information from journal articles and begin to put these into their own notes. The students will search for, and research, specific invasive plants and animals that have been discovered and documented in their local area.

Key Concepts:
Subjects: Ecology, Biology
Duration: 2 class periods (80 minutes)
Setting: classroom or computer lab.
Season: Any
Interdisciplinary Connections
Frameworks:

Environmental Education @ the Cove River Site, and other coastal Connecticut settings.



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INTRODUCTION; Invasive species are creatures that are not native to a local area but become introduced there by human means (predominantly) and eventually cause negative environmental, economic, or human health impacts. Invasive flora and fauna can occur terrestrially or in aquatic/marine environments. They can be plants, animals, or microbes. At least half of the native species on Federal Threatened or Endangered lists are there as a direct result of invading species and it has been estimated that in the US alone, invasive species costs are at least \$100 billion yearly. (source; USDA National Agriculture Library)

BACKGROUND INFORMATION; There are hundreds of organizations, world-wide, that study and monitor invading species. Whether it is a private or government agency, this is a much-researched topic and yet we are still only knowledgeable of a fraction of what we need to know, in order to control the growing problem. While most countries do cooperate with each other, especially within the scientific community, all recognize that world ecological and economic health is at stake. Introduced species affect all continents.

MATERIALS;

- 2 or more scientific articles on invasives (see list of suggestions in Resources Section),
- computers with internet connections,
- blackboard/whiteboard/or butcher paper,
- student notebooks/journals (as preferred),
- Part II of New Kid story
- (OPTIONAL) flash drives, discs for saving research, or paper for printing and filing into a binder

PREPARATION; It might be helpful to scan through most of the suggested websites in the resource section in order to become familiar with some of the largest and most well-organized invasive species research organizations, as well as to prepare for questions and trouble-shooting suggestions.

Also in preparation,
-make copies of the journal articles for each student, each student may read a different selection if the content is similar, (NOTE: the

instructor may wish to present these articles with a few search prompts given in advance. Many methods can be used for content reading and I'd definitely encourage it if needed in order to optimize reader comprehension. You know your students the best.)

-prepare the best way for your students to save their computer research, so that it may be utilized often during the rest of this unit of study, i.e. in sheet-protectors, inside a binder.

PROCEDURE;

1. Distribute articles to each student and allow them to read through them carefully. (Suggestion, read them first for the story and a second time through with specific search prompts given by the instructor)
2. Once the class has completely read the articles, lead them in a discussion and be sure to cover the following points:
 - any new/unfamiliar and critical vocabulary related to the subject (post a visible list),
 - all new questions that the article prompts,
 - awareness of any local "exotics" or even nationwide.
3. Explain the objective of the rest of the class period, and the following, in which they are to research **local** invasive species.
4. They must find the following information on each:
 - latin name
 - common name
 - a good photo
 - where it is found native
 - where it is an invasive-and it's new range
 - describe it's habitat
 - how it spreads, migrates, etc.
 - any detrimental effects recorded
 - any other important info.
5. They may use any resources available, they must find a way to save or copy the information on each for use in the rest of the unit to come. Suggestion, in a binder so that it can be carried into the field.
6. As the students find and complete the info. file on each, they must keep a running list on the blackboard so as to eliminate duplicates. This can be done in lists under the headings; "Aquatic" and "Terrestrial", or "Plant", "Animal", "Microbe". (etc.)

CLOSURE: This is a 2 day lesson which, if it is extremely productive, may be stretched into another class period, or as homework. At the close

of these lessons, a sizeable file of local, non-native, species should be available as a tangible classroom resource; organized according to how the students think it would be easiest to reference.

SUGGESTED FOLLOW-UP/HOMEWORK:
Part II of story: "Acclimation and Other Skills" is to be distributed and read.

RESOURCES and WWW LINKS:

Use the suggested websites listed in Lesson 2 Resources section

Check www.iconn.org (a journal search site)
<http://proquest> database
<http://scholar.google.com>

Also, some other starting points for multiple articles per journal are as follows:

- >Science Scope Magazine Feb. '09, V32, #6
- >New England Wildflower Journal-
"Invaders" Issue, 1998, V2, #3
- >Invasion Ecology from Cornell Scientific Inquiry Series/NSTA Press
- >The Natural Inquirer, V8, #1, "Invasive Species Edition"

PROVIDED RESOURCES:

Local newspaper article, "Parakeets move to Milford" (CT Post)
Part II of New Kid story