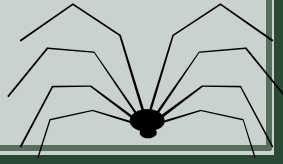




WHO NEEDS 'EM

Materials:

- ☆ reference materials such as biology, zoology, botany and ecology texts or field guides



Rationale

Students will realize that popularity among people isn't necessarily equivalent to an organism's importance within its ecosystem.

Objectives

1. Students will discuss some animals and plants that are usually labeled as pests and then consider reasons why these organisms are important members of ecosystems.

Procedure

1. Pose the following question to students and let them brainstorm answers (write answers on the board for later reference). "What animals and/or plants could you (or would like to) live without?" Students will probably list organisms such as poison ivy, mosquitoes, spiders, snakes, stinging nettle, maggots, chiggers, etc.
2. Divide the students into small groups and assign a certain number of the un-

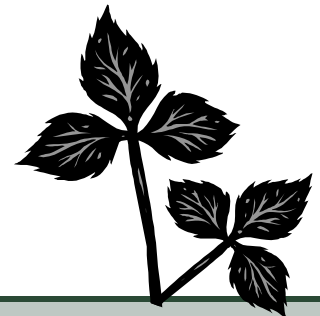
wanted organisms to each group. Give them 15-20 minutes to come up with reasons why each of these unloved animals or plants is needed in the world. If necessary, they may consult biology, zoology, botany and ecology texts or field guides.

3. Have each group share their discussion with the class, and let the class decide if maybe we'd better keep these critters after all.
4. Optional: read and discuss the essay on alligators.
5. Divide the class into two teams. Have each team draw up a list of organisms that deserve our thanks for their often unsung contributions to ecology and biodiversity (or give them a pre-prepared list). Have the teams take turns asking the following question of the other team, filling in one of the two blanks. The opposing team must then fill in the other blank. "Have you thanked a _____ today? You should be-
cause_____."

Example: "Have you thanked a dung beetle today? You should be-
cause_____."
OR "Have you thanked a _____ today? You should be-
cause without them, we'd be up to our eyeballs in animal waste and many plants would be starved for nutrients."

Extensions

1. Research the comeback of the American alligator in Arkansas after restocking of Louisiana specimens by the Arkansas Game and Fish Commission.
2. Debate which is more important in the long-term and why, ecological considerations or economic considerations. Give reasons for your choices.



Correlation to National Science Standards

Life Science, Science in Personal & Social Perspectives

Correlation to Arkansas Frameworks

Science: 5-8: LS 2.4, LS 3.2, 9-12: LS 1.5, LS 1.6, LS 3.7
Social Studies: L1.1.3
Language Arts: W.2.3, W.2.7
History: 1.1.2

WHY SHOULD WE CARE ABOUT THE AMERICAN ALLIGATOR?

Living in the Environment by G. Tyler Miller, Jr.
Wadsworth Publishing Company, 1998

The American alligator, North America's largest reptile, has no natural predators except humans. The lineage of this species goes back 200 million years. Hunters once killed large numbers of these animals for their exotic meat and their supple belly skin used to make shoes, belts, and pocketbooks.

Other people considered alligators to be useless, dangerous vermin and hunted them for sport or out of hatred. Between 1950 and 1960, hunters wiped out 90% of the alligators in Louisiana, and by the 1960s the alligator population in the Florida Everglades was also near extinction.

People who say "So what?" are overlooking the alligator's important ecological roles in subtropical wetland ecosystems. Alligators dig deep depressions, or *gator holes*, that collect fresh water during dry spells, serve as refuges for aquatic life, and supply fresh water and food for many animals. Large alligator nesting mounds provide nesting and feeding sites for species of herons and egrets. Alligators also eat large numbers of predatory garfish and thus help maintain populations of game fish such as bass and bream.

As alligators move from gator holes to nesting mounds, they help keep areas of open water free of invading vegetation. Without these ecosystem services, freshwater ponds and coastal wetlands found in the alligator's habitat would be filled in by shrubs and trees, and dozens of species would disappear. Some ecologists classify the North American alligator as a *Keystone species* because of its important ecological roles in helping maintain the structure, function, and sustainability of its natural communities and ecosystems.

In 1967, the U.S. government placed the American alligator on the endangered species list. Protected from hunters, the alligator population made a strong comeback in many areas by 1975—

too strong, according both to those who find alligators in their backyards and swimming pools and to duck hunters, whose retriever dogs are sometimes eaten by alligators. Large alligators have also been known to eat pigs, deer, and even cattle, dragging them under water to drown before dismembering them.

In 1977, the U.S. Fish and Wildlife Service reclassified the American alligator from an *endangered* to a *threatened* species in Florida, Louisiana, and Texas, where 90% of the animals live. In 1987, this reclassification was extended to seven other states. Alligators now number perhaps 3 million, most in Florida and Louisiana. It is generally illegal to kill members of a threatened species, but limited kills by licensed hunters are allowed in some areas of Florida, Louisiana and South Carolina to control the population. The comeback of the American alligator is an important success story in wildlife conservation.

The increased demand for alligator meat and hides has created a booming business in alligator farms, especially in Florida. By controlling diet and other conditions, alligator farm operators have quadrupled the species' reproductive rate, doubled its growth rate, and reduced mortality from 35% to 1%. Such success reduces the need for illegal hunting of wild alligators.

Each species plays a unique ecological role in communities and ecosystems. Understanding such roles is important for protecting species from premature extinction, for returning captive populations of endangered species to the wild, and in helping us predict the effects of human actions on wild species. Understanding the roles and interactions of species and the changes communities and ecosystems undergo is vital to the continuation of biological diversity and a healthy environment.

