

Educating Youth on the Importance of Habitat for Supporting Mammal Species Diversity

Introduction

Background

- Flagship animals are valuable tools for teaching ecological concepts, and educating young people about the importance of environmental stewardship¹
- We designed a teaching activity to teach youth about the importance of preserving natural habitat to enable survival of diverse mammal species

Central Concept Taught

- Population sizes and diversity of species are dependent on resource availability, specifically habitat
- A landscape with greater habitat diversity will support greater species diversity

Additional Learning Objectives

- Observe differences in species composition between prairie and woodland habitats
- Understand why different mammals need and use different resources
- Observe, collect and analyze data
- Practice proper wildlife observation and handling ethics

Lesson Characteristics

- Completed with 30 first grade students
- Preparation time = 30 minutes, completion time = 40 minutes
- Study site - Ada Hayden Heritage Park in Story County, Iowa
- Taught using Learning Cycle format³



Figure 1. The lesson site at Ada Hayden Heritage Park in Story County, Iowa. The lesson took place in a site with adjacent woodland and prairie

Teaching Methods – Learning Cycle

Preparation

- Assembled discussion board and data sheets (Fig. 4)
- Laminated paper cutouts of mammal taxa
- Prairie and woodland habitats were of equal size, equal numbers of mammals
- Abundances were based on the trophic level of each taxa.
- Four taxa were habitat generalists and two were habitat specialists
 - Fox squirrels were placed only in woodland along with all the generalists
 - Plains pocket gophers were placed only in prairie along with the generalists
 - Generalists include Raccoon, Coyote, Opossum, and Eastern Chipmunk
 - Franklin's ground squirrel was not placed in either habitat to simulate a threatened or endangered species



Figure 2. Discussing taxa found in prairie and woodland habitats



Figure 3. Students recording their observations of taxa in the prairie habitat

Engaging Students

- Greeted students and stimulated interest using the following questions:
 - Are you all ready to be ecologists today?
 - What makes a mammal a mammal?
 - What do mammals need to survive?
- Formed students into four groups and gave each group data sheets

Exploration

- Students searched for cutouts (without handling them), and recorded observations by circling pictures of mammals they observed in each habitat type
- As one group, students summarized findings on a discussion board (Fig. 2)

Concept Development

While viewing the discussion board we asked the following questions:

- Did you find mammals in the prairie habitat that did not occur in the woodland (and vice versa). Were any mammals found in both habitats?

Concept Application

- After the discussion we asked:
 - Why do you think some animals found only in one habitat type?
 - What would happen if we only had one kind of habitat?
 - Why is it important to have wildlife?
 - How can we use what we learned today?

Prairie Mammal Data Sheet



Figure 4. The data sheet that students used to record their group's observations. Franklin's ground squirrel was on the data sheet but not present in the habitats

Connections to Next Generation Science Standards

Standards²

- 2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats
- 2-LS4.D: There are many different living things in any area, and they exist in different places on land and in water

Application

- 2-LS4-1: By graphing these data, students will make comparisons about the diversity of the litter plots and the litter-less plots
- 2-LS4.D: Students will discover the ideas behind mammal taxa needing different habitats based on the behavior and diet of taxa

Take Home Message

- Contributing to proper land stewardship and conservation can support the presence of diverse mammal communities
- Every person has different values that shape their relationship with the natural world; it is important to understand these unique perspectives
- Diverse habitats are necessary to support a variety of mammal species