

Instructional Scenario



Restoring Habitat at the Wildlife Refuge

Course/Duty Area: Introduction to Natural Resources & Ecology Systems/Managing Wildlife Resources

Scenario:

Clearwater Valley Wildlife Refuge was established 15 years ago on land donated by a conservation-minded landowner. For the first decade, the refuge focused on protecting existing forests and wetlands. However, last year, an adjacent 200-acre parcel became available for purchase—land that had been used for cattle grazing for over 40 years.

The refuge board of directors made the ambitious decision to buy the land and restore it to native habitat within five years. This would nearly double the refuge's size and create a continuous wildlife corridor connecting three fragmented forest patches in the region. But there's a problem: the degraded pasture is mostly bare soil, invasive grasses, and scattered dead trees. It looks nothing like the thriving ecosystem the refuge hopes to create.

You are hired as a consultant to help the refuge board and its director determine which wildlife species they should prioritize as they manage the new land.

Big Question:

What animal species should be the focus of the restoration?

Focused Questions:

- Which species are already in the area and trying to survive?
- Which species could thrive if habitat were restored?
- What does each species need to survive and reproduce?
- How do different species interact with each other?

Student Project or Outcome:

Students create a presentation focused on the animals they have selected. The presentation should include taxonomic classification and habitat requirements for each animal. Students can then present their slideshow to the class.

Project-Based Assessment:

Compile a fictional study using the following timeline (or conduct an actual study on accessible land).

Weeks 1-2: Field Research and Species Identification

- Visit refuge staff.
- Conduct field observations, searching for animals, looking for tracks, scat, nests, burrows, and feeding signs.
- Interview refuge staff and local hunters and naturalists about what species they've seen.
- Research historical records to see what species used to live on the refuge's land before degradation.
- Compile a list of five to eight candidate species.

Weeks 3-4: Taxonomic Classification

- Research each species' complete taxonomic classification.
- Verify accuracy using multiple sources (e.g., state wildlife agency databases, scientific literature, museum records).
- Create visual taxonomic trees showing how each species fits into the larger classification system.

Weeks 5-6: Ecological Analysis

- For each species, research
 - habitat requirements (e.g., forest type, stream proximity, food sources, shelter types)
 - diet and feeding behavior
 - reproduction and nesting or denning requirements
 - seasonal migration or activity patterns
 - predators and prey
 - competition with other species
 - how taxonomic classification predicts these needs.

Weeks 7-8: Field Guide Creation and Presentation

- Compile all research into a professional field guide.
- Present findings to refuge staff and potentially to the refuge's board of directors.
- Receive feedback and refine recommendations.

Teacher Resources:

- [Virginia's Wildlife](#), Virginia Department of Wildlife Resources
- [Species](#), U.S. Fish & Wildlife Service

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