

Problem Based Learning Related to Wildlife Management



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Wildlife Management Unit in
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Getting ready to spray invasive trees in the
Buffalo Creek WMA.

Part I: Overview of Workplace

At the DNR's Maquoketa Wildlife Management Unit located in Jackson County at Green Island, their mission is to create and maintain favorable habitats for harvestable and non-harvestable game. The five man crew which covers the five counties of Jackson, Delaware, Clinton, Dubuque and Scott, is lead by a Natural Resources Biologist, and consists of two Natural Resources Technicians 2 and two Natural Resources Technicians 1.



Green Island Wildlife Management Area Overlook

Part II: Workplace Focus

This DNR Wildlife Management Unit has a variety of different tasks which they perform. Depending on the time of year their daily activities change, but include:

- Planting food plots and brooding habitat
- Forestry work
- Removal of invasive plant species
- Banding migratory bird populations
- Burning areas of prairie
- Maintaining water levels in wetlands
- Responding to customer calls concerning wildlife
- Assist in the resurgence of endangered species
- Taking water samples
- Restoration of endangered ecosystems



Day one of Geese Banding in the Green Island WMA



Banding Doves in Bellevue

Part III: Introduce the Problem

The Barn Owl (*Tyto alba pratincola*) is a native species to Iowa. However the population has drastically decreased since the 1930's with a boom in agriculture and loss of habitat, since 1977 it has been listed as an endangered species in Iowa. There has been a push for an increase in habitat and nesting sites to be cultivated and protected. In some areas this has led to an increase in the population, but has not been enough to move the species from endangered to threatened. There are many different species which suffer from loss of habitat and food that have placed them on the endangered list for Iowa.



Eastern Prairie Fringed Orchid

Part IV: Standards, Driving and Essential Questions

Standards Covered by this PBL:

HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

- Moreover, anthropogenic changes (induced by human activity) in the environment—including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species.

LS4.D: Biodiversity and Humans

- Biodiversity is increased by the formation of new species (speciation) and decreased by the loss of species (extinction).

ETS1.B: Developing Possible Solutions

- When evaluating solutions it is important to take into account a range of constraints including cost, safety, reliability and aesthetics and to consider social, cultural and environmental impacts.



Part IV: Standards, Driving and Essential Questions

Questions:

1. How can we bring back the endangered population?
 - a. What caused the decline in the first place?
 - b. What do they need to successfully breed and also have the next generation develop into mature adults (habitat, food, protection, etc.)?
 - c. What can we do to assist this?
 - i. Nesting boxes?
 - ii. Plantings of native grasses?
 - iii. Monitoring populations?
 - iv. Public awareness?
 - v. Food sources?
 - vi. Burnings?
2. How can we prevent the population from declining again?
 - a. Protected lands?
 - b. Incentives for maintaining habitat?
 - c. Current locations of populations?
3. What is the projected outcome for the species if this works?
 - a. How long before they are not considered endangered?
 - b. Stable populations?
4. What will this mean for humans if we maintain a stable population?
 - a. Will this help farmers?
 - b. Effects on the ecosystem?

Part V: Extern Host Role

The DNR Maquoketa Wildlife Unit would be mainly responsible for knowledge of what is currently happening at their WMA's. Also providing assistance with any larger machinery that maybe needed in prepping sites. There will also be an ongoing dialogue concerning tasks which need many volunteers.

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Part VI: Student Learning

As with any successful PBL, in my opinion, students have to have some sort of invested interest. I try to merely introduce a problem and allow them to pick the area which interests them the most. This allows students to have some investment in their projects success. There are many different areas which can be incorporated in this type of project and I try to leave the direction which they pursue the solution up to them. Guidance is of course provided, which somewhat eases the difficulties of figuring it out alone. As with any educational experience interest needs to be coupled with a drive for the finish.

