Balancing the Cost of Protected Areas

Lesson Nine

Summary

Students will explore the socio-economic and environmental costs and benefits of creating a protected area for a species at risk.

Activity Information

Level: Grades 10 and 12 (sec. III and V)

Subjects: Sustainability of Ecosystems, Interactions Among Living Things, Evolution, Change and Diversity, Earth Systems, Science, Resource Management

Estimated Duration: One 60-minute class period to introduce and begin work. One 60-minute period for public consultation and a survey of findings. Homework time to complete position paper.

Materials: none.

Learning Outcomes

Sustainability of Ecosystems
Propose a course of action on social issues related to science and technology, taking into account human and environmental needs (e.g., organize a public hearing on an issue such as seasonal fishing quotas or funding for public transportation).

Evolution, Change and Diversity
Identify multiple perspectives that influence a science-related decision or issue (e.g., identify various perspectives on such issues as the origin of life, the protection of wild species of plants and the preservation of wilderness areas).

Interactions Among Living Things
Evaluate Earth's carrying capacity, considering human population growth and its demands on natural resources.

Earth and Space Science – Earth Systems
Analyze society's influence on scientific and technological endeavors (e.g., examine the social considerations related to the development of a natural resource near a park, a protected area or Aboriginal land).

Teacher Background

All species, whether plant, animal or fungi, need a habitat to survive. That habitat must include both living and non-living components. Habitats are many and varied; they include wetlands, hardwood forests, softwood forests, marine environments, prairie grasslands and tundra. Canadians are lucky to be in a country where government agencies set aside protected areas such as national parks, marine conservation areas, provincial parks and conservation authorities. These protected areas provide habitat for thousands of species (plants, animals, insects, etc.) across Canada, including species at risk.

These protected areas are important for a host of reasons. They preserve significant parts of certain ecosystems, conserve species and communities, protect landscape resources, outdoor activities, and maintain the balance of nature and research. Protected areas ensure that special places in our country are maintained for present and future generations to appreciate and enjoy.

The International Union for the Conservation of Nature (IUCN) defines *protected areas* as:

An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Examples of species at risk inhabiting a protected area include:

Endangered Species and Status	Protected Area
Peregrine Falcon (*anatum* subspecies, threatened)	Fundy National Park (NB)
Woodland Caribou (southern mountain population, threatened)	Jasper National Park (AB)
Grizzly Bear (northwestern population, special concern)	Kluane National Park and Reserve (NWT)
Newfoundland Marten (endangered)	Terra Nova National Park (NL)
American Badger (*jeffersonii* subspecies, endangered)	Kootenay National Park (BC)
Woodland Caribou (boreal population, threatened)	Nopiming Provincial Park (MB)

Although there are many reasons why protected areas are important and should be set aside, there just as many reasons not to establish them. Land designated for protection might be a source of fuelwood and fibre production for the local community. That source would be lost and the local economy may suffer if the

area is protected. Or the land might be used and maintained for mountain bike trails by an area bike club. The trails would be gone, and a healthy recreational opportunity lost.

Some existing protected areas face pressure from encroaching development and other disturbances. Land use demands adjacent to Banff National Park may have an impact on whether or not the park can adequately protect its wildlife species. There are concerns about resource development in ecologically important buffer areas adjacent to some established protected areas that can lead to things such as degradation of water or air quality, or loss of important wildlife corridors and critical habitat areas.

Community leaders, wildlife biologists, land use planners, forest industry representatives, and many others must make critical decisions every day regarding socio-economic planning and the potential impacts on the environment. They must weigh the benefits and challenges, and find a balance that protects species at risk and encourages sustainable development where appropriate.

The following lesson explores the decisions that must be made when proposing new protected areas. Students will better understand that new developments create jobs and jobs bring wealth and opportunity to communities – but that those opportunities must be held up against the protection of species at risk.

Procedure

1 Begin a class discussion about the value of different habitats and protected areas. Some discussion questions might include:

Q: Explain the value of habitat. What does it provide to wildlife species, and why is it important?

Q: What is a protected area? Why do we protect special areas? How do we protect those areas? Are you aware of any protected areas that are located in or near your community? Who is responsible for managing them? The municipality? The provincial or federal government?

Q: Can you identify and describe some of the different categories of protected areas? (e.g., national park, marine conservation area, conservation authority, provincial park, fish sanctuary, National Wildlife Area, migratory bird sanctuary, wildlife reserve etc.)

Q: Why are protected areas important? (e.g., biodiversity, conservation, protecting species and space diversity).

2 Ask your students to think about the costs and benefits of setting aside a portion of land as a protected area for a species at risk. What does it really cost? As an example, ask them to imagine a community that wants to expand, but the land it wishes to develop may be set aside as a protected area. What would be some of the potential impacts on the community if the land was not available for development? Consider some of these and list on the board students' thoughts regarding the impacts on:

- employment opportunities
- housing availability
- availability of natural resources
- recreation opportunities
- spiritual meaning
- ecological health of the area
- tourism
- community attitude about their landscape
- reclamation costs
- wetlands (flood control, water table regulation)
- trees (erosion control, help regulate water table).

3 Divide your class into groups of two or three students. Explain that they will be engaged in some difficult challenges that will have them graphically organize, compare and balance the importance of protected areas while at the same time, considering the costs related to housing, employment opportunities and future development for a local community. Students will then select and research a local community of their choice. You can photocopy the black line master of the graphic organizer on page 41.

You will have approximately 10 to14 groups. Tell half of the groups to prepare an economic forecast report of approximately 500 to 750 words on the financial costs of developing a protected area (as an alternative, you might consider asking them to submit a detailed graphic organizer). What will be the economic losses or gains if the protected area is established? Will the protected area limit future development? Will potential job opportunities be lost? Will the protected area reduce opportunities for resource development, such as forest harvesting or mineral exploration? Will it increase potential recreation opportunities and likewise increase tourism in and around the community? Is it important for quality of life? What kind of community do you want to live in? Students may not be able to provide exact details, but based on the material researched, should be able to put forth their best guess.

Tell the other groups to conduct research and prepare a similar forecast report from an environmental perspective. They will explore the costs and benefits of developing a protected area adjacent to the community, but they will focus on the environmental costs and benefits. They will determine what the actual cost of setting the land aside will be, and explore the results of protecting that natural area. If the land is not set aside, what will happen to the species at risk? How large does the area have to be to protect the species? Who will manage and care for the land, and what will that cost? How do you measure the cost of healthy air and water? Recognize that it is difficult to put a price on aesthetic values, and that many of these intangible things are difficult to measure.

Let students know that when they have completed their economic forecast reports, they will be participating in a public consultation meeting for the community to decide whether or not to proceed with the protected area development.

4 When the students have researched and prepared their economic forecast reports, hold a public consultation meeting. This meeting will be used to present information about the proposed protected area, and provide perspectives about potential costs and impacts. You may choose to moderate the presentations yourself, or select a student moderator to serve as a mayor.

Ask each group to select a spokesperson. Introduce the meeting by asking for volunteers to share their perspectives about the proposed protected area. Each group will speak for five minutes, justifying their position using graphs, statistics and photographs as tools to help present a specific point of view and best describe their arguments. When each group has completed its presentation, call the formal meeting to a close.

5 Following the public consultation meeting, survey the class. Based upon the presentations, does the majority of the class wish to proceed with the protected area development? What is their rationale for proceeding or halting the development? Ask each student to submit a position paper outlining their point of view.

Extensions

Research a proposed protected area in Canada. Where is it? Why is it being proposed as a protected area? What groups or individuals support its development? Who is opposed or concerned about its establishment as a protected area? Why? Have students prepare a brief report of their findings.

Compare the establishment of protected areas in Canada with the United States, and/or another, non-North American country.

Protected areas are one way of protecting species at risk. Landowners, ranchers, farmers, resource development companies etc., have personal responsibilities. Ask students to come up with four to five examples of efforts that can be made on a personal level that can help reduce their impact on species at risk.

Students can also explore other kinds of protected areas. There area areas that are protected by conservation easements between landowners and non profit groups like Ducks Unlimited Canada (DUC), Nature Conservancy, etc., where there is a voluntary set aside of habitat and special features – this agreement goes on the land title and if the land is sold the agreement is maintained with the new owner in perpetuity. In return for giving up landuse benefits the landowner may receive a tax receipt or payment comparable to the lost land value. Have students carry out research to determine if there are any of these special arrangements within your community.

Case Study Community

Location

Development Issues

Social Issues

Environmental Issues

Location of Proposed Protected Areas

Potential Organizations Concerned with Allocation of Land for Protected Areas