WILDLIFE

Key Learning Objectives

1. Identify common wildlife species and wildlife signs. Identify basic wildlife survival needs.
2. Describe specific adaptations of wildlife to their environment and their role in the ecosystem.
3. Describe predator/prey relationships and identify examples. Describe food chains and food webs and cite examples.
4. Describe factors that limit or enhance population growth.
5. Evaluate a given habitat and its suitability for a designated species when given a description of its habitat needs.
6. Describe ways a habitat can be improved for specific species through knowledge of its specific requirements.
7. Discuss the concept of carrying capacity and limiting factors.
8. Discuss various ways the public and wildlife managers can help in the protection, conservation, management, and enhancement of wildlife populations.
9. Describe the potential impact of the introduction of non-native species.
10. Describe major factors affecting threatened and endangered species

Key Point 1—Knowledge of Wild Birds, Mammals and Herps

◊ Identify wildlife species using mounted specimens, skins/pelts, pictures, skulls, silhouettes, decoys, wings (waterfowl), scats, tracks, animal sounds, or other common signs. Animal tracks may be original or molds made of the prints. Wildlife signs may be real or reproduced.
◊ Use a key or field guide to identify wildlife species or signs. Wildlife species or signs may be presented in any form as described above.
◊ Identify general food habits (herbivore, omnivore, carnivore), habitats (terrestrial, aquatic, fossorial), and habits (diurnal, nocturnal) using skull morphology and/or teeth.

Key Point 2—Wildlife Ecology

◊ Know the meaning of "habitat" and be able to name the habitat requirements for wildlife and the factors that affect wildlife suitability.

◊ Know and understand basic ecological concepts and terminology.

◊ Understand the difference between an ecosystem, community and population. Be able to explain how communities interact with their non-living surroundings to form ecosystems.

◊ Understand wildlife population dynamics such as birth, mortality, age-structure, sex ratio, and mating systems. Understand the impact of limiting and decimating factors of common wildlife species on wildlife management.

◊ Recognize that all living things must be well adapted to their native environment in order to survive. Be able to identify, describe and explain the advantages of specific anatomical, physiological and/or behavioral adaptations of wildlife to their environment.

◊ Know the meaning of the term "Biodiversity" and understand why biodiversity is important to people and wildlife.

◊ Understand the importance of the 3 levels of biodiversity: genetics, species and ecosystem or community, and understand the implications of biodiversity loss at each level.

Suggested Activities:

◊ Draw a map of an area and identify sources of food, water and shelter available to wildlife. Select a wildlife species, and assess whether the area on your map will provide suitable habitat for this species. If any part of the habitat is lacking, explain what you could do to improve the habitat for this species?

◊ Explain the relationship between the Pyramid of Numbers and the Pyramid of Biomass. Relate this exercise to an actual habitat to help you understand how much land area is needed to support life at each level of the food chain. Lesson: Ecological Pyramids.

◊ Create a detailed display to show examples of different types of food chains and illustrate the interdependence of organisms within a food web. Include terms such as tropic levels, predator, prey, scavengers, decomposers, omnivore, insectivore, herbivore, carnivore, producer, primary consumer, secondary consumer and tertiary consumer.

◊ Explain the term "ecosystem" and give examples of different types of ecosystems. Describe a type of ecosystem and explain the importance of a keystone species. Draw food chains that include a specific keystone species and discuss what might happen if this species were removed from the food chain or if their populations diminished.

◊ Select several wildlife species common to your area and list potential limiting and decimating factors for each. Visit a natural area, park, forest, and/or farm and assess

the area to determine which of the limiting and decimating factors on your list would actually impact your selected species. For example, water may be a potential limiting factor, but the area you visit may have an abundance of water. Therefore, water would not be a limiting factor on this area and would have no impact.

◊ Explain why your state or province is so diverse and explain what is being done to protect the biodiversity of wildlife. Include the following vocabulary to help you explain your answer: biodiversity, keystone species, native, endemic, habitat, biome, and food web.

◊ Compare and contrast the behavioral and physiological adaptations of specific animals that live in two different environments. Explain why these animals are well-adapted to survive in their particular environment and include wildlife biology terms to describe specific adaptations.

◊ Web Lesson: Measuring Biodiversity across North America. As a result of completing an investigation into the biodiversity of North American Mammals, students should develop an understanding of the concept of biodiversity, and learn ways to measure the diversity of organisms. In addition, students should become more familiar with the mammal communities and eco-regions in their residential areas and the biomes and ecoregions across North America.

◊ Explain the three levels of biodiversity and give several reasons why biodiversity is important to wildlife and people. Select examples of species in your area that have become locally extinct and explain what causes loss of biodiversity. What can be done to gain biodiversity?

Key Point 3—Conservation and Management of Wildlife

◊ Know the preferred habitat types and specific habitat requirements of common wildlife species. Understand how this knowledge helps us to better protect both the land and the wildlife species that depend on it.

◊ Understand the difference between biological and cultural carrying capacity and be able to identify social and ecological considerations where human use of land conflicts with wildlife habitat needs.

◊ Identify common wildlife management practices and methods that are being used to manage and improve wildlife habitat.

◊ Understand the role of federal, state and provincial Fish and Wildlife Agencies in the management, conservation, protection, and enhancement of fish and wildlife and their habitats.

◊ Know that all states and provinces have a hunting safety course and mandatory hunter education program developed specifically for each state or provincial government's hunting and wildlife agency.

Suggested Activities:

◊ Explain the meaning of the terms "migration route" and "flyway". Know the four major North American flyways and understand the importance of these routes to migratory land, water and shore birds.

◊ Determine which common wildlife species in your area depend on open land, woodland and wetland habitat for their survival. Identify the various types of habitat within open lands, woodlands, and wetlands, and explain the importance of these specific habitats to common wildlife species within your area.

◊ Explain why human use of land the major reason for habitat loss is. Provide examples of habitat destruction, fragmentation, and degradation and explain how wildlife species survival is threatened by habitat loss in your area.

◊ Research and analyze controversial issues in order to understand the relationship between wildlife, economics and society. Penn. State School of Forest Resources: The Social and Economic Impact of Wildlife and Natural Resource Management Lesson Plan

◊ Make a list of wildlife management practices and strategies that will restore or improve habitat for each of the following land uses: cropland, grassland, woodland, wetland, pond/lake, and urban setting (backyards, greenways, urban parks). Include specific wildlife species that will benefit from each wildlife practice or strategy.

◊ Make a list of the Federal and State Fish and Wildlife Agencies within your state or province. Determine how each protects and manages the wildlife resources of your area and describe activities and programs that are undertaken to protect and manage wildlife and their habitats.

◊ Explain regulated trapping procedures and discuss the issues that are involved in trapping furbearing animals. Research and explain the dilemma of biological carrying capacity vs. cultural carrying capacity in your discussion.

◊ Explain how Wildlife Managers are using Satellite Remote Sensing, GPS and GIS in Conservation and Wildlife Management. Give an example explaining the benefits of using this technology in remote areas.

Key Point 4—Issues Involving Wildlife and Society

◊ Understand how non-native (exotic), invasive species threaten our environment and the biodiversity of many wildlife species. Understand that non-native (exotic), invasive plants impact wildlife habitat and thus have a tremendous impact on native wildlife.

◊ Learn about the complexities of decision-making in making land use decisions that affect wildlife and understand that wildlife resources are under constant pressure caused by human population growth, environmental degradation, and habitat reduction.

◊ Know that Wildlife species are subject to diseases resulting from exposure to microbes, parasites, toxins, and other biological and physical agents.

◊ Understand the terminology and factors that affect threatened and endangered wildlife species. Know the meaning of extinct, extirpated, endangered, threatened, candidate species and reintroduction.

◊ Identify the characteristics that many extinct and endangered species possess and be able to identify many species wildlife that are endangered and threatened.

◊ Understand the role of the Endangered Species Act in helping to conserve endangered and threatened species. Know the organizations and agencies responsible for listing and protecting endangered species on global, federal, state and provincial levels.

Suggested Activities:

◊ Give specific examples of non-native (exotic), invasive species in your area and describe how they have altered habitats, threatened ecosystems, and impacted wildlife. Explain what is being done to increase awareness and facilitate effective prevention and management of non-native (exotic) invasive species.

◊ Explain the three major kinds of habitat loss. Give examples of how human activity is the biggest threat to wildlife habitat and also discuss how people can have a positive impact on wildlife habitat and biodiversity.

◊ HIPPO is an acronym that represents the five major threats to biodiversity, which are caused by human activity. Design a poster to illustrate the HIPPO concept and factors that bring about the loss of biodiversity.

◊ Name and describe two examples of diseases that are critically impacting Wildlife and explain why controlling emerging wildlife diseases have become a high-priority concern in the United States and Canada. Explain the life cycles of these diseases and how they can be transmitted to humans.

◊ Identify and describe factors that threaten and endanger wildlife species in your area. Explain what actions are being taken by various agencies and interest groups to improve the chance of survival for specific threatened and endangered species. Also, determine what practical measures private citizens can take to assist in the recovery of threatened and endangered species.

◊ Select several endangered species and create a display to describe the characteristics that have made these species more vulnerable. Discuss state, provincial and federal efforts being taken to protect these species.