MEETING WILDLIFE EDUCATION OBJECTIVES THROUGH THE NONFORMAL EDUCATION SECTOR: PROGRESS REPORT

by

Gerri A. Pomerantz and Daniel J. Decker

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Human Dimensions Research Unit
Department of Natural Resources
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, N. Y.

PROGRESS REPORT

PROJECT TITLE: Public Attitudes Toward Wildlife and Its Accessibility

STUDY NUMBER AND TITLE: IX - Enhancing Public Benefits From Wildlife
Management Through Education and Communication

JOB NUMBER AND TITLE: IX-1 - Meeting Wildlife Education Objectives Through
the Nonformal Education Sector

JOB OBJECTIVES: 1) To delineate the wildlife education objectives of
programs conducted by the nonformal education sector and
define the role of these programs in youth and adult
wildlife education.

2) To identify cooperative opportunities between DEC and
nonformal educational organizations that will help
achieve a comprehensive wildlife education program.

JOB DURATION: 1 January 1988 - 30 June 1989

NONFORMAL WILDLIFE EDUCATION OBJECTIVES

This report is being provided to assist DEC with the identification of its nonformal wildlife education objectives. It compares DEC's Original Wildlife Education Objectives (see Appendix A) for formal educational programs (outlined as a result of the May 1986 Arnot brainstorming session and subsequent review process) with the Wildlife Education Goals and Principles (see Appendix B) currently being used by DEC as the basis for wildlife instructional materials for the public schools. This comparison should point out some of DEC's wildlife education objectives that are not being addressed by formal education program efforts and indicate possible areas where nonformal programming can be effective.

Overall, the Wildlife Education Goals and Principles embody the main wildlife education objectives originally listed by DEC. The major conceptual differences between the original wildlife education objectives outlined by DEC and the revised Wildlife Education Goals and Principles have been described in the April 1987 progress report (Pomerantz 1987). In summary, the new goals and principles (1) broadened the concept of management to view it as any intentional change, including a decision for nonintervention; (2) focused on environmental management in addition to wildlife management; and (3) treated wildlife management as one form of stewardship, rather than equating it with stewardship.

There were a number of objectives from DEC's original listing that were treated in a general way in the Wildlife Education Goals and Principles, but not addressed to the same level of detail. Listed below are the individual concepts and objectives from DEC's original Wildlife Education Objectives that are not specifically addressed by the 21 formal wildlife education principles.

A. BASIC WILDLIFE KNOWLEDGE

Objectives (The following objectives are listed under Concept A1. All living
elements of an ecological system are interdependent.)

A1.1 - To identify and describe local wildlife species, their habitats,
and roles in the ecosystem.

A1.2 - To describe the types and relative abundance of wildlife species
that reside in the various habitats of New York (e.g., farm,
forest, city, water/wetland).

A1.3 - To describe three local food webs, including one with humans.

A1.4 - To compare and discuss the causes of death for wildlife and
humans.

(Principles 1-11 in Part I and Principle 12 in Part II of the Wildlife
Education Goals and Principles deal to some degree with objectives A1.1 -
A1.4.)

Objectives (The following objectives are listed under Concept A2. Living
organisms produce both positive and negative impacts.)

A2.3 - To list ways that a mammal, amphibian, reptile, bird, insect, and
fish positively and negatively impacts other species.

A2.4 - To list the causes and impacts of overpopulation.

A2.5 - To describe the role that native wild plants and animals play in
creating soil.

(Objectives A2.3 - A2.5 are not specifically addressed by the Wildlife
Education Goals and Principles.)

Concept A3 - All living resources are renewable.

Objectives:

    A3.1 - To list the characteristics of a renewable resource and give examples for all trophic levels.

    A3.2 - To list the characteristics of a nonrenewable resource and give examples.

(The general nature of Concept A3 and Objectives A3.1 - A3.2 are covered by principles 9, 13, and 14 in the Wildlife Education Goals and Principles.)

B. WILDLIFE MANAGEMENT CONCEPTS

Objectives: (The following objectives are listed under Concept B1. The term management does not always imply negative or short-term impact.)

    B1.1 - To list three examples of wildlife management; one at the local, state, and federal level, and explain why management was needed and how it was used.

    B1.2 - To list three agencies involved in the management of the wildlife resource and describe their responsibilities.

    B1.5 - To give specific examples of wildlife management programs that have helped restore wildlife species (e.g., deer, turkeys, peregrines, beaver) that were adversely affected by human activities in the past.

    B1.6 - To explain the role that DEC has in the management of wildlife.

Concept B2 - Natural resource management is necessary to meet the needs of people in modern-day life.

Objectives:

    B2.1 - To give examples of natural resources used in everyday life and
          explain why the management of these natural resources is
          necessary.

(The general content of Concepts B1 and B2 and their respective objectives are
covered by principles 9-12 Part I and principles 13-21 in Part II of the
Wildlife Goals and Principles.)

Concept B4 -   Federal, state, and local laws exist to promote the
               conservation of wildlife.

Objectives:

    B4.1 - To identify and discuss some basic wildlife laws.

    B4.2 - To differentiate between prohibitive laws (e.g., The Endangered
          Species Act) and permissive laws (e.g., hunting seasons and bag
          limits).

(Concept B4 and its objectives were not dealt with in the Wildlife Education
Goals and Principles. The Expert Review Panel felt that the public school was
not the appropriate forum to discuss specific bureaucratic policies.)

An examination of the above concepts and objectives points out a few
categories of educational objectives that DEC originally felt were important
to achieve, but that are not currently being addressed by the formal education
program objectives. Regarding wildlife knowledge, DEC originally emphasized
knowledge of local wildlife and wildlife habitat, as well as the various
impacts that wildlife species can have. Two specific issues, overpopulation
and renewable versus nonrenewable resources, were treated explicitly.

Many of the management objectives also stressed the role of wildlife
management in the restoration of local and regional wildlife species. There

was a strong emphasis on specific wildlife management programs and laws (at the local, state, and federal levels) designed to promote the conservation of wildlife. The thrust of a number of the wildlife management objectives was to communicate the role and the value of resource management.

If DEC feels that these objectives are worth achieving, then it would be useful for the agency to seek avenues other than through the formal education sector for their promotion. Some new education or communications strategies might be targeted at the specific issues of overpopulation and renewable resources. More emphasis might be placed on nature interpretation if the understanding and appreciation of local wildlife is deemed important. In all probability, a more concerted effort will be required to communicate specific agency management programs and laws. A coordinated education effort explaining the basis of a specific wildlife issue and the management programs being used to address it would link educational objectives for basic wildlife knowledge and management principles.

This comparison is only the first step in the process of identifying appropriate nonformal wildlife education objectives. It should be remembered that DEC's original list of wildlife education objectives was geared for instruction with elementary schoolchildren. Consequently, objectives appropriate for older audiences and the full range of wildlife constituents were not considered. A separate process is necessary to develop more fully the broad scope of DEC's nonformal wildlife education objectives. This report can be useful as a starting point for that process.

A number of approaches are possible for delineating the agency's nonformal wildlife education objectives. A process similar to that used to identify DEC's formal education objectives could be implemented, e.g.,

brainstorming session with appropriate DEC personnel and follow-up review.
To facilitate the goals of the formal wildlife education study, the BOW
coordinated its efforts with the Bureau of Environmental Education. Given
the nature of the nonformal education study objectives, it will similarly be
important to identify other bureaus and divisions within the agency with whom
the BOW wants to coordinate its nonformal education activities.

The BOW might want to use a two-step process in identifying nonformal
education objectives. First, a small group of BOW staff could meet to
identify major nonformal educational objectives from the bureau's perspective.
One staff member could then be responsible for identifying other program areas
within the agency that would lend support to the bureau's nonformal
educational agenda. Key personnel from these program areas could then meet
with BOW staff to delineate objectives that would integrate the various
program areas.

Regardless of the actual staff involved, be it limited to the bureau or
an agency-wide group, it will be important to keep several points in mind when
identifying objectives. Initially, the agency's definition of a legitimate
wildlife education program needs to be identified. A number of categories of
wildlife education would be useful for the bureau to consider. First, there
is "general wildlife education" that communicates the basic ecological and
management principles that serve as the foundation for wildlife management
programs. Secondly, educational programs can be focused on specific
management issues. Issue-specific education can incorporate many of the same
principles discussed in general wildlife education, but would emphasize one
particular management concern, e.g., habitat destruction, and the factors that
surround it. Related to education on management issues is education about

specific management programs. Management-program education could encompass elements of both general wildlife education and issue-specific education. Its emphasis, however, is on information about the alternatives and consequences of agency responses to individual management issues. Another educational area is "client-centered education." Information needed by the agency's various constituents on specific issues fall under this category. To some degree, all of the above types of education are designed to help individuals make informed and knowledgeable decisions, either about personal land-management practices or wildlife management policies at the regional or state levels. Any one or more of these areas can be included in nonformal educational programming, however, DEC should indicate the priority of area(s) for emphasis.

Once the agency agrees on its definition of wildlife education, it needs to outline the major content areas in which it wants to concentrate. Along with identification of these content areas, the types of audiences to whom this information will be targeted also should be identified.

After the agency has developed a common conceptual framework (i.e., wildlife education has been defined, and major content areas and audiences have been identified), specific educational objectives can be outlined. It will then be necessary to examine the wildlife education efforts currently being used by DEC to achieve these objectives. A comparison of existing educational program objectives with the agency's "ideal" wildlife education objectives will indicate content areas that require additional attention.

One of the objectives of this study is to identify avenues within DEC as well as outside the agency that would enhance nonformal wildlife education. By identifying the areas of greatest need, it will be possible to concentrate Project W-146-R staff's efforts at information gathering on those

Project W-146-R staff's efforts at information gathering on those organizations that offer educational programs most relevant to DEC's needs.

It is important that the process to identify the conceptual basis and objectives for nonformal education be conducted within the next two months (completed by early September 1988) if the HDRU is to complete the nonformal education job on schedule. The HDRU can help facilitate the identification of DEC's nonformal educational objectives; however, we recommend that someone within DEC assume responsibility for outlining the scope of DEC's wildlife education agenda, integrating of the bureau's objectives with existing agency programs, and specifying future tasks for new program development. We emphasize the need for someone within DEC to assume these responsibilities to ensure DEC's ownership of the nonformal education program and facilitate its implementation.

Appendix A

DEC'S ORIGINAL WILDLIFE EDUCATION OBJECTIVES

A. BASIC WILDLIFE KNOWLEDGE

Goal A. To develop a student population that is knowledgeable about wildlife.

Concept A1. All living elements of an ecological system are interdependent.

Objectives:

A1.1. To identify and describe local wildlife species, their habitats, and roles in the ecosystem.

A1.2. To describe the types and relative abundance of wildlife species that reside in the various habitats of New York (e.g., farm, forest, city, water/wetland).

A1.3. To describe 3 local food webs, including 1 with humans.

A1.4. To compare and discuss the causes of death for wildlife and humans.

Basic Terms	Advanced Terms
nature and natural	diversity
species	ecosystem
habitat	community
land and soil	trophic level
consumer	ecosystem cycling
producer	ecology
herbivore	niche
predator	succession
territory	territory
competition	home range
food pyramid	biosphere
resident vs. migratory	adaptation
ecosystem	productivity

Concept A2. Living organisms produce both positive and negative impacts.

Objectives:

A2.1. To describe local land use history and the impacts of land use practices on wildlife populations.

A2.2. To list both positive and negative interactions between wildlife and people.

A2.3. To list ways that a mammal, amphibian, reptile, bird, insect, and fish positively and negatively impacts other species.

A2.4. To list the causes and impacts of overpopulation.

A2.5. To describe the role that native wild plants and animals play in creating soil.

Basic Terms   Advanced Terms

extinction   exploitation
endangered and nonendangered species
land use
wild, domestic, and feral animals
nuisance wildlife
pollution
human ecology

Concept A3. All living resources are renewable.

Objectives:

A3.1. To list the characteristics of a renewable resource and give examples for all trophic levels.

A3.2. To list the characteristics of a nonrenewable resource and give examples.

Basic Terms

renewable and nonrenewable resources
wildlife
energy

Concept A4. Some wildlife populations exhibit cyclic patterns over time.

Objectives:

A4.1. To describe the life cycle of a local wildlife species.

A4.2. To illustrate the reproductive potential of a specific wildlife species.

Advanced Terms

population pyramid
population dynamics
carrying capacity
succession

B. WILDLIFE MANAGEMENT CONCEPTS

Goal B: To develop a student population that is knowledgeable about wildlife management principles and practices.

Concept B.1.   The term management does not always imply negative or short-term impact.

Objectives:

B1.1.   To list 3 examples of wildlife management; 1 at the local, state, and federal level, and explain why management was needed and how it was used.

B1.2.   To list 3 agencies involved in the management of the wildlife resource and describe their responsibilities.

B1.3.   To differentiate between short-term and long-term management objectives and identify possible conflicts between the two.

B1.4.   To explain how wildlife management can influence interactions between people and wildlife.

B1.5.   To give specific examples of wildlife management programs that have helped restore wildlife species (e.g., deer, turkeys, peregrines, beaver) that were adversely affected by human activities in the past.

B1.6.   To explain the role that DEC has in the management of wildlife.

Concept B2.   Natural resource management is necessary to meet the needs of people in modern-day life.

Objectives:

B2.1.   To give examples of natural resources used in everyday life and explain why the management of these natural resources is necessary.

B2.2.   To list and explain the various management options available when dealing with the conservation of natural resources (e.g., direct actions, preservation).

Basic Terms   Advanced Terms

conservation   harvest
preservation   decision making
restoration
harvest

Concept B3.   Individual human actions and decisions may have a significant impact on wildlife.

Objectives:

B3.1. To describe how a local community project could (or did) impact wildlife.

B3.2. To give an example of one of your own actions that impacts wildlife and describe how it does.

Concept B4. Federal, state, and local laws exist to promote the conservation of wildlife.

Objectives:

B4.1. To identify and discuss some basic wildlife laws.

B4.2. To differentiate between prohibitive laws (e.g., The Endangered Species Act) and permissive laws (e.g., hunting seasons and bag limits).

C. SKILLS

Goal C1. To develop a student population that has the ability to evaluate the quality, significance, validity, and application of information about wildlife and the environment.

Objectives:

C1.1. To develop investigative skills utilizing such things as field observations, written materials, audio/visual sources, and human contacts.

C1.2. Communicate information about wildlife and wildlife management in both written and verbal reports.

Goal C2. To develop a student population that thinks creatively and uses problem-solving skills systematically and with ease.

Objective:

C2.1. To plan 3 programs at the local community level to benefit wildlife.

D. ATTITUDES

Goal D. To develop a student population that has a sense of responsibility/stewardship for wildlife.

Objective:

D1.1. Implement a local program in your home or community to benefit wildlife.

Concept D1. People value wildlife in different ways.

Appendix B

WILDLIFE EDUCATION GOALS AND PRINCIPLES

Superordinate Goal:

> To have elementary school-age children develop knowledge, skills, and attitudes to result in commitment to informed decisions and responsible actions toward wildlife and all other living things and their environment.

Part I

Subordinate Goal (1):

> To develop a student population that is knowledgeable about wildlife (e.g., birds and mammals) and the environment.

Subordinate Goal (2):

> To develop a student population that has a sense of responsibility/ stewardship for wildlife and the environment.

Principles:

(1)   All living things, including people, have basic needs (i.e., Food - Air - Water - Space).

(2)   All living things, including people, operate according to natural laws (e.g., laws of gravitation) which are fixed and ultimately binding.

(3)   Plants and animals depend on each other in many ways.

(4)   People not only share their environment with other living things, but are an interactive part of that environment.

(5)   Humans can adjust to and alter their environment far more than any other living thing. Therefore, humans have the greatest responsibility for that environment.

(6)   People can analyze factors affecting the environment, predict future trends, and make deliberate decisions based on this information (e.g., identifying sources of air pollution and taking steps to correct the problems).

(7)   Because of the interdependence of plants and animals, the conditions of wildlife and wildlife habitat reflect the quality of the environment for all living things, including people (e.g., the presence of chemical contaminants in fish indicates industrial pollution in the Hudson River).

(8)   Wildlife is important in the cultural heritage and economic welfare of many regions and groups of people (e.g., NYS example).

(9)   Trying to understand and enhance the conditions of wildlife and wildlife habitat necessitates some form of responsible stewardship.

(10) Stewardship involves the decision to intervene or not. Intervention may take several forms, one of which is management of living things; another is management of nonliving things; still another is education.

(11) Management as a form of stewardship can be carried out by individuals, community groups, or government agencies.

Part II

Subordinate Goal (3):

To develop a student population that is knowledgeable about wildlife and environmental management principles and practices.

Subordinate Goal (4):

To develop a student population that can evaluate and apply information about wildlife and environmental management principles and practices.

Subordinate Goal (5):

To develop a student population that can exercise responsible stewardship toward wildlife and the environment.

Principles:

(12) Scarcity of any factor essential for survival limits population growth, in which case an abundance of all other factors makes little difference.

(13) Wildlife and environmental management is the process of modifying those factors that can be controlled by people.

(14) These factors include nonliving elements, e.g., soil-air-water-space, and living elements, both human and nonhuman.

(15) Wildlife and environmental management include monitoring (e.g., counting ducks on New York lakes in winter; measuring acidity of mountain lakes), manipulation (e.g., cutting timber, mowing, burning; water diversions such as dams), and regulation (e.g., laws regulating taking game animals; air and water pollution standards).

(16) Wildlife and environmental management may have positive effects on some wildlife or aspects of the environment and negative effects on others. (e.g., aspen regeneration programs that benefit grouse prevent forest succession to mature hardwoods that would benefit gray squirrel and turkey).

(17) Management activities can encourage some types of human behavior and restrict others (e.g., protecting wetlands provides opportunities for recreation but limits agricultural and commercial development).

(18) To be responsible stewards, people must be knowledgeable about wildlife and environmental management options and be prepared to consider the consequences of management activities.

(19) Responsible stewardship also includes personal and community action that benefits wildlife and the environment.

(20) Because wildlife and the environment mean different things to different people, decisions about their management are often complex and controversial.

(21) Careful decision making is accomplished through identifying the problem, obtaining and evaluating information, considering alternative solutions and their consequences, and making a choice.