

Goals for Wilderness Education

by Paul Regnier

A Paper
submitted in partial fulfillment of the
requirements for the degree
Master of Science

College of Natural Resources
University of Wisconsin - Stevens Point
December, 1987

APPROVED BY THE GRADUATE COMMITTEE OF

A handwritten signature in cursive script, reading "Michael P. Gross". The signature is written in black ink and is positioned above a horizontal line.

Dr. Michael Gross, Committee Chairperson

A handwritten signature in cursive script, reading "Richard Wilke". The signature is written in black ink and is positioned above a horizontal line.

Dr. Richard Wilke

A handwritten signature in cursive script, reading "J. Baird Callicott (MS)". The signature is written in black ink and is positioned above a horizontal line.

Dr. J. Baird Callicott

ACKNOWLEDGEMENTS

I want to thank the following people for their contributions: Dr. Michael Gross for his patience, enthusiasm and continued support ; Dr. Richard Wilke and Dr. J.Baird Callicott for their expertise and guidance; and my best friend and wife, Kathleen Harris Regnier, for her ever loving desire to see me complete this project.

May wilderness environments benefit from efforts put forth from the above mentioned people and the ideas presented in this paper.

TABLE OF CONTENTS

Abstract	1
Introduction.....	1
Literature Review	3
Purpose of Study	8
Methods.....	8
Results	10
Discussion/Conclusions/Recommendation	16
References	17
Prospectus	20

Goals for Wilderness Education

ABSTRACT: Wilderness education is a new and emerging discipline. Organizations, programs, literature and current research were reviewed for wilderness educational content. A set of wilderness education goals was developed under the philosophy of environmental education using the Tbilisi Declaration as a foundation. Content validity was established through soliciting comments from a panel of experts. Goals were revised and are proposed in this paper. The aim of the Goals for Wilderness Education is to actively protect the quality of wilderness areas.

Introduction

When the first European settlers set foot on the North American continent, they encountered a wild and mysterious land. The new land reminded them of the little remaining wild country of their homeland. The untamed landscapes were thought to harbor evil entities, monsters and forces uncontrolled by humans. Dominated by these early European attitudes, settlers considered wilderness as "the antonym of paradise" (Stankey and Schreyer 1987) and "an enemy which has to be conquered" (Nash 1982). These attitudes influenced the conquest of the American wilderness. Eventually much of the wild country gave way to cities, farms and symbols of civilization.

In the late 1800's, the American frontier was officially gone and with it much of the wilderness. With the loss of wilderness areas a new attitude emerged in support of preserving what was left. The wilderness movement gained momentum through people like Henry David Thoreau, John Muir, Stephen Mather and later Aldo Leopold and through the Hetch Hetchy controversy and the creation of the National Park Service.

Today, wilderness is an important part of American heritage. Much work has been done to preserve remaining wild lands. The American people generally support the wilderness concept and the laws protecting it. Preservation and public laws, however, are not enough to guarantee the quality of the wilderness. This paper proposes an educational strategy to answer the question: "How can wilderness quality be best preserved?"

Wild land preservation is not a new concept. As early as 1924 wilderness areas were designated. At the prodding of wilderness advocate Aldo Leopold, the Forest Service designated over a half-million acres of Gila National Forest for management as wilderness. Following the Gila's designation, two important events advanced the cause of the wilderness movement: the founding of the Wilderness Society in 1935 and the passing of the Wilderness Act of 1964. The Wilderness Society was "one of the focal points of a new attitude - an intelligent humility toward man's place in Nature" (Leopold 1935). The Society provided a central force for supporters of the wilderness idea to "band together for purposes of mutual education and common defense".

The Wilderness Act of 1964 was a milestone for the wilderness movement. It protected and gave general management guidelines for millions of acres of wilderness. Through the Act, the American people formally expressed their intent to keep a segment of land permanently wild (Nash 1982). The Wilderness Act became a catalyst for additional wilderness legislation in future years. At the urging of constituents, Congress passed additional wilderness legislation including the Eastern Wilderness Act, the Wild and Scenic Rivers Act, the Alaska National Interest Lands Conservation Act and numerous individual wilderness bills from state and federal agencies. Thus, the wilderness philosophy was advanced through the political process. This increased attention helped to promote the wilderness idea. "The wilderness idea states that unmanaged ecosystems have as much importance as managed ones and provide an important spiritual, scientific, ecological and educational resource" (Wood 1974).

Wilderness lands designation, for the most part, was a bipartisan effort on the federal level. For example, the passage of the Wilderness Act was a result of an overwhelming majority by both Houses of Congress (Stankey and Schreyer 1987). Federal outlays for outdoor recreation, recreation resources planning and acquisition (including wilderness areas) indicated a steady support for the wilderness idea during almost two decades after the passage of the Wilderness Act. Recently, however, a conservative political mood and fluctuating

economic conditions have caused funding to drop considerably. Appropriations (in 1967 real dollars) for federal recreation management in 1960 was \$85 million and grew steadily to \$718 million in 1978. In 1982 appropriations dipped to \$374 million (Cordell and Hendee 1982). The dramatic drop in appropriations during the 1980's indicated a shift in priorities and possibly misunderstandings regarding values of wilderness and wilderness preservation.

Misunderstandings were not limited to the political arena. The private business sector, mainly timber, mining, grazing and petroleum interests have historically opposed the wilderness idea. This sector's interests in turning the raw products of wilderness into profits has rendered some areas virtually valueless to the wilderness concept.

Literature Review

The Wilderness User

Nearly forty years ago Aldo Leopold predicted that the wilderness user would be a threat to wilderness lands (Stankey, Lucas and Lime 1976). He was right. Today some wilderness users are adversely affecting pristine environments (Hart 1980) (Kneeland 1980) (Heinrich 1980) (Nash 1982) (Fletcher 1968) (Petzoldt 1974) (Scott 1974). The wilderness user, along with exploitive business interests and unsympathetic politicians have combined to form an ominous cloud threatening to complete the destruction of remaining wilderness areas.

One reason for harmful impact is sheer numbers. Between 1946 and 1974 wilderness use was up 1400%, but wilderness and preservation areas only grew 5% (Lucas 1974). From 1965-80, just fifteen years, visitor use more than doubled (Cordell and Hendee 1982). Projections for the future indicate a continued growth in wild land visits, though at a slower rate (Roggenbuck and Lucas 1987).

In some cases wilderness managers, in order to protect the wilderness resources, have resorted to heavy management restrictions such as regulating numbers of entries or rationing the use of areas. Yet the problem of wilderness degradation may not be so much with the number of users in a wilderness area, but with the level of responsible wilderness behavior. In

order to address the question of wilderness responsibility, Peter Simer, the National Outdoor Leadership School (NOLS) past Director, called for an agenda to educate the wilderness user (Simer 1981). Simer and Wilcox (1981) viewed the competence of wilderness travelers to be of more significance than the number of wilderness travelers and suggested that education could change behavior patterns.

A program developed by Jim Bradley, Wilderness Specialist for the U.S. Forest Service, used education as a management tool. Bradley's "Human Approach to Reducing Wildland Impacts" program was aimed at reducing visitor impact on the wilderness by changing the user's behavior through education. This "Human Approach" program is a practical example of how a land manager used wilderness education techniques to help solve a wilderness issue without an overbearing set of restrictions. According to Bradley, such restrictions often failed anyway due to the difficulty of enforcing them over large expanses of wilderness; that regulations focus on incorrect personal behavior instead of reinforcing positive behavior and, finally, regulatory controls are something people want to escape from in their daily lives (Bradley 1979).

In a study in the Superior national Forest, Lime and Lucas (1977) used another wilderness education technique. A brochure describing crowded areas in the Boundary Waters Canoe Area was mailed to potential visitors. This passive approach influenced visitors to travel to more lightly used areas. The results of other passive approaches (i.e. brochures, pamphlets, etc.) have been mixed, suggesting that people may need more active techniques (such as direct people to people contact) to influence the behavior of wilderness users (Stankey and Schreyer 1987).

Demographic characteristics of wilderness users can also support an educational approach. In a study of Pacific Northwest wilderness users, researchers surveyed user characteristics and found that they were highly educated and that they expressed their support for nature interpretation in the wilderness (Hendee, et. al. 1968).

A study by Lucas (1980) on the visitor characteristics of nine wilderness areas found

that high educational levels were the most distinguishable social characteristic of visitors. In a later study of visitor trends, Lucas (1985) reported an increase in educational levels from 1970 to 1982. These studies "stress again how unusually appropriate educational approaches could be in managing wilderness" (Lucas 1985).

Many wilderness users want to know more about wilderness. In 1982, Cordell and Hendee issued the Renewable Resources Recreation in the U.S.: Supply, Demand and Critical Policy Issues report and found that wilderness users reflected a high educational attribute and, significantly, that nature study was a popular activity in the wilderness (Cordell and Hendee 1982). The 1980 Lucas study had also found that people want to know what is appropriate behavior in the wilderness, but many were misinformed.

Wilderness programs targeted toward young people might play an especially important role in influencing attitudes about wilderness environments. An interesting study on the lives of a group of modern conservation leaders showed that "youthful experience of the outdoors and relatively pristine environments emerges as a dominant influence in these lives" (Tanner 1980). Introducing young people to wilderness experiences can create support for preserving the integrity of wilderness and possibly nurture future wilderness advocates. The more people know about the wilderness the more favorable opinion they will have towards the concept of wilderness (Young 1980).

These user characteristics, along with successful efforts like Bradley's "Human Approach" program and others support the need for wilderness education. Poorly informed or uneducated wilderness visitors can set poor examples for other users and perpetuate the damage to wilderness environments (Kneeland 1981).

Wilderness Programs

The increase in wilderness visitor use has also spawned an increase in organized wilderness programs and schools. Traditionally and currently, wilderness programs take on many forms and directions. Two well established organizations that promote programs in the wilderness are Outward Bound and the National Outdoor Leadership School.

Outward Bound, with European origins, introduced its program to the North American continent during the early 1960's. Outward Bound has concentrated on an individual's personal growth instead of on learning about the natural history of a wilderness setting (Miles 1986/87). While considered a form of wilderness education, its educational process involved teaching in the wilderness and not for or about the wilderness.

Outward Bound's success paved the way for other wilderness programs. The National Outdoor Leadership School (NOLS) program was patterned after the Outward Bound model, but instead of using education in the wilderness, the NOLS program concentrates on teaching for the wilderness. It emphasizes wilderness leadership training and proper use of wilderness.

During the environmental decade of the 1970's wilderness programs flourished. Boy Scouts, YMCA groups, colleges and universities (some offering credit) began to explore the nature of the wilderness. Hendee (1985) estimated that by the 1980's, more than 400 colleges and universities offered wilderness programs to their students. The increase in wilderness related programs could create an avenue for wilderness education.

Wilderness and Education

Many wilderness programs exist today. Nash (1980) suggested that "wilderness educators must intellectualize the wilderness experience, knowing and understanding ... are the emphasized goals". Wood (1974) expressed similar views earlier by stating "the goal of the educational effort should be to motivate individuals to acquire the values and skills necessary for the promotion of environmental quality ... The end purpose is not to simply increase awareness of a subject, but to motivate knowledgeable participation in specific issues". The Wilderness Act of 1964 recognized the importance of education by considering it to be one of the purposes to which wilderness was devoted (P.L. 88-577).

The Tbilisi Declaration was a result of the world's first Intergovernmental Conference on Environmental Education. The conference's recommendations formed the equivalent of an action plan for the development of environmental education. The Tbilisi Conference also endorsed the following guiding principle for environmental education: **Utilize diverse learning**

environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience". Programs using the wilderness would be enhanced considerably through a set of wilderness education goals with a strong environmental education foundation. The Tbilisi Declaration is a document that can form a foundation for such a set of goals and is recognized by environmental educators throughout the world (Connect Staff 1978).

Purpose of Study

The purpose of the study is to (1) develop a definition of wilderness education and (2) develop a set of goals for wilderness education with an environmental education emphasis.

For the purposes of this study, the author has developed the following definitions of wilderness and wilderness education:

Wilderness: Wilderness is a state of mind evoked by a state of nature, a quality associated by people with some place. Wilderness is a place people perceive and call wilderness. Generally, it is an environment in its natural state with little or no human impact, where people are visitors who do not remain.

Wilderness Education: That part of person's education that deals with wilderness, the wilderness idea, and the values and issues associated with wilderness environments. It includes the acquisition of knowledge about wilderness environments, the values associated with wilderness, and the skills and abilities to act positively for the preservation of quality wilderness environments.

The definition of environmental education is as follows:

Environmental Education: That education which seeks to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually or collectively, toward achieving and/or maintaining a dynamic equilibrium between quality of life and quality of environment (Harvey 1977).

Methods

There are many positive approaches to wilderness education. Yet no clear, coherent plan exists that blends together the numerous efforts found in the field of wilderness education. A set of goals could be the beginning of a unified effort among wilderness educators. With a set of goals, current and future programs could incorporate their program objectives in a cohesive fashion to help resolve wilderness issues.

The steps taken in the development of the goals for wilderness education were:

(1) Reviewed current research and literature as it relates to wilderness education and relevant programs.

(2) Surveyed and reviewed five well-established organizations that utilize the wilderness for their programs. The goals and/or objectives were analyzed and used for input in the development of a set of goals for wilderness education. The organizations surveyed included:

- a) National Outdoor Leadership School
- b) Wilderness Education Association
- c) Outward Bound (USA)
- d) Sierra Club (Outing Department)
- e) U.S. forest Service (Human Approach to Reducing Wildland Impacts program)

(3) Reviewed the goals of environmental education, according to the Tbilisi Declaration.

(4) Synthesized a set of preliminary goals for wilderness education. The format used for developing the Goals for Curriculum Development of Environmental Education was used for developing the Goals for Wilderness Education. The preliminary set of Goals for Wilderness Education were constructed from: existing wilderness programs, the goals of environmental education and current literature.

(5) Developed a list of assumptions for the Goals for Wilderness Education. The assumptions developed by the author are;

1. That the goals for wilderness education are appropriate for guiding wilderness education efforts.
2. That the goals for wilderness education were patterned on a model that was used in developing the Goals for Curriculum Development in Environmental Education (Hungerford, Peyton and Wilke 1980), and that this model is appropriate for the development of the goals for wilderness education.
3. That the overall goal is philosophically correct as stated. This goal represents the most appropriate direction for wilderness education to meet the challenges facing people and wilderness issues.
4. That the goals for wilderness education are hierarchical. They consist of general goals and subgoals.

5. That instructional objectives can be developed under each subgoal for wilderness education program development.
6. That wilderness outdoor skills and wilderness knowledge are critical in any wilderness education program as a prerequisite to the remaining levels.
7. That some level of "environmental sensitivity" is critical in wilderness education and must be part of wilderness education or a prerequisite of wilderness education.
8. That, therefore, wilderness education is a subset of environmental education.

(6) To insure content validity in the development of a set of goals for wilderness education the proposed set of Goals for Wilderness Education, assumptions made by the author, and a set of Validity Assessment Questions were sent to a panel of six nationally recognized wilderness leaders and/or representatives of organizations for their reaction. The use of a validity panel was used in the development of the Goals for Curriculum Development for Environmental Education (Hungerford, Peyton and Wilke 1980) and is an acceptable form of establishing content validity (Ary, Jacobs and Razavich 1972) (Kerlinger 1973).

The panel members that responded included:

- a) Roderick Nash, Professor of History and Environmental Studies at the University of California at Santa Barbara
- b) Robert Lucas, Project Leader, Wilderness Management Research, USDA Forest Service
- c) Martin Sorensen, Chairman, Sierra Club National Wilderness Subcommittee
- d) Mike Fischesser, Director of National Training Institute, Outward Bound USA

(7) A final set of goals of wilderness education was developed based on the reactions from the panel and within the confines of the philosophy of environmental education.

Results

Comments from panel members were reviewed. The Goals for Wilderness Education were modified to reflect the general reaction of panel members within the confines of the

philosophy of Environmental Education. The proposed Goals for Wilderness Education are as follows:

Goals for Wilderness Education

Overall Goal for Wilderness Education:

To provide education that deals with wilderness, the wilderness idea, and the values and issues associated with wilderness environments. It includes dissemination of knowledge about wilderness environments, the values associated with wilderness and the skills and abilities to act positively for preservation of quality wilderness environments.

LEVEL I: Wilderness Behavior and Outdoor Skills Level

This level seeks to develop sufficient skills to prepare people to experience a wilderness environment in a safe and appropriate manner which also maintains the integrity of the wilderness environment.

This level includes, but is not limited to, education in the following areas:

- A. Minimum Impact Techniques/No Trace Camping
- B. Leadership Development (styles, judgement, etc.)
- C. Travel Techniques (map/compass, navigation, time control, weather, planning, etc.)
- D. Basic Camping Skills (cooking, equipment, hiking, clothing, food, health & sanitation, nutrition etc.)
- E. Wilderness Safety
- F. Ethical Wilderness Behavior
- G. First Aid (emergency procedures, survival techniques, etc.)
- H. Trip Planning and Organization
- I. Group Dynamics
- J. Compatible Uses of Wilderness
- K. Cooperative arrangements with outfitters and managing agencies

LEVEL II: Wilderness Knowledge Level

This level seeks to provide knowledge to permit people to make sound decisions related to wilderness. Goals at this level are presented in two components and would minimally include the following:

Component A. Ecosystem Concepts

1. Biomes
2. Communities
3. Carrying Capacity
4. Homeostasis
5. Habitats
6. Energy Transfers
7. Interrelationships
8. Food Webs
9. Succession
10. Recycling
11. Geological
12. Natural History of Wilderness Areas

Component B. Cultural and Historical Foundations:

1. Wilderness Appreciation
2. Cultural History of Wilderness Areas
3. Wilderness Act of 1964
4. Wilderness Management Concepts
5. Wilderness Definitions
6. Major Wilderness Issues
7. Human Impact on Wilderness
8. Wilderness Leaders (Muir, Leopold, etc.)
9. The Wilderness Movement
10. The Wilderness Idea

LEVEL III: Conceptual Awareness of Wilderness Values and Issues

This level seeks to develop a conceptual awareness of how people can influence the quality of wilderness areas which can result in wilderness issues. This level investigates how peoples' values create a variety of wilderness issues and how these issues can be resolved. Goals for this level are divided into two components:

Component A: Wilderness Values. This component would minimally include the following associated values of wilderness:

1. Education (experiential, academic etc.)
2. Spiritual (inspirational, religious etc.)
3. Scientific (ecological, biological, geological, social research, genetic, biosphere reserves, wildlife, watershed, endangered species, psychological etc.)
4. Cultural (recreational, historical, social, economical, etc.)
5. Aesthetic (beauty, art, prose, etc.)
6. Intrinsic nature (non-human organisms, ecocentric concept, rare environments, grizzly bears, etc.)

Component B: Wilderness Issues. This component would minimally include the following major wilderness issues:

1. Limits of Acceptable Change
2. Regulation of Wilderness Use
3. Conflicting Uses of Wilderness Areas (grazing, mining, logging, etc.)
4. Adverse Human Impact on Wilderness Areas
5. Wildlife/Human Interactions
6. Management Philosophies of Wilderness Management Agencies
7. Wilderness Designation
8. Fire Management
9. Disease and Pest Control (introduced exotic species)
10. Pollution of Wilderness (air, water, visual, audible, acid rain, etc.)
11. Recreational Carrying Capacity
12. Species Diversity

LEVEL IV: Wilderness Investigation and Evaluation Level

This level seeks to develop the knowledge and skills to investigate wilderness issues and evaluate alternative solutions. Attitudes, values and beliefs are examined with respect to these issues and alternative solutions. Goals at this level are presented in two components.

Component A: Goals for Component A are to develop in people:

1. The knowledge and skills needed to identify and investigate wilderness issues and to synthesize the data gathered.
2. The ability to identify and clarify personal value positions related to discrete wilderness issues and solutions.
3. The ability to analyze wilderness issues.
4. The ability to identify alternative solutions and the value perspectives for discrete wilderness issues.
5. The ability to evaluate, clarify, and change value positions in light of new information.

Component B: Goals of Component B are to provide people with opportunities to:

1. Participate in wilderness issue investigation and evaluation.
2. Evaluate the extent to which his/her values are consistent with preserving the quality of wilderness.

LEVEL V: Action Skills

This level seeks to develop those skills necessary for people to take positive environmental action to maintain a dynamic equilibrium between the use and preservation of wilderness. Goals at this level are presented in two components:

Component A: The goal for Component A is to develop in people skills that permit them to take effective action that is consistent with their values, such as:

1. Persuasion (i.e. persuading friends, family, leaders etc.)
2. Consumerism (i.e. boycotts, using buying power etc.)
3. Political action (i.e. voting, lobbying, holding office etc.)
4. Legal action (i.e. filing suit, supporting laws etc.)
5. Ecomanagement (i.e. eliminating exotic and feral species, etc.)

Component B: The goals for Component B are to provide people with opportunities to:

1. Make decisions concerning citizen action strategies to use with wilderness issues.
2. Apply citizen action skills to specific wilderness issues.
3. Evaluate the effectiveness of actions taken on wilderness issues.

The panelists were asked to respond to five validity assessment questions. The validity assessment questions presented to the panel were:

Validity Assessment Questions

1. **Content Validity** - Subgoals (i.e. Level I, Level II, etc.): To what extent do you perceive that the subgoals in this model represent the substantive structure of the overall goal for

wilderness education as stated?

2. **Content Validity - Overall Goal:** To what extent do you perceive that the overall goal is valid for use in program development in wilderness education?
3. **Syntax:** To what extent is the sequencing from Level I to Level V logical? That is, is the "level hierarchy" appropriate?
4. **Subjective Analysis:** To what extent do you believe that this model represents a suitable framework for program development in wilderness education?
5. **Recommended Goals and/or Levels:** Are there other goals and/or levels perceived as critical?

Written comments from the Validity Assessment Questions were reviewed by the author. In general, comments were constructive and helpful in developing a final set of Goals for Wilderness Education. In some areas, several panelists expressed differing opinions.

The question of content validity in the subgoals received a spectrum of comments from "quite complete and thorough" to "very anthropocentric approach" to "too many subgoals". To address the third comment above, the author reviewed the proposed Goals of Wilderness Education in relation to the Goals for Curriculum Development of Environmental Education and the goals and objectives from the Tbilisi Declaration. The author strongly feels that the goals of wilderness education as presented are within the realm of both the Goals of Curriculum Development of Environmental Education and the Tbilisi Declaration and are not excessive. To eliminate any subgoal of the Goals for Wilderness Education would only weaken the wilderness education process.

The comment about the anthropocentric nature of the proposed goals is well taken. Some modifications in the Level III, the wilderness values section, were made.

The overall goal for wilderness education met with favorable acceptance with slight modification. One panelist did not agree with the activism aspect in the overall goal for Wilderness Education (this will be addressed below). Another panelist responded by saying that "this goal should be mandatory for any organization using the out-of-doors."

There were several comments regarding the syntax of the goals. Two panelists expressed some concerns about Level I. One of these panelists suggested that Level I be moved to Level IV. Another panelist suggested that Level I be changed to Level III. The

rational for Wilderness Behavior and Outdoor Skills to be Level I is fundamental to the wilderness education process. The Goals of Wilderness Education as presented were intended to be used in a practical sense. The author feels that it is imperative for wilderness users to treat the wilderness environment properly. This is especially important in a leadership role. For instance, a wilderness leader who takes a group of people into a wilderness setting must communicate the importance of proper wilderness behavior and outdoor skills. If the leader lacks knowledge of basic minimum impact techniques and other skills, he/she could set an incorrect example to participants. These skills need to be learned primarily to protect wilderness environments from first hand devastation and also to insure the safety of wilderness users.

This is not to say that people can't value wilderness without possessing knowledge of Level I skills. However, when people enter or lead others into a wilderness they should possess Level I skills. In this way, wilderness visitors can treat or learn to treat the wilderness with respect. A great deal of education on Level I already exists in wilderness programs.

There were no additional goals or levels recommended as critical for wilderness education.

One panelist commented on environmental activism. He felt that it was inappropriate to include environmental activism as part of the Goals for Wilderness Education. This view runs contrary to the Tbilisi Declaration, the Goals for Curriculum Development of Environmental Education and the history of the wilderness movement. The Tbilisi Declaration and the Goals for Curriculum Development of Environmental Education, which form the equivalent of a foundation for the proposed Goals for Wilderness Education, clearly support environmental activism. The history of the wilderness movement also provides examples of wilderness activists. The movement owes a great deal to early activists like John Muir, Aldo Leopold, Howard Zahniser and others. Without the active, often political, role of wilderness advocates in promoting the wilderness idea, organizations like the Sierra Club, the Wilderness Society and the passage of the Wilderness Act would not have materialized. The action level in the Goals

for Wilderness Education is an integral element of the Goals for Wilderness Education.

Revisions to the proposed Goals for Wilderness Education were made in light of comments received. The newly revised goals and assumptions are proposed in the article.

Discussion Conclusions and Recommendations

The Goals for Wilderness Education as presented are directed to a variety of wilderness education audiences. The Goals will hopefully be incorporated, in some degree, into existing wilderness programs to expand their effectiveness. They could also be used in an academic setting. The Goals for Wilderness Education could stand alone and be used as a basis for a new comprehensive wilderness program. They are valid, well founded and as a structured set of goals adequate for leading wilderness education efforts.

It is one of the intentions of the author to create dialogue within the wilderness education community in order to advance the efforts of future wilderness education and wilderness programs. The author recommends the Goals for Wilderness Education for use in guiding wilderness education efforts.

List of References

- Ary, D., Jacobs, L.c. and Razavich, A. 1972. Introduction to Research in Education. New York: Holt, Rinehart and Winston, Inc.
- Bradley, James. 1979. A human approach to reducing wildland impacts. In: Conference proceedings: Recreational impacts on wildlands. USDA Forest Service.
- Connect Staff. 1978. The Tbilisi Declaration. Connect. UNESCO-UNEP Environmental Education Newsletter 3(1): 9-16.
- Cordell, Ken H. and John C. Hendee. 1982. Renewable resources recreation in the U.S.: Supply, demand and critical policy issues. Prepared for the National Renewable Natural Resources. Nov. 30-Dec. 4, 1980. American Forestry Association. Washington, D.C Revised for publication in 1982.
- Fletcher, Colin. 1968. The Complete Walker. New York. Alfred A. Knopf Inc. New York.
- Hart, Paul. 1980. New backcountry ethic: Leave no trace. American Forests. August: 38, 41, 51-54.
- Harvey, Gary D. 1977. Environmental Education: A delineation of substantive structure. Dissertation Abstracts International 38 (1977): 611A-612A.
- Heinrich, Jay. 1980. Wilderness can we have it and use it too? American Forests. March: 16-19, 46-55.
- Hendee, John C., William R. Catton, Jr., Larry D. Marlow and C. Frank Brockman. 1968. Wilderness users in the Pacific Northwest-their characteristics, values, and management preferences. U.S.D.A. Forest Service Research Paper PNW-61.
- Hendee, John C. 1985. Wilderness ... The next twenty years. Distinguished Wilderness Lecture. NOLS Twentieth Anniversary Celebration.
- Hungerford, Harold R., Ben R. Peyton, Richard J. Wilke. 1980. Goals for curriculum development in environmental education. Journal of Environmental Education 11(3): 42-47.
- Kerlinger, F.N. 1973. Foundations of Behavioral Research. 2nd edition. New York: Holt, Rinehart and Winston, Inc.
- Kneeland, Tim. 1980. Teaching a new wildland ethic. Naturalist. 31(4): 6-8.
- Kneeland, Tim. 1981. Educational programs to reduce impact upon wildlands. Recreation Resource Management Bulletin. Vol. 1(2): 18-21.
- Leopold, Aldo. 1935. Why the wilderness society? The Living Wilderness. September 1935. Reprinted in 1979 in The Living Wilderness, 43: 9-13.
- Lime, David W. and Robert C. Lucas. 1977. Good information improves the wilderness experience. Naturalist 28(4): 18-20.
- Lucas, Robert. 1974. Forest Service wilderness research in the Rockies. U.S. Government Printing Office: 1974. 677-093/36.

- Lucas, Robert C. 1980. Use patterns and visitor characteristics, attitudes and preferences in nine wilderness and other roadless areas. USDA Forest Service Research Paper INT-253.
- Lucas, Robert C. 1985. Visitor characteristics, attitudes, and use patterns in the Bob Marshall Wilderness Complex, 1970-82. USDA Forest Service Research Paper INT-345.
- Miles, John C. 1986-87. Wilderness as a learning place. *Journal of Environmental Education*. 18(2): 33-40.
- Nash, Roderick. 1980. Wilderness education principles and practices. *Journal of Environmental Education*. 11(3): 2-3.
- Nash, Roderick. 1982. Wilderness and the American Mind. 3rd edition. New Haven, Connecticut: Yale University Press.
- Petzoldt, Paul. 1974. The Wilderness Handbook. New York: W.W. Norton and Company, Inc.
- Public Law 88-577. 1964. The Wilderness Act. 88th Congress, 5.4.7p.
- Roggenbuck, Joseph W. and Robert C. Lucas. 1987. Wilderness use and user characteristics: A state-of-knowledge review. Proceedings - National Wilderness Research Conference: Issues, State-of-knowledge, Future Directions. USDA Forest Service General Technical Report INT-220.
- Rumrill, Gene. 1980. Academic horizons in wilderness. *Journal of Environmental Education*. 11(3): 4-6.
- Scott, Neil R. 1974. Toward a psychology of wilderness experience. *Natural Resource Journal*. Vol. 14: 231-237.
- Simer, Peter. 1981. NOLS director calls for new wilderness agenda. *NOLS Alumnis*. Winter: 3.
- Stankey, George H., Robert C. Lucas, and David W. Lime. 1976. Crowding in parks and wilderness. *Design and Environment* 7(3):38-41.
- Stankey, George H. and Richard Schreyer. 1987. Attitudes toward wilderness and factors affecting visitor behavior: A state-of-knowledge review. Proceedings - national Wilderness Research Conference: Issues, State-of-knowledge, Future Directions. USDA Forest Service General Technical INT-220.
- Tanner, Thomas. 1980. Significant life experiences: A new research area in environmental education. *Journal of Environmental Education*. 11(4):20-24.
- Wood, Harold Wm., Jr. 1974. Environmental education and the wilderness idea. *Journal of Environmental Education*. 6(2): 50-52.
- Young, Robert A. 1980. The relationship between information levels and environmental approval: The wilderness issue. *Journal of Environmental Education* 11(3): 25-30.

**A Prospectus on the
Development of the Goals for Wilderness Education**

by
Paul Regnier

College of Natural Resources
in the Graduate School
University of Wisconsin - Stevens Point
December, 1987

Development of the Goals for Wilderness Education

Introduction

When the first European settlers set foot on the North American continent, they encountered a wild and mysterious land. The new land reminded them of the little remaining wild country of their homeland. The untamed landscapes were thought to harbor evil entities, monsters and forces uncontrolled by humans. Dominated by these early European attitudes, settlers considered wilderness as "the antonym of paradise" (Stankey and Schreyer 1987) and "an enemy which has to be conquered" (Nash 1982). These attitudes influenced the conquest of the American wilderness. Eventually much of the wild country gave way to cities, farms and symbols of civilization.

In the late 1800's, the American frontier was officially gone and with it much of the wilderness. With the loss of wilderness areas a new attitude emerged in support of preserving what was left. The wilderness movement gained momentum through people like Henry David Thoreau, John Muir, Stephen Mather and later Aldo Leopold and through the Hetch Hetchy controversy and the creation of the National Park Service.

Today, wilderness is an important part of American heritage. Much work has been done to preserve remaining wild lands. The American people generally support the wilderness concept and the laws protecting it. Preservation and public laws, however, are not enough to guarantee the quality of the wilderness. This paper proposes an educational strategy to answer the question: "How can wilderness quality be best preserved?"

Wild land preservation is not a new concept. As early as 1924 wilderness areas were designated. At the prodding of wilderness advocate Aldo Leopold, the Forest Service designated over a half-million acres of Gila National Forest for management as the first wilderness area in the United States. Following the Gila's designation as wilderness, two major events advanced the cause of the movement: the founding of the Wilderness Society

in 1935 and the passing of the Wilderness Act of 1964. The Wilderness Society was "one of the focal points of a new attitude - an intelligent humility toward man's place in Nature" (Leopold 1935). The Society provided a central force for supporters of the wilderness idea to "band together for purposes of mutual education and common defense".

The Wilderness Act of 1964 was a milestone for the wilderness movement. It protected and gave general management guidelines for millions of acres of wilderness. Through the Act, the American people formally expressed their intent to keep a segment of land permanently wild (Nash 1982). The Wilderness Act became a catalyst for additional wilderness legislation in future years. At the urging of constituents, Congress passed additional wilderness legislation including the Eastern Wilderness Act, the Wild and Scenic Rivers Act, the Alaska National Interest Lands Conservation Act and numerous individual wilderness bills from state and federal agencies. Thus, the wilderness philosophy was advanced through the political process. This increased attention helped to promote the wilderness idea. "The wilderness idea states that unmanaged ecosystems have as much importance as managed ones and provide an important spiritual, scientific, ecological and educational resource" (Wood 1974).

Wilderness lands designation, for the most part, was a bipartisan effort on the federal level. For example, the passage of the Wilderness Act was a result of an overwhelming majority by both Houses of Congress (Stankey and Schreyer 1987). Federal outlays for outdoor recreation, recreation resources planning and acquisition (including wilderness areas) indicated a steady support for the wilderness idea during almost two decades after the passage of the Wilderness Act. Recently, however, a conservative political mood and fluctuating economic conditions have caused funding to drop considerably. Appropriations (in 1967 real dollars) for federal recreation management in 1960 was \$85 million and grew steadily to \$718 million in 1978. In 1982 appropriations dipped to \$374 million (Cordell and Hendee 1982). The dramatic drop in appropriations during the 1980's indicated a shift in priorities and possibly

misunderstandings regarding values of wilderness and wilderness preservation.

Misunderstandings were not limited to the political arena. The private business sector, mainly timber, mining, grazing and petroleum interests have historically opposed the wilderness idea. This sector's interests in turning the raw products of wilderness into profits has rendered some areas virtually value less to the wilderness concept.

Nearly forty years ago Aldo Leopold predicted that the wilderness user would be a threat to wilderness lands (Stankey, Lucas and Lime 1976). He was right. Today some wilderness users are adversely affecting pristine environments (Hart 1980) (Kneeland 1980) (Heinrich 1980) (Nash 1967) (Fletcher 1968) (Petzoldt 1974) (Scott 1974). The wilderness user, along with exploitive business interests and unsympathetic politicians have combined to form an ominous cloud threatening to complete the destruction to remaining wilderness areas.

Even so, the wilderness idea is misunderstood by both advocates as well as opponents. To better understand the wilderness idea, both sides must agree on the meaning of wilderness, the nature of benefits it provides, and its values (Wood 1974).

Conservationists have spent considerable time defining and classifying wilderness (Hendee and Stankey 1973). Managers of wilderness areas have resorted to controlling visitor use through educational techniques. These techniques helped lessen impacts (Washburne and Cole 1983), disperse use, and to teach low impact techniques (Stankey and Schreyer 1987). Now it is time for conservationists, wilderness managers, and educators and to teach about the wilderness idea. Education is needed that emphasizes user attitudes and values that protect wilderness from undue harm (Kneeland 1980).

Nash (1980) suggested that "wilderness educators must intellectualize the wilderness experience, knowing and understanding ... are the emphasized goals". Wood (1974) in discussing that a great deal of communication about the wilderness issue will be to the young, stated that "long range education in the concepts of wilderness is still necessary". He went on to say that "the goal of the educational effort should be to motivate

individuals to acquire the values and skills necessary for the promotion of environmental quality ... The end purpose is not to simply increase awareness of a subject, but to motivate knowledgeable participation in specific issues " (Wood 1974)

The Wilderness Act of 1964 recognized the importance of education by considering education to be one of the purposes to which wilderness was devoted (P.L. 88-577). Educational programs using the wilderness would be enhanced considerably through a set of wilderness education goals with a strong environmental education foundation. The Tbilisi Declaration is a document that can form a foundation for such a set of goals and is recognized by environmental educators through out the world (Connect Staff 1978).

The Tbilisi Declaration was a result of the world's first Intergovernmental Conference on Environmental Education. The conference's recommendations formed the equivalent of an action plan for the development of environmental education:

"A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and built environment resulting from the interaction of their biological, physical, social, economic and cultural aspects, and acquire the knowledge, values, attitudes and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment" (Connect Staff 1978).

The Tbilisi Conference also endorsed the following guiding principle for environmental education: **Utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience"** (Connect Staff 1978).

Statement of the Problem

The purpose of this study is to (1) develop a definition of wilderness education; (2) to develop a set of goals for wilderness education with an environmental education emphasis, and (3) prepare an article for publication describing the research and results in this paper.

Significance of the Problem

Many wilderness users want to know more about wilderness. A study by Lucas (1980) on the visitor characteristics of nine wilderness areas found that high educational levels were the most distinguishable social characteristic of visitors. In this study Lucas also found that people wanted to know what is appropriate behavior in the wilderness, but many were misinformed. In a later study of visitor trends, Lucas (1985) reported an increase in educational levels from 1970 to 1982. The high educational levels in visitors indicate a particularly important directive for managers, that of a need for more educational programs. Goals for wilderness education are one way to meet these needs.

To date, there are no formal goals for wilderness education with an environmental education foundation. In recent years, a number of splinter disciplines have emerged in environmental education (i.e., energy education, hazardous waste education, population education, etc.). Wilderness education is a new, emerging discipline under the umbrella of environmental education. Many wilderness programs have emphasized physical skills, leadership development, minimum impact, self-esteem, techniques of wilderness travel and stress challenge. These are important elements of a wilderness program, but wilderness education goals should also incorporate the philosophy of environmental education.

Environmental education strategies are used in many different academic areas. Now, the use of environmental education philosophy in formulating a set of goals for wilderness education can lead to the understanding of the philosophy of wilderness, wilderness values, the wilderness idea, and help motivate people to protect the quality of wilderness areas.

Limitations of the Study

The scope of this paper is limited in the following way:

The goals for wilderness education were developed with an environmental education philosophy to supplement the goals of existing wilderness programs or to help form the foundation of emerging wilderness programs.

Definition of Terms

Wilderness

Numerous definitions of wilderness exist today, ranging from the early pioneers of the wilderness movement to the authors of modern environmental literature. To Aldo Leopold, outspoken wilderness advocate and co-founder of the Wilderness Society, wilderness was a region's ability to "absorb a two week pack trip" (Leopold 1921), or a "blank spot on the map" (Nash 1979). In the Wilderness Act of 1964, in section 2(c), wilderness is defined in two different ways. First, Howard Zahniser, co-founder of the Wilderness Society, developed an ideal, almost poetic definition:

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain" (P.L. 88-577).

Another more legal and physical definition of wilderness was included in the Act:

"An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appear to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value" (P.L. 88-577).

Several contemporary definitions have been developed by modern authors. Nash (1967) understanding the difficulties of identifying a modern workable definition of wilderness put the definition of wilderness on a subjective and personal level: "to accept as wilderness these places people call wilderness". Later, Nash (1979) elaborated his definition of wilderness to be actually "a state of mind evoked by a state of nature ... a quality associated by some people with some places".

Wilm approaches the definition of wilderness much along the same lines as Nash. To Wilm (1974) wilderness "is a function of attitudes, mood and perception more than a

physical criteria" .

Wilderness researchers and managers have understood the variance in wilderness beliefs and have adopted a tool for basing wilderness management decisions. The Recreational Opportunity Spectrum (ROS) is based on possible mixes of activities, settings and probable experience opportunities (Buist and Hoots 1982). The ROS classifies six categories of experiences ranging from primitive areas, on the left, to developed urban areas, on the right. Wilderness experiences would probably take place somewhere in the range of the extreme left of the spectrum - depending on the individual's idea of wilderness. When defining wilderness as a state of mind, there is no absolute that could cover everyone's definition.

For the purposes of this study, the author has developed and synthesized the following definitions of wilderness and wilderness education:

Wilderness: Wilderness is a state of mind evoked by a state of nature, a quality associated by people with some place. Wilderness is a place people perceive and call wilderness. Generally, it is an environment in its natural state with little or no human impact, where people are visitors who do not remain.

The above definition infers a spectrum of wilderness definition dependent on an individual's perception of wilderness. One person's idea of wilderness is not necessarily another person's idea of wilderness. Rather than setting down physical criteria, the definition considers wilderness to be more of an individual matter. When wilderness is defined as a personal belief, it implies a number of definitions (and conditions) dependent on an individual's experience and expectations of a wilderness. This makes defining wilderness a difficult matter.

Wilderness Education

The definition for wilderness education as proposed by the author is as follows:

Wilderness Education: That part of a person's education that deals with wilderness, the wilderness idea, and the values and issues associated with wilderness environments. It includes the acquisition of knowledge about wilderness environments, the values associated

with wilderness, and the skills and abilities to act positively for the preservation of quality wilderness environments.

Environmental Education

The definition for Environmental Education is as follows:

Environmental Education: That education which seeks to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually or collectively, toward achieving and/or maintaining a dynamic equilibrium between quality of life and quality of environment (Harvey 1977).

Literature Review

Human use of wilderness areas is becoming increasingly significant as the earth's population grows and pressures upon wilderness grow. In less than 25 years Americans witnessed the passage of the Wilderness Act in 1964, an explosion of outdoor recreation activities, "the environmental decade", and nearly 90 million acres entered into the Wilderness Preservation System. People literally flocked to the wilds to experience a wilderness encounter. Backpacking, hiking, mountain climbing, river running and other wilderness related adventures were the "in" things to do. Between 1965 and 1980, visitor use of wilderness areas more than doubled (Cordell and Hendee 1982). Projections for the future still indicate a growth in wild land visits, even though the rate of increase has slowed (Roggenbuck and Lucas 1987). Interest in wilderness brought on (1) new or expanded wilderness programs that offered the wilderness as an environmental experience and (2) more attention to wilderness management and the wilderness user. Wilderness education emerged through the literature as a new and developing form of education.

Wilderness Programs

Currently a plethora of enticing wilderness programs are offered to the public. Slick, colorful brochures splashed with visuals of snowcapped mountains and "you" elegantly describe wilderness adventures to areas never before accessible to the casual outdoors-person. These adventures feature a wide spectrum of experiences from basic day hikes, to intense mountain climbing adventures, to visiting underwater national parks. Wilderness programs are being offered by universities, environmental groups, wilderness organizations and private individuals. Most programs supply all the essentials for a wilderness adventure along with a particular theme or objective.

Two well established organizations that have promoted wilderness programs are Outward Bound and the National Outdoor Leadership School.

Outward Bound, with European origins, introduced its program to the North American continent during the early 1960's. Outward Bound is considered a form of

wilderness education but its main purpose was not with the wilderness so much as with the individual. Its educational process was more of teaching in the wilderness and not for or about the wilderness. Outward Bound had concentrated on an individual's personal growth instead of on learning about the natural history of a wilderness setting (Miles 1986/87).

Outward Bound's success paved the way for other wilderness programs. Paul Petzoldt, one-time instructor for Outward Bound, started a new program in the mid-1960's called the National Outdoor Leadership School (NOLS). The NOLS program was similar to the Outward Bound model, but instead of using education in the wilderness, the NOLS program concentrated on teaching for the wilderness. A major emphasis was put on wilderness leadership training to encourage proper use of the wilderness resource.

While Outward Bound and the NOLS gained notoriety as successful outdoor programs, the environmental decade of the 1970's continued to gain momentum. In 1970, students across the nation celebrated the first Earth Day. In subsequent years landmark conservation laws were passed. Wilderness programs also flourished. Boy Scouts, YMCA groups, colleges and universities (some offering credit) began to explore the nature of the wilderness. Hendee (1985) estimated that by the 1980's, more than 400 colleges and universities offered wilderness programs to their students. One university that offered such a program was Idaho State University. Under the program of Parks and Recreation Management, this university developed "Wilderness Experiences: Education for Living". The program contained the affective objective of "developing and clarifying students' values about the wilderness" (Collier 1976). Other academic institutions that offered similar programs included the University of California Extension Program at the Santa Cruz campus, which offered credit for a wilderness studies class (Rumrill 1980). The University of Montana's Wilderness Institute sponsored a Wilderness and Civilization course as part of its undergraduate program (Daubert and Ream 1980). Wilderness and Human Values was yet another interdisciplinary course developed at the University of

California at San Diego . The list could go on and continues to grow.

The United States government has also been active in wilderness education programs. After all, it manages the majority of wilderness areas in the United States. A program developed by Jim Bradley, Wilderness Specialist for the U.S. Forest Service, used a "human approach" method, using education as a management tool (Bradley 1979). The objective of Bradley's program was to reduce impact from wilderness users through education. Bradley's "Human Approach to Reducing Wildland Impacts" program was aimed at reducing visitor impact on the wilderness by educating the wilderness user and therefore changing the user's behavior towards the wilderness (Bradley 1979). The success of his program spread quickly and before long Bradley was presenting workshops on his education techniques to other wilderness managers.

In the spring of 1981, the Journal of Environmental Education dedicated an entire issue of its quarterly publication to wilderness education. Authors described programs and experiences with wilderness programs. An editorial by Roderick Nash concentrated on the educational value of wilderness trips. In describing characteristics of successful wilderness programs, he stated that "wilderness education must intellectualize the wilderness experience; knowing and understanding rather than feeling and doing are the emphasized goals" (Nash 1980). These attributes, along with the fact that wilderness needs interpretation, are important in any wilderness education program (Wood 1974).

The wilderness education programs described above are but a fraction of the number of wilderness programs being offered to people interested in learning about the wilderness. To examine all types of programs would be well beyond the scope of this paper. For the purposes of this study, five well established programs were analyzed and used as a reference for developing a set of goals for wilderness education (these programs are listed in the Methods section).

Wilderness and Education

Support for wilderness education can also be found from concerns of researchers,

authors and wilderness managers. Studies on and about the wilderness and wilderness users increased dramatically during the last two decades. Even though there was a considerable amount of wilderness research, only a fraction of it dealt directly with education. The findings of this research revealed interesting implications for wilderness education

Much of the literature describes over-use conditions and adverse environmental impact upon wilderness areas due to increased and improper use. In some cases, wilderness managers, in order to protect the wilderness resource, have resorted to heavy management restrictions such as regulating numbers of entries or rationing the use of areas.

Hard-handed management practices can have a devastating impact on organizations that sponsor and lead wilderness outings. Rationing, lottery or other management practices that attempt to maintain wilderness quality by a pure numbers game could have organizations like the NOLS in deep trouble. The NOLS's experienced leaders bring thousands of people in contact with a variety of wilderness areas each year. Limiting wilderness use by a total numbers system could impair the NOLS and other similar wilderness programs. "Degradation of the wilderness environment is not just a function of visitor numbers, but of insensitive and ignorant behavior patterns which could be changed through education" (Willcox 1981).

Thus, the problem of wilderness degradation may not be so much with the number of users in a wilderness area, but with the level of responsible wilderness behavior. In order to address the question of wilderness responsibility, Peter Simer, NOLS's past Director, called for an agenda to educate the wilderness user (Simer 1981). He viewed the competence of wilderness travelers to be of more significance than the number of wilderness travelers and suggested that education could be the binding network to bridge the ignorance gap.

Other people have expressed similar views, that an "emphasis on education, especially programs that influence user attitudes and values" could better reduce the impact

on wilderness environments (Kneeland 1980). Even though brochures and handouts are helpful, better educational techniques need to be used. To these people, effective teaching methods can insure that visitors understand how to protect wilderness quality.

In his previously mentioned article, Bradley (1979) reveals the failures of regulations due to: the difficulty to enforce them over large expanses of wilderness; that regulations focus on incorrect personal behavior (instead of reinforcing positive behavior) and, finally; regulatory controls are something people want to escape from in their daily lives. Education, through personal contacts, "the human touch", is the "most effective tool to reduce impacts" (Bradley 1979). His "Human Approach" program is a practical example of how a land manager used wilderness education techniques to help solve a wilderness issue, without an overbearing set of rules and regulations.

The U.S. Forest Service initiated a new research program in 1967 focusing on wilderness management and the wilderness user. The catalyst for doing so resulted from the fact that wilderness and primitive areas had grown only five percent between 1946 and 1974, but wilderness use was up 1400% (Lucas 1974).

The dramatic increase in wilderness use by the public, especially during the last twenty years, was just one noted phenomenon. Uneven distribution of wilderness use was another. Studies on user dispersal are well documented. One study used a passive wilderness education technique. A brochure describing crowded areas in the Boundary Waters Canoe Area was mailed to potential visitors in hopes to avoid crowded areas. This passive approach influenced travel to more lightly used areas (Lime and Lucas 1977). The results of other information studies have been mixed, suggesting that people may need more active techniques (such as people to people contact) to influence their behavior (Stankey and Schreyer 1987).

In a study of Pacific Northwest wilderness users, researchers surveyed user characteristics and found that wilderness users were "highly educated with more than 60 percent coming from less than the top 10 percent of the U.S. population in terms of

educational attainment" and that wilderness users expressed their support for nature interpretation in the wilderness (Hendee, et. al. 1968).

The Renewable Resources Recreation in the U.S.: Supply, Demand and Critical Policy Issues report found that wilderness users reflected a high educational attribute and that nature study was a popular activity in the wilderness (Cordell and Hendee 1980).

In 1971, Kneeland (1981) surveyed all national parks and monuments with over 20,000 acres and all national forests with management responsibilities for wilderness areas. He found that in the majority of the management units little was being done to educate visitors. From Kneeland's survey, however, managers indicated that education takes a high priority in solving problems of wildland abuse (Kneeland 1981).

An interesting study on the lives of a group of modern conservation leaders showed that "youthful experience of the outdoors and relatively pristine environments emerges as a dominant influence in these lives" (Tanner 1980). Introducing young people to wilderness experiences can create support for preserving the integrity of wilderness and possibly nurture future wilderness advocates. The more people know about the wilderness the more favorable opinion they will have towards the concept of wilderness (Young 1980). Wilderness programs targeted toward young people would benefit the integrity of wilderness environments.

High education levels, youthful experiences and the desire for nature interpretation and wilderness knowledge paints a supportive picture for the development of wilderness education. More education efforts with a variety of approaches need to be implemented. Poorly informed or uneducated wilderness visitors can set poor examples for other users and perpetuate the damage to wilderness environments (Kneeland 1981). Researchers, scientists and wilderness educators have often voiced their concern for educating visitors to wild areas (Hendee, et.al. 1968) (Wood 1974) (Kneeland 1980) (Willcox 1981).

Current literature exhibits support for and provides examples of wilderness

education. At the same time, wilderness education remains a young and rapidly growing discipline. In order to mature into an effective field of endeavor, wilderness education requires a strong foundation of goals for educators to base wilderness curriculum, program ideas, and management strategies.

Wilderness education was defined earlier in the paper. Now, a set of goals is needed to provide a solid foundation for wilderness education.

Methods

There are many positive approaches to wilderness education. Yet no clear, coherent plan exists that blends together the numerous efforts found in the field of wilderness education. A set of goals could be the beginning of a unified effort among wilderness educators. With a set of goals, current and future programs could incorporate their program objectives in a cohesive fashion to help resolve wilderness issues.

The steps taken in the development of the goals for wilderness education were:

- (1) Reviewed current research and literature as it relates to wilderness education and relevant programs.
- (2) Surveyed and reviewed five well-established organizations that utilize the wilderness for their programs. The goals and/or objectives were analyzed and used for input in the development of a set of goals for wilderness education.

The organizations surveyed included:

- a) National Outdoor Leadership School
 - b) Wilderness Education Association
 - c) Outward Bound (USA)
 - d) Sierra Club (Outing Department)
 - e) U.S. Forest Service (Human Approach to Reducing Wildland Impacts program)
- (3) Reviewed the set of goals of environmental education, according to the Tbilisi Declaration.
 - (4) Synthesized a set of preliminary goals for wilderness education. The format used for developing the Goals for Curriculum Development of Environmental Education was used for developing the Goals for Wilderness Education. The preliminary set of Goals for Wilderness Education were constructed from: existing wilderness programs, the goals of environmental education and current literature.

- (5) Developed a list of assumptions for the Goals for Wilderness Education. the assumptions developed by the author are:
- a) That the goals for wilderness education are appropriate for guiding wilderness education efforts.
 - b) That the goals for wilderness education were patterned on a model that was used in developing the Goals for Curriculum Development in Environmental Education (Hungerford, Peyton and Wilke 1980), and that this model is appropriate for the development of the goals for wilderness education.
 - c) That the overall goal is philosophically correct as stated. This goal represents the most appropriate direction for wilderness education to meet the challenges facing people and wilderness issues.
 - d) That the goals for wilderness education are hierarchical. They consist of general goals and subgoals.
 - e) That instructional objectives can be developed under each subgoal for wilderness education program development.
 - f) That wilderness outdoor skills and wilderness knowledge are critical in any wilderness education program as a prerequisite to the remaining levels.
 - g) That some level of "environmental sensitivity" is critical in wilderness education and must be part of wilderness education or a prerequisite of wilderness education.
 - h) That, therefore, wilderness education is a subset of environmental education.
- (6) To insure content validity in the development of a set of goals for wilderness education, the proposed set of Goals for Wilderness Education, assumptions made by the author and a set of validity assessment questions were sent to a panel of six nationally recognized wilderness leaders and/or representatives of organizations for their reaction. The use of a validity panel was used in the development of the Goals for Curriculum Development for Environmental

Education (Hungerford, Peyton and Wilke 1980) and is an acceptable form of establishing content validity (Ary, Jacobs and Razavich 1972) (Kerlinger 1973).

The panel includes:

- a) Roderick Nash, Professor of History and Environmental Studies at the University of California at Santa Barbara
- b) Robert Lucas, Project Leader, Wilderness Management Research, USDA Forest Service
- c) Kenneth Wall, Wilderness Institute, University of Montana
- d) Martin Sorensen, Chairman, Sierra Club National Wilderness Subcommittee
- e) Mike Fischesser, Director of National Training Institute, Outward Bound

USA

- f) John Gans, Director NOLS Alaska

(7) A final set of goals of wilderness education was developed based on the reactions from the panel and within the confines of the philosophy of environmental education.

List of References

- Ary, D., Jacobs, L.C. and Razavich, A. 1972. Introductions to Research in Education. New York, Rinehart and Winston, Inc.
- Bradley, James. 1979. A human approach to reducing wildland impacts. In Conference Proceedings: Recreational impacts on wildlands. USDA Forest Service.
- Buist, Leon and Thomas A. Hoots. 1982. Recreation opportunities spectrum and approach to resource planning. *Journal of Forestry*. 80(2):84-86.
- Collier, James A. 1976. Wilderness experiences: education for living. *American Biology Teacher*. January: 24-26, 39.
- Connect Staff. 1978. The Tbilisi Declaration. Connect. UNESCO-UNEP Environmental Education Newsletter 3(1): 9-16.
- Cordell, Ken H. and John C. Hendee. 1982. Renewable resources recreation in the U.S.: Supply, demand and critical policy issues. Prepared for the National Renewable Natural Resources. Nov. 30-Dec. 4, 1980. American Forestry Association. Washington, D.C Revised for publication in 1982.
- Duabert, Thomas F. and Robert R. Ream. 1980. Wilderness and classrooms. *Journal of Environmental Education*. Vol. 11(3): 16-18.
- Fletcher, Colin. 1968. The Complete Walker. New York. Alfred A. Knopf Inc.
- Hart, Paul. 1980. New backcountry ethic: Leave no trace. *American Forests*. August: 38, 41, 51-54.
- Harvey, Gary D. 1977. Environmental Education: A delineation of substantive structure. *Dissertation Abstracts International* 38 (1977): 611A-612A.
- Heinrich, Jay. 1980. Wilderness can we have it and use it too? *American Forests*. March: 16-19, 46-55.
- Hendee, John C., and George H. Stankey. 1973. Biocentricity in wilderness management. *Bioscience*. Vol. 23(9): 535-8.
- Hendee, John C., William R. Catton, Jr., Larry D. Marlow and C. Frank Brockman. 1968. Wilderness users in the Pacific Northwest-their characteristics, values, and management preferences. U.S.D.A. Forest Service Research Paper PNW-61.
- Hendee, John C. 1985. Wilderness ... The next twenty years. Distinguished Wilderness Lecture. NOLS Twentieth Anniversary Celebration.
- Hungerford, Harold R., Ben R. Peyton, Richard J. Wilke. 1980. Goals for curriculum development in environmental education. *Journal of Environmental Education* 11(3): 42-47.
- Kerlinger, F.N. 1973. Foundations of Behavioral Research. 2nd edition. New York: Holt, Rinehart and Winston, Inc.
- Kneeland, Tim. 1980. Teaching a new wildland ethic. *Naturalist*. 31(4): 6-8.
- Kneeland, Tim. 1981. Educational programs to reduce impact upon wildlands. *Recreation Resource Management Bulletin*. Vol. 1(2): 18-21.

- Leopold, Aldo. 1921. The wilderness and its place in forest recreation policy. *Journal of Forestry*. 19:719
- Leopold, Aldo. 1935. Why the wilderness society? *The Living Wilderness*. September 1935. Reprinted in *The Living Wilderness*. 43:9-13.
- Lime, David W. and Robert C. Lucas. 1977. Good information improves the wilderness experience. *Naturalist* 28(4): 18-20.
- Lucas, Robert. 1974. Forest Service wilderness research in the Rockies. U.S. Government Printing Office: 1974. 677-093/36.
- Lucas, Robert C. 1980. Use patterns and visitor characteristics, attitudes and preferences in nine wilderness and other roadless areas. USDA Forest Service Research Paper INT -253.
- Lucas, Robert C. 1985. Visitor Characteristics, attitudes and use patterns in the Bob Marshall Wilderness Complex, 1970-82. USDA Forest Service Research Paper INT-345.
- Miles, John C. 1986-87. Wilderness as a learning place. *Journal of Environmental Education*. 18(2): 33-40.
- Nash, Roderick. 1967. Wilderness and the American Mind. Revised edition. New Haven, Connecticut: Yale University Press.
- Nash, Roderick. 1982. Wilderness and the American Mind. 3rd. edition. New Haven, Connecticut: Yale University Press.
- Nash, Roderick, 1979. Wilderness is all in your mind. *Backpacker*. 31:39-41,70-74
- Nash, Roderick. 1980. Wilderness education principles and practices. *Journal of Environmental Education*. 11(3): 2-3.
- Petzoldt, Paul. 1974. The Wilderness Handbook. New York . W.W. Norton and Company, Inc.
- Public Law 88-577. 1964. The Wilderness Act. 88th Congress, 5.4.7p.
- Roggenbuck, Joseph W. and Robert C. Lucas. 1987. Wilderness use and user characteristics: A state-of-knowledge review. Proceedings - National Wilderness Research Conference: Issues, State-of-knowledge, Future Directions. USDA Forest Service General Technical Report INT-220.
- Rumrill, Gene. 1980. Academic horizons in wilderness. *Journal of Environmental Education*. 11(3): 4-6.
- Scott, Neil R. 1974. Toward a psychology of wilderness experience. *Natural Resource Journal*. Vol. 14: 231-237.
- Simer, Peter. 1981. NOLS director calls for new wilderness agenda. *NOLS Alumnus*. Winter: 3.
- Stankey, George H. and Richard Schreyer. 1987. Attitudes toward wilderness and factors affecting visitor behavior: A state-of-knowledge review. Proceedings - national Wilderness Research Conference: Issues, State-of-knowledge, Future Directions. USDA Forest Service General Technical INT-220.

- Stankey, George H., Robert C. Lucas, and David W. Lime. 1976. Crowding in parks and wilderness. *Design and Environment* 7(3):38-41.
- Tanner, Thomas. 1980. Significant life experiences: A new research area in environmental education. *Journal of Environmental Education*. 11(4):20-24.
- Washburne, Randel F. and David N. Cole. 1983. Problems and practices: a survey of managers. USDA Forest Service Research Paper INT-304.
- Willcox, Louisa. 1981. Wilderness management: Wilderness certification: An idea whose time has come? *NOLS Alumnus*. Summer 1981: 6,8.
- Wilm, Harold G. 1974. Wilderness redefined. *American Forests*. 80(5): 16-17.
- Wood, Harold Wm., Jr. 1974. Environmental education and the wilderness idea. *Journal of Environmental Education*. 6(2): 50-52.
- Young, Robert A. 1980. The relationship between information levels and environmental approval: The wilderness issue. *Journal of Environmental Education*. 11(3): 25-30.