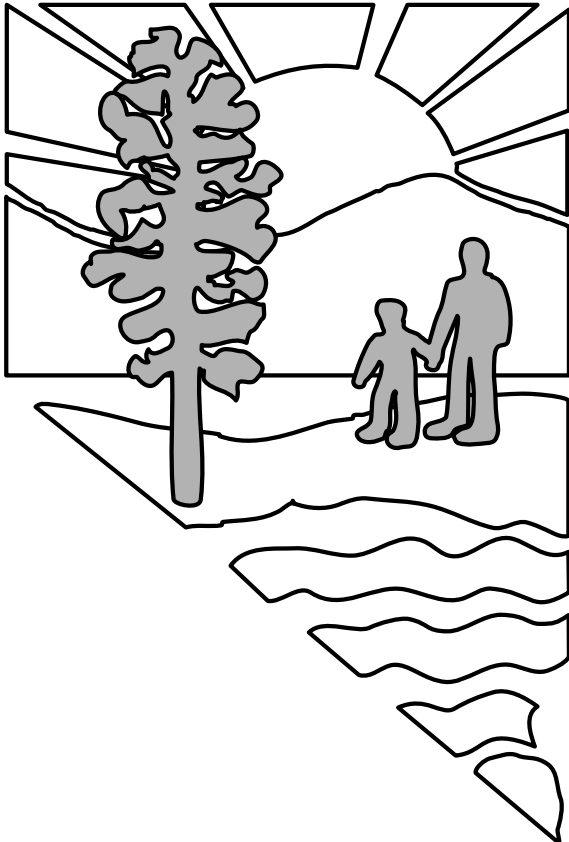


The State of Environmental Education in Nevada 1993-94

*A Report Prepared by the
Nevada Natural Resource Education Council*



Environmental education:

- what is it?
 - principles
 - legal mandates
 - school programs
 - residential programs
 - curriculum resources
 - natural resource agencies
 - educators' workshops
 - coordination
 - looking to the future
-

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The State of Environmental Education in Nevada 1993-94

by
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Environmental Education: What Is It?

Many terms have been used to describe what those in the profession refer to as EE (environmental education). Earth education, nature education, outdoor education, ecology, etc. each represent what may be separate concepts with varied goals. We in the Nevada Natural Resource Education Council have chosen “natural resource education” because we realize mankind’s need to utilize many of the earth’s diverse resources, as well as his responsibility for wise stewardship of those resources. The air, water, even the beauty of the earth are just as much natural resources as are its minerals, oil, forests, and wildlife.

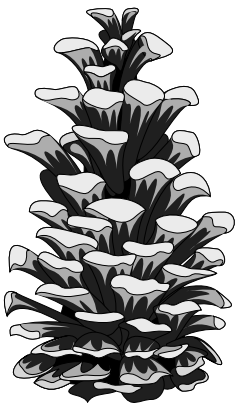
Environmental education should not be confused with what has been called the “environmentalist” movement. Nor should it be considered strictly a science. Environmental education is an *interdisciplinary* field. A study of coyotes, for example, is more than just biology. History, sociology, agriculture and economics all contribute to an understanding of the coyote’s ecological niche and its interactions with its environment and with man.

The environment is an integral part of all cultures. *Every person*, regardless of their political, social or economic condition, is continually affected in some way by the environment. Likewise, our day to day actions have an impact on the environment. The

food we eat, the clothes we wear, the products we use, the homes we live in, even the air we breathe are taken from and are returned to the environment in some way.

In general, environmental education means teaching people about the physical and biological world in which we live, how it works, how it affects us and how we affect it. The intent of true environmental education is to develop in people an *awareness* of the natural world around them (locally as well as globally), an *understanding* of the relationships that make up its ecosystems, and a realization of the impacts, real or potential, immediate or cumulative, of their own *actions* on those ecosystems, so that they will be better able to make informed, responsible *decisions*.

The education of citizens of all ages is important, but the key to effective management of our environment in the future is the effective education of our children today. They will soon be making the decisions that determine society’s lifestyles and affect the world around us. It behooves all of mankind to prepare our children for this responsibility by instilling in them an appreciation and understanding of their environment and their relationship with it. ♣



Principles

Most successful environmental education programs are developed around a few basic principles. These principles apply to all audiences, regardless of age.

The importance of understanding *ecological concepts* should be emphasized. The fundamental concepts of interrelationships, cycles and change are essential to understanding the dynamics of the environment, including man's role in it. This is not to say that specific details, like knowing the names of plant species, are unimportant, but such details are more meaningful with an appreciation of these interrelationships, cycles and changes.

Environmental education must be *objective* with respect to controversial issues. It's easy to become centered on our personal opinions about human activities such as hunting, logging or mining, or to present one-sided interpretations of an issue. Objective learning examines all points of view and focuses on evaluating them with a fuller understanding of how the environment works. As a result, "informed" decisions can be made by the individual.

Although much can be taught about the environment in the classroom or other indoor setting, the

student's personal *contact with nature* is a key to developing appreciation and interest. Many young people raised in an urban setting have never seen a squirrel gathering nuts, never felt the texture of a leaf, or hugged a tree. The excitement and awe in their eyes at their first experience in the field is inspiring.

Discovery is a learning method that helps to keep the learner's interest. Guided exploration resulting in one's own discovery of some natural wonder or fact is more satisfying and has a longer-lasting impact than reading or lecture alone. Studies have shown that "hands-on" learning activities are 90% effective in long-term memory retention. It's more fun, too!

Building *thinking skills* is also important. It has been said that true environmental education is not teaching what to think, but HOW to think. A skillful instructor (or, more correctly, facilitator) can lead a discussion that provokes thoughtful consideration of all aspects of a subject. ♣

"...Speak to the earth, and it will teach thee."
— The Bible (Job 12:8)

Legal Mandates

Yes, it's the law! (But...)

In 1971, the Nevada Legislature made environmental education mandatory in all elementary and secondary schools of the state. NRS 389.110 requires that curricula include “instruction concerning the preservation and protection of our environment, the principles of ecology, and the principles of conservation of our natural and human resources.”

In addition, secondary school counselors must provide students with information on environmental careers and education (NRS 389.120), and each school district was directed to investigate the feasibility of outdoor environmental education and camping programs in coordination with the Superintendent of Public Instruction (NRS 389.130).

In 1979, the Superintendent was also mandated to develop or adopt environmental education instructional materials and in-service teacher training as well as to coordinate the efforts of the educational system, school districts, private organizations and government agencies concerned with environmental education (NRS 389.140).

These statutes have never been fully implemented, primarily because no funding was provided for the programs. At present, there is no coordinator or consultant for environmental education in the Nevada Department of Education. At one time, the Department's Math and Science Consultant provided some coordination, but there is no longer such a position. ❁

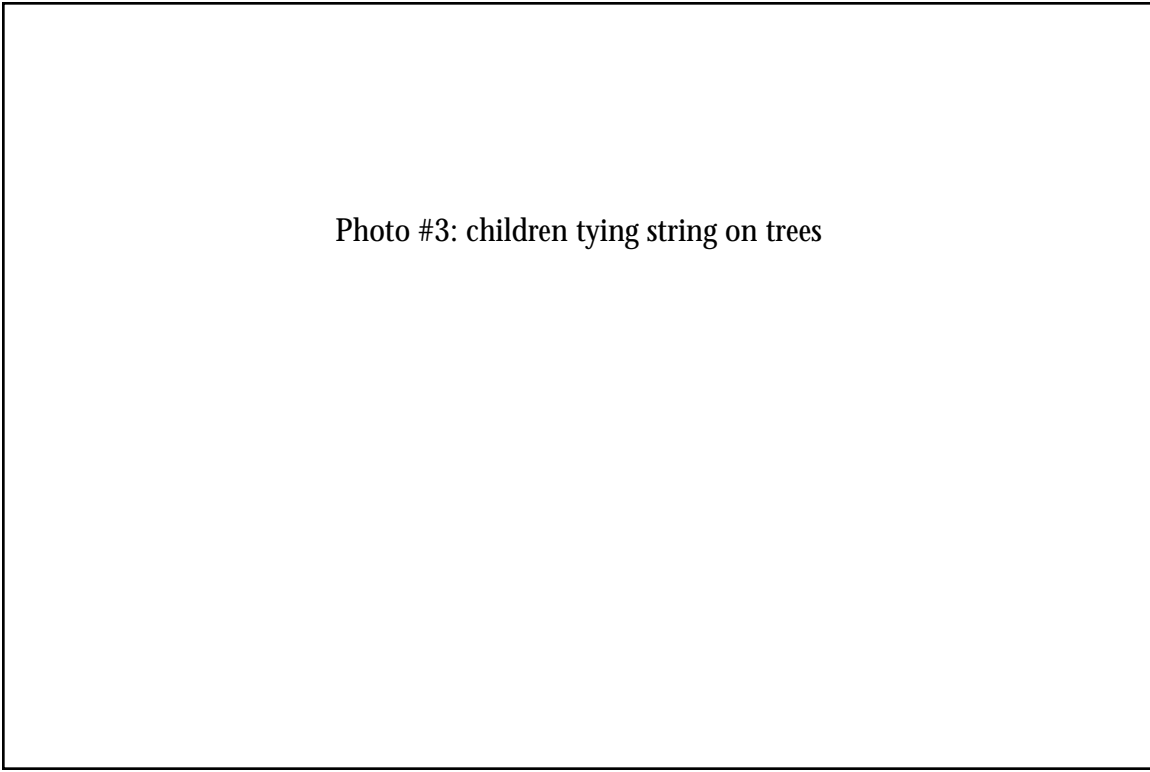


Photo #3: children tying string on trees

School Programs

With the absence of a coordinated curriculum, some school teachers have developed environmental education programs of their own. Many utilize generic information or materials gleaned from various sources for their individual classrooms, while others have created organized programs that are shared with fellow teachers at their school.

Only a few high schools in the state offer environmental science courses in their curricula at this time. The curriculum at Eldorado and Chaparral High Schools in Las Vegas was written by local teachers. McQueen High School in Reno has incorporated classroom and laboratory studies, field trips and guest speakers into its new program, but funding for the needed equipment, computer programs and field trips has been difficult to find. Washoe County School District will be implementing a similar course in the fall of 1993.

In Clark County, Woolley Elementary School houses the Science Museum and Instructional Laboratory for the Environment (SMILE), and McDoniel Elementary School has a Marine Lab. The Whitney Mesa Educational Nature Preserve is currently being developed jointly by teachers at

Treem and Thorpe Elementary Schools and White Middle School. Valley High School is a participant in the international Global Laboratory project, funded by the National Science Foundation.

Spring Creek Elementary School in Elko holds an annual Environmental Week, featuring guest speakers, demonstrations and other activities. All 5th grade students in Elko participate in an annual environmental education field trip to Lamoille Canyon sponsored by the U.S. Forest Service.

Other schools around the state have developed local environmental education programs or projects, but specific information was not available at the time of this printing.

Post high school educational programs are offered by the University of Nevada System. At UNLV, the Environmental Studies Program is in its second year and going strong, with an undergraduate curriculum and internship program. UNR's new Center for Environmental Sciences and Engineering offers undergraduate and graduate programs. Sierra Nevada College at Incline Village also offers ecology and environmental sciences. ♣

Residential Programs

A residential environmental education program is one in which students spend several days in a rural camp setting, where they can learn about the environment through personal investigations in the field. Extending the program over several days facilitates more complete studies and activities, and helps the student become more comfortable in an outdoor setting. At present, there are only two such programs in Nevada.

Range Camp is sponsored each year by the Society for Range Management, Nevada Wildlife Federation, and Nevada Cooperative Extension. The nine-day camp, held near Austin in central Nevada each June, is open to youths 14 to 17 years of age. The students participate in investigations of range management and conservation.

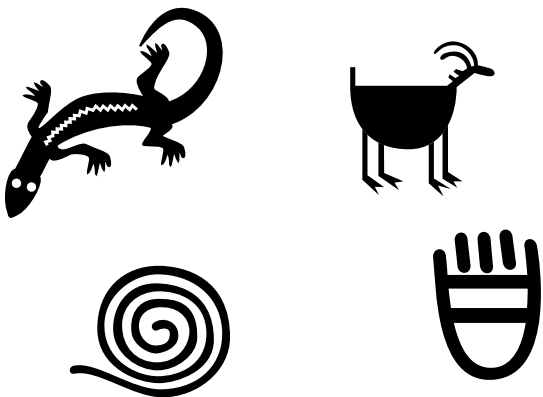
4-H Camp, sponsored by the UNR's Nevada Cooperative Extension, is a three-day experience at Lake Tahoe for 4-H members in 3rd through 8th grades. There are two sessions held each summer.

Camp FLEE (Future Leaders in Energy/Environmental Education) is coordinated by NEE-NET (Nevada Energy/Environmental Education Network). Students in grades 5 through 8 spend a week at Lake Tahoe conducting investigations in one of several "task force" groups focusing on

various fields of interest. Instruction is provided by a staff of high school students, under the direction of adult advisors. Beginning this year, Camp FLEE will also be offered as a day camp in several communities.

The **High Sierra Resource Workshop**, new in 1993, is cosponsored by the U.S. Forest Service, Nevada Division of Forestry, and Carson-Walker Resource Conservation and Development Area. Set in the Carson-Iceberg Wilderness near Carson City, area high school science students will participate in a week of investigations into forestry, wildlife, range, water and soil topics, as well as urban/wildland interface issues.

At this time, there are no residential environmental education camps in southern Nevada. Efforts are currently underway by several organizations to establish residential environmental education camps in the Reno and Las Vegas areas, to make this type of program more accessible to students in these urban centers. NNREC and NEE-NET began a joint study in February 1992, and NEE-NET was recently awarded a grant from the Department of Energy to develop a pilot program for an outdoor residential camp in southern Nevada. NNREC will continue to help coordinate this project, but funding and facilities are the biggest challenges in getting such programs under way. ❄



Curriculum Resources

There is a variety of environmental education materials, curricula and other resources available to teachers and other educators from various sources. Some are listed here. Activity guides, posters, and structured programs can be used independently or to supplement existing curricula. One should be careful to consider the source of the materials, as some special interests may present a slanted view on topics. Even so, in the right context all of these resources can be useful. If you have difficulty locating any of these resources, contact NNREC.

The Nevada Natural Resource Education Council has published a booklet, "Environmental Education - A Resource Directory for Nevada", available at no cost to educators and others interested. The booklet lists agencies and organizations that have materials, programs or facilities available for environmental education purposes. Write to NNREC at the address at the front of this publication to request a complimentary copy of the directory.

The Northeastern Nevada Naturalists have compiled a directory of agencies, speakers and publications available for Elko County schools, and NEE-NET is also developing a resource directory.

Sierra Pacific Power Company sponsors the Think Earth program, a series of instructional units for grades K through 3 that includes a video, lesson plans and other materials. Nevada Power Company has several energy education curriculum packets for elementary, middle and high school teachers. Southwest Gas also has energy education materials for all grades. Most other utilities offer conservation literature of some type. The Nevada Office of

Community Services also has a number of energy education publications available.

The Silver Wildlife Teacher's Handbook was produced by The Wildlife Society - Nevada Chapter to be used in conjunction with the Silver Wildlife slide/tape program series available at the Nevada Department of Wildlife. The National Audubon Society publishes Audubon Adventures, a series of leader's guides.

Animal Ark, Inc. in Reno provides on-site presentations on North American wildlife, particularly predators, featuring up-close looks at live animals. Call of the Wild in Las Vegas is a mobile animal education program with in-class presentations on habitat and conservation, also with live animals.

Southern Nevada Clean Communities produced a littering and recycling education program called Andrew and the Crusaders, featuring a video series and activity book.

The Nevada Wildlife Federation distributes the National Wildlife Week teacher's kit, which includes activities, posters and information focusing on a different theme each year. Several other National Wildlife Federation educational booklets and materials are also available.

The Sierra Institute for Environmental Research and Education at Lake Tahoe has ecology and limnology curriculum guides and lesson plans for 6th grade.

continued next page

The Las Vegas Review-Journal, in cooperation with local agencies and specialists, produced Our Living Desert, a newsprint tabloid on the southern Nevada desert, including plants and animals, geology and water issues.

The Nevada Natural Resource Education Council is coordinating with several agencies and the Clark County School District to develop an educational

curriculum and facility for the Desert Tortoise Conservation Center near Las Vegas.

A number of other local and national agencies and organizations have educational materials available, such as posters, booklets and literature. Addresses for these may be found in NNREC's Resource Directory. ♣

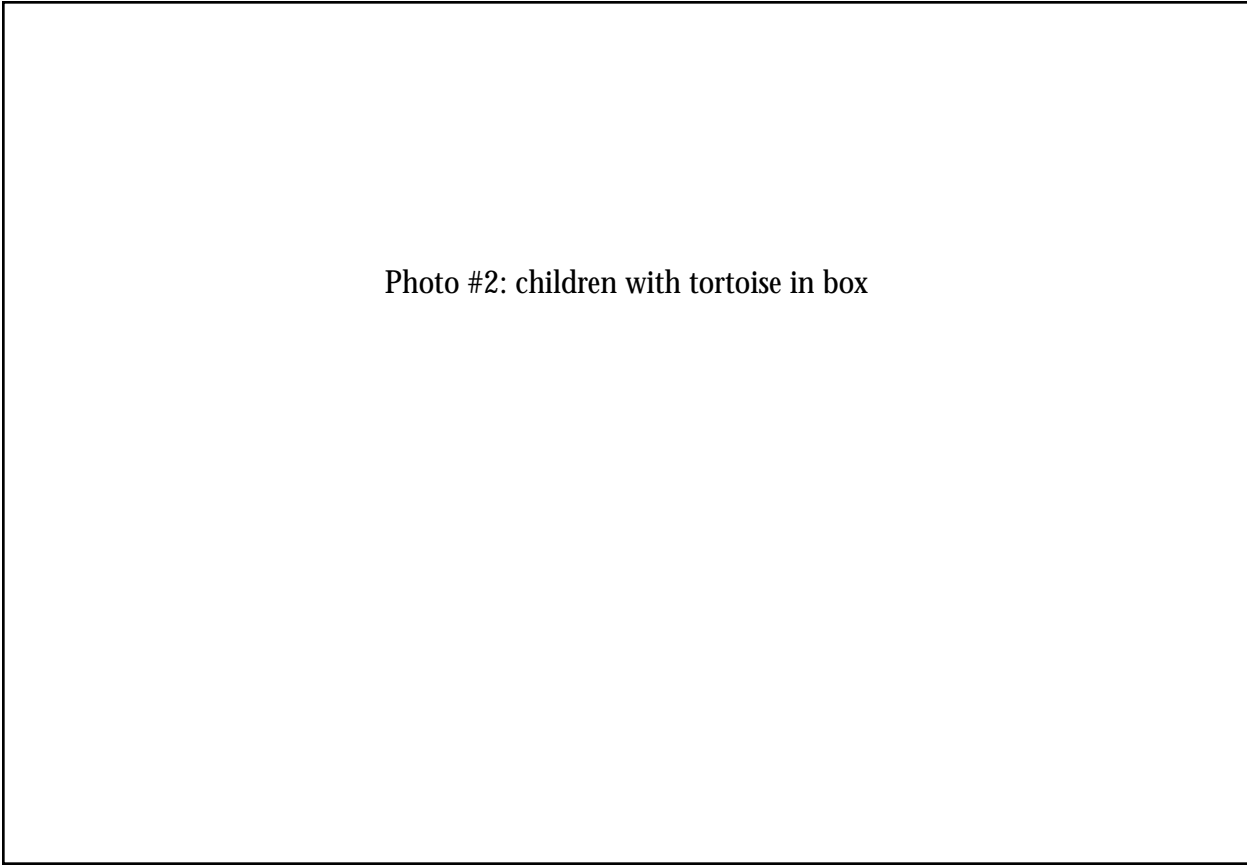


Photo #2: children with tortoise in box

Natural Resource Agencies

Many federal and state agencies that administer natural resources or public lands have environmental education materials, curricula or programs available to the public, some specifically to educators.

The USDA Forest Service cosponsors environmental education workshops and programs throughout the region, and has developed environmental education materials, including posters and the Investigating Your Environment series. Grants are available through the Natural Resource Conservation Education Program for environmental education projects. Camp DOT-SO-LA-TE at Lamoille Canyon near Elko is an environmental education and campfire program for the handicapped. The Forest Service also sponsors the Smokey Bear fire prevention campaign.

The USDI Bureau of Land Management is also active in environmental education. At the Red Rock National Conservation Area near Las Vegas, the Lost Creek Children's Discovery Trail is open to the public as well as school groups, and includes an activity guide booklet. They also have a Junior Ranger program and a 4th grade curriculum packet on America's Wild Horses, featuring the Legend activity booklet. A Riparian Habitat and Management field trip to the Pearl Creek Riparian Exclosure is sponsored each year for 6th graders.

The National Park Service at Lake Mead National Recreation Area has developed the Desert Connections series, an on-site integrated curriculum for grades K-6, and has some funding for bus transportation costs from area schools. They also have a

Junior Ranger program and a series of in-school presentations. The Great Basin National Park offers a teacher training program.

The U.S. Environmental Protection Agency has a variety of educational materials and educator's information, and offers a speaker's bureau and on-site tours. Grants are available for environmental education projects.

Nevada Department of Wildlife operates the Oxbow Nature Study Area in Reno, with interpretive and environmental education programs, including an in-service workshop for teachers. The agency also sponsors the Project WILD and Aquatics programs and has other wildlife and aquatic education materials available.

The Nevada Division of Forestry sponsors the Project Learning Tree and, more recently, NatureScope programs. They also provide wildland fire prevention programs and Smokey Bear educational materials.

The Nevada Department of Minerals, in cooperation with the Clark County School District and the Nevada Mining Association, developed Project MINE, a four part video series and curriculum guide for grades K-6. A number of other resources are available, including a teacher's resource guide, a junior high program on mining history in Nevada, booklets, maps and posters.

continued next page

Nevada Cooperative Extension provides water resource education programs to the public, as well as in-school programs for 4th, 7th and 12th grades classes. The Wise Water Ways leader's kit is available for recreation and youth groups. The Water Resource Library for Teachers provides lessons designed to correlate with the school district's Curriculum Essentials Framework. Several other educational programs focusing on the southern Nevada environment have been developed for in-school presentation. NCE also sponsors 4-H Camp.

Many of the Nevada State Parks offer interpretive and environmental education programs, including in-service programs for teachers, wildlife and plant walks, and conservation topics.

The Washoe County Parks and Recreation Department offers environmental programs at various parks and facilities, including the Great Basin Adventure at Rancho San Rafael Park in Reno. The Great Basin Nature Interpreters offer educational programs at parks throughout the region. ♣



Photo #1: NDF forester with tree cookie

Educators' Workshops

A number of environmental education workshops for educators are offered by government agencies and private organizations. These workshops are popular with school teachers, who often earn recertification credit, but others involved with education and environment also attend. Workshops are strictly voluntary and there is no follow-up to see whether the skills acquired are actually used.

The Nevada Natural Resource Education Council sponsors two separate five-day workshops each summer for educators, youth group leaders and resource agency personnel. The **Nevada Outdoor Education Workshop** held at Lake Tahoe features field investigations in forestry and other topics, an introduction to available resource materials and current issues, discussion skills and instructional strategies. The **Mt. Charleston Outdoor Education Workshop** is located near Las Vegas and also includes investigations in deserts, mining and wash ecology. Facilitators for both workshops are members of the Intermountain Environmental Education Training Team.

Several other natural resource agencies and organizations offer in-service workshops for teachers and other educators. The Nevada Division of Forestry has the **Project Learning Tree** and **NatureScope** programs, the Nevada Department of Wildlife

sponsors **Project WILD** and **WILD Aquatics**, and the Nevada Division of Water Planning and Nevada Cooperative Extension recently began **Project WET** (Water Education for Teachers). These workshops introduce teachers to the respective activity guides as well as other information and issues.

The Nevada Mining Association and the Nevada Department of Minerals sponsor a two-day **Mineral Education Conference** for teachers. The annual conference is held in a rural area and includes a visit to an operating mine, while separate conferences are offered for teachers in urban areas. The program provides hands-on activities and focuses on the importance of minerals to society.

The first **Regional Teacher Institute for Energy and Environmental Education**, sponsored by NEE-NET, was held in May, 1993. The Institute introduces teachers from around the state to available environmental education resources and materials. They will also participate in experiential outdoor education activities and discussions of successful programs and needs.

The Mirage resort's Dolphin Project (Marine Operations) in Las Vegas offers **Marine Biology in a Desert Environment**, a four-week in-service workshop for teachers. ♣

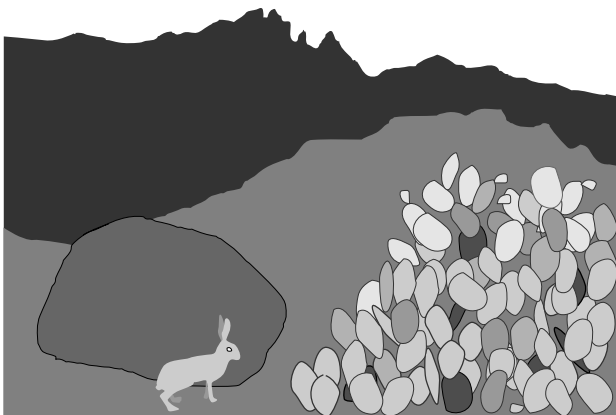
Coordination

Since 1986, the **Nevada Natural Resource Education Council** has worked to coordinate the environmental education efforts of various government agencies, organizations and schools in this state. There are active chapters in the Reno and Las Vegas areas. We organized a committee in southern Nevada involving the Clark County School District and Las Vegas area agencies offering environmental education opportunities to discuss common problems and provide coordination to reduce duplication of effort. We began a similar committee more recently in the Reno area for the same purpose, in cooperation with NEE-NET. More information about NNREC is provided at the end of this publication.

The Nevada Energy/Environmental Education Network (NEE-NET) was established in 1991 and funded by the Governor's Office of Community Services, with offices at UNR and UNLV. Originally created to develop energy education programs, this organization's expanded goals are similar to those of NNREC. NEE-NET is currently funded by the state's oil overcharge fund, which is now dwindling, and a new funding source is needed to continue the agency's programs.

In Ely, the Great Basin Natural Resource and Cultural Heritage Fair has brought together a working group of community leaders, educators and agencies to develop an environmental education program for the White Pine County School District, including teacher in-service training.

This publication describes the efforts of many entities, private and public, that recognize the importance of environmental education, particularly in the schools, and have worked to fill the gap. Even so, they cannot fulfill the needs of the entire state. While environmental science should be recognized as a subject in its own right, it is an interdisciplinary field requiring interdisciplinary coordination at all schools. The school system must be actively involved in coordinating environmental education to ensure that effective programs are utilized in all schools statewide, so that all of our children will be adequately and equally prepared for their responsibilities as adults. That need was acknowledged by our legislators 20 years ago when the state's environmental education laws were passed, and is just as clear a need today. ♣



Looking to the Future

A Vision of the Future

In the future, Nevada can be a place where:

- ❖ people see the desert environment not as a handicap to be overcome but as a place of beauty to be lived within
- ❖ individuals are aware of the impact their decisions and actions have on the health of the environment and are motivated to adopt lifestyles to live in harmony with it
- ❖ the human community understands basic ecological processes and lives in balance with the natural community
- ❖ people are offered and take frequent opportunities for direct contact with natural environments
- ❖ the needs of future generations are weighed as heavily as the needs (or wants) of the current generation
- ❖ people make decisions based on a comprehensive understanding and consideration of all perspectives of issues, with respect for the social, cultural and religious backgrounds of others

Achieving the Vision: How Do We Get There From Here?

The task of natural resource education is to help every individual learn how to live in this place we call Nevada. Each ecologically literate citizen should have a deep understanding of the Mojave and Great Basin deserts, rangelands and mountains in which we live. A comprehensive program of environmental education, starting at the youngest ages and continuing throughout life, is required to achieve this vision. Some specific actions that must be taken are listed.

- ❖ The Nevada Department of Education and the State Board of Education must provide a leadership role in environmental education throughout the state. The legislature must provide funding for an environmental education coordinator and a comprehensive program within the department. Changes in the legislative mandate for environmental education may be required to ensure an effective program. Environmental education must be recognized as a core curriculum subject or theme.
- ❖ Each school and school district must develop or adopt environmental education curricula and ensure that environmental education is integrated into all content areas, and that it is recognized as a subject in its own right. An effective program will require administrative

continued next page

support, staff development and integration of community resources.

- ❖ Teacher training programs and professional development experiences must provide a strong element of basic ecological literacy and environmental education techniques to prepare teachers for their responsibilities. Teachers at all grade levels will deliver an effective program of environmental education to all student populations.
- ❖ Each child must be offered educational experiences off the school campus throughout their school career. These include field trips, student action projects, and at least one residential outdoor education experience.
- ❖ Natural resource agencies should be involved in environmental education by providing resources and instructors from their areas of expertise to create a diverse set of educational experiences. Agencies and organizations can provide adults with continuing education which complements the efforts of schools with children.
- ❖ All people involved with environmental education must commit themselves to the highest



quality. Curriculum programs must include direct experience, higher-order thinking skills, thematic integration of all subject areas, cooperative learning, personal learning styles, authentic assessment, cultural diversity, and ethical decision making. All efforts should be coordinated in a manner which makes the best use of educational resources and provides a rich diversity of experiences and perspectives.

The changes necessary to implement effective environmental education in Nevada will not come easily. Improvement and dissemination of existing programs may be accomplished through better coordination and reallocation of resources. New programs, such as residential outdoor education, will clearly require an investment of money and personnel for effective development and implementation. Achievement of the vision will call for action by individuals and organizations throughout our society.

All environmental education experiences will have to be carefully designed so that they respect diversity of opinion about resource use, conservation and preservation. Yet, values and ethics will have to be a part of every experience so that all citizens can develop the skills necessary to make environmentally ethical decisions in their own daily lives. ♣

“And the world cannot be discovered by a journey of miles, no matter how long, but only by a spiritual journey, a journey of one inch, very arduous and humbling and joyful, by which we arrive at the ground at our feet, and learn to be at home.” — Wendell Berry, The Unforeseen Wilderness

About NNREC

The Nevada Natural Resource Education Council is a non-profit educational organization whose mission is to develop and promote natural resource education in Nevada. Membership is open to anyone, and currently includes a diversity of educators, organizations, agency representatives and other interested individuals.

The primary goals of NNREC are: 1) the implementation of the existing state environmental education laws; 2) the development of quality natural resource education opportunities for all Nevadans; and 3) the establishment of partnerships with other entities concerned with natural resources and environmental education.

NNREC has active chapters in northern and southern Nevada which hold monthly meetings and programs, sponsors natural resource education workshops throughout the state, assists in the development and coordination of school and agency environmental education programs, publishes a newsletter, and hosts an annual conference.

The following are some of the agencies and organizations which have cooperated with NNREC in the coordination of natural resource education in Nevada:

Alliance for Environmental Education
Clark County Parks & Recreation
Clark County School District
Environmental Leadership
Friends of Red Rock Canyon
Intermountain EE Training Team

Lake Mead Lodge
The Mirage
Nevada Cooperative Extension
Nevada Department of Minerals
Nevada Department of Wildlife
Nevada Division of Environmental Protection
Nevada Division of Forestry
Nevada Division of State Parks
Nevada Energy/Environmental Education Network
Nevada Mining Association
Nevada State Museum & Historical Society
Nevada Wildlife Federation
North American Association for EE
Northeastern Nevada Naturalists
Raincloud Publishing
Sierra Nevada College
Sierra Pacific Power
Society of American Foresters
Tortoise Group
University of Nevada, Las Vegas
University of Nevada, Reno
USDA Forest Service
USDA Soil Conservation Service
USDI Bureau of Land Management
USDI National Park Service
Utah Society for Environmental Education
Washoe County Parks & Recreation
Washoe County Health Department
Washoe County School District
Western Regional EE Council

Plus many individual citizens concerned about the future of our natural resources, here in Nevada and around the world. ♻️

Nevada Natural Resource Education Council Membership Application

Membership is for the calendar year. Dues categories are:

Regular \$15

Senior/Student \$10

Supporting \$25

Organization \$50

Indicate Chapter preference:

Northern NV

Southern NV

Name _____

Address _____

City, State, ZIP _____

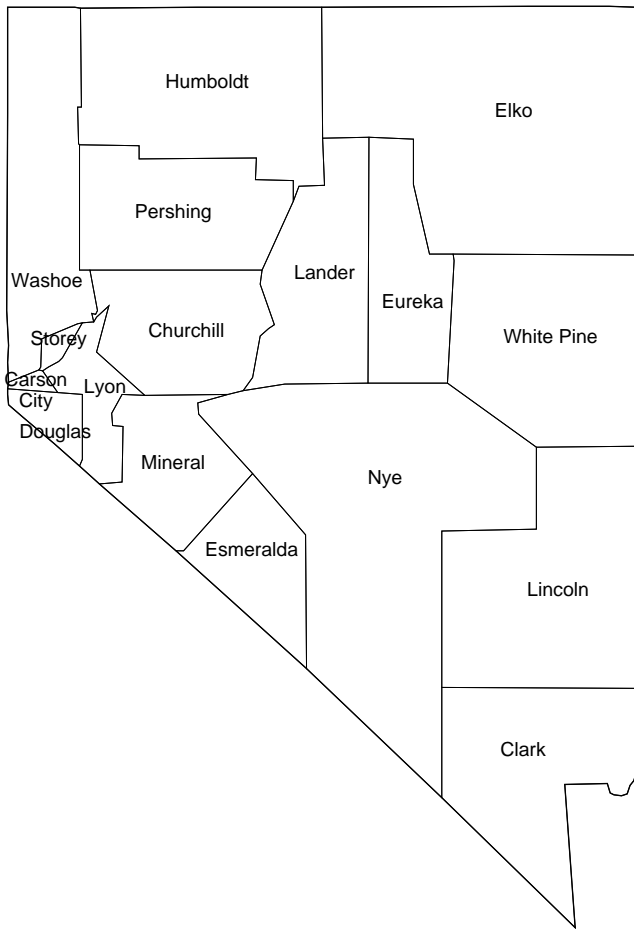
Phone (h) _____ (w) _____

Send completed application, with check payable to NNREC, to:

NNREC
P.O. Box 28272
Las Vegas, NV 89126-2272

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