ABSTRACT

This publication is designed to help the teacher in developing environmental study areas. Numerous examples of study areas, including airports, lakes, shopping centers, and zoos, are listed. A current definition of environmental study areas is given and guidelines for their development and identification are included. The appendix, which comprises most of the pages of the booklet, contains an outdoor environmental study area inventory and evaluation form, and a selected bibliography of materials for planning school sites or outdoor laboratories. (NA)
DEVELOPING ENVIRONMENTAL STUDY AREAS

TENNESSEE VALLEY AUTHORITY
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DEVELOPING ENVIRONMENTAL STUDY AREAS

Prior to the late 1960's and early 1970's, the term "environmental study area" was seldom used. When it was, it usually referred to the school site, a vacant lot, outdoor laboratory, nature center, or nature study area. These areas were, and still are, used primarily to help instill awareness, appreciation of nature, and an environmental ethic in students. Areas have been used mostly by elementary school students. Many educators feel that elementary students are too young to deal with environmental problems per se. They are more prepared to do this when they are in junior and senior high school. Awareness of natural processes and environmental problems is very important. This should be emphasized at all grade levels and carried through the student's adult life.

Under the modern concept of environmental education, the use of the term "environmental study area" refers to many man-made as well as natural environments. Although most environmental problem solving is done by junior or senior high school students, elementary students also make field trips to environmental study areas. A comprehensive environmental education program would include field trips to many of the following:

- Airport
- Aquarium
- Arboretum
- Camp
- Cave
- Christmas tree farm
- City water supply plant
- Coal mine
- Composting plant
- Conservation education center
- Convalescent home
- Dam
- Dog pound
- Electrical generating plant
- Environmental education center
- Fair
- Farm
- Fish hatchery
- Fire tower
- Fur farm
- Game farm
- Gasoline refinery
- Ghetto
- Greenhouse
- Grist mill
- Hospital
- Iron and steel plant
- Junkyard
- Lake
- Maple sugar camp
- Marsh
- Meadow
- Museum
- National forest
- Nature center
- Nature preserve
- Open dump
- Outdoor school site
- Park
- Planetarium
- Pond
- Railroad yard
- Recycling plant
- Road cut (fossils)
- Rock quarry
- Sanitary landfill
- Sewage disposal plant
- Shopping center

(Printed on recycled paper)
In some model environmental education programs in the country, teachers increase the geographic range and scope of efforts according to grade levels. For example, kindergarten through second grade may study the school facilities, e.g., the physical plant itself—materials used in its construction or resource utilization, the heating system, etc. Third grade might study the school site, neighborhood, or community. Fourth through sixth grades may study the town, city, and county. Seventh through ninth grades may study the state and region. Tenth through twelfth grades may expand their range to national and international topics of concern. All subject areas in the curriculum are considered, and pretrip, trip, and posttrip instructional activities are developed. Field trips to environmental study areas help enrich classroom studies and make the student's education more relevant to real-life situations.

Often a single teacher in a school system wants to begin an environmental education program by developing an environmental study area. To make this a successful endeavor, it is important that all teachers in the school are involved and that they understand environmental education includes many things they are now doing or can do in their respective disciplines. Unfortunately, some teachers do not realize there are many important aspects of environmental education other than tree identification or the biological sciences. This may be due to a lack of understanding of environmental education and an interdisciplinary program in the existing school system. The teacher interested in establishing a program or environmental study area should get approval from the school principal and perhaps the system's superintendent. After approval is received, a good way to begin is by having a person who operates a model program speak to school administrators, teachers, and the parent-teacher organization. The second step would be to establish a committee of five to ten people to assist in program planning, implementation, operation, and evaluation. In addition to teachers, it is good to have students, parents from the school, school administrators, and community resource people on the committee. It is important to involve as many people as is practical in the process. Coordinating work with those individuals and entities with concerns or interests is also very important. Some of the tasks of the committee would include:

1. Reviewing the literature to see what has been done with environmental study areas and model environmental education programs by other educators in the Nation. This prevents duplication of efforts and "reinventing the wheel."

2. Identifying potential environmental study areas which can be used for field trips and securing permission to use them from the owners. Include a description of the unique features of each area and how the area can be used for educational purposes. An interdisciplinary team of resource people (engineers, soil scientists, foresters, biologists, etc.) can help with this.
3. Developing a program plan for each environmental study area and considering the impact of the various types of developments (if developments such as trail systems, teaching stations, etc., are proposed) desired on the area to be used.

4. Determining what human resources (engineers, foresters, etc.) are available in the community and securing commitments from those individuals and groups interested in assisting with program development. Some of these individuals might lecture to students at the environmental study area or in the classroom.

5. Determining possible funding sources for program development.


7. Developing a comprehensive program plan which includes problems; needs; constraints; goals; objectives; concepts, activities (teacher training, curriculum development, etc.), and strategies for accomplishing the objectives; a schedule or time line for performing work; manpower needs; budget; and evaluation plan.

8. Developing a process for reporting progress on work to newspaper editors, TV, and radio stations.

Many schools begin an environmental education program by developing a specific school site, outdoor laboratory, or nature study area. A great deal has been written on this subject; and, therefore, there is no need to discuss it in detail in this paper. However, a few suggestions are given.

There are many sources of help the teacher can get in developing the outdoor laboratory. The U.S. Forest Service, U.S. Soil Conservation Service, National Park Service, Tennessee Valley Authority, state departments of education, and state departments of conservation are some of the agencies having resource specialists who assist in such efforts without charging fees. If money is available for program development, there are many good consultants available from firms and educational institutions. For information on consultants, obtain the following publication:

Directory of Environmental Consultants, edited by Bill Cate, 1972.
Available from: Directory of Environmental Consultants
422 Collins Street
San Francisco, California 94118
The Audubon Society's Nature Center Planning Division is a very good place to inquire for assistance. Write to:

Director
Nature Center Planning Division
National Audubon Society
950 Third Avenue
New York, New York 10022

Frequently, a resource person (or team of persons) is called upon by teachers to help evaluate the potential of an outdoor study area. Appendix A indicates the scope of the topics to be considered and can be used for recording relevant data and information.

Teachers interested in developing a school site or outdoor laboratory should review the bibliography before proceeding.
OUTDOOR ENVIRONMENTAL STUDY AREA
INVENTORY AND EVALUATION FORM*

AREA NAME__________________________________________

STATE__________________________________________ COUNTY________________________________________

ADMINISTRATIVE AGENCY OR OWNER__________________________________________

TYPE OF AREA (Check those that apply):

- Park
- Recreation Area
- Beach
- Wilderness
- Forest
- Nature Preserve
- Wildlife Refuge
- Outdoor Laboratory
- Outdoor School Site
- Other

SIGNIFICANCE (check one): National  Regional  State  Local

ACCESS: By road:  Paved  Improved  Unimproved

By water:  By other (specify):

Miles from major highway (Route #)

EXISTING NATURAL FEATURES (within boundaries shown on map): TOTAL ACREAGE

<table>
<thead>
<tr>
<th>FOREST</th>
<th>MARSH</th>
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<tbody>
<tr>
<td>Upland</td>
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<tr>
<td>Lowland</td>
<td>Estuary</td>
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<tr>
<td>Swamp</td>
<td>Saltwater</td>
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<table>
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<th>WATER</th>
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<tbody>
<tr>
<td>Crops</td>
<td>Streams</td>
</tr>
<tr>
<td>Pasture</td>
<td>Lakes</td>
</tr>
<tr>
<td>Other</td>
<td>Ponds</td>
</tr>
</tbody>
</table>

ATTRACTIONS (check and explain only outstanding features):

- Topography
- Geology
- Wildlife
- Vegetation
- Water Feature

*Attach additional sheets when insufficient space is available on the form for discussing topics.
ATTRACTIONS (continued):

- History and Archaeology
- Recreation Opportunity
- Beach
- Vistas
- Other

IF AREA IS OUTDOOR SCHOOL SITE:

SCHOOL TYPE: Elementary _ Junior High _ High School _ Other __

GRADES INCLUDED: __________________ TOTAL ENROLLMENT: ___________

ESTIMATE IN PERCENT THE USE OF THE TOTAL SITE:

1. Building, parking, roads, sidewalks
2. Formal lawns and landscaped areas
3. Play areas - athletic fields, tennis courts, swings, blacktop
4. Athletic areas - football fields, etc.
5. Undeveloped or unused area with outdoor education potential
6. Other (be specific) ____________________________

100%

What is your opinion as to the potential for developing this site into a usable area for outdoor environmental studies? (A perimeter development on even small sites is always a possibility.)

HIGH POTENTIAL _ SOME POTENTIAL _ VERY LOW POTENTIAL __

Possibly a perimeter type area could be established ____________

(sketch map attached)

EXISTING DEVELOPMENTS OR FACILITIES (describe)

_________________________________________________________________

_________________________________________________________________

EXISTING USE (type and degree) ________________

_________________________________________________________________

_________________________________________________________________
SOILS (describe conditions; types, such as clay, silt, sand, sand to gravel (0.5" or less), gravel, boulders, and bedrock)

TREES (describe conditions; density, such as open, medium, or closed)

SLOPE (describe percentage 0 to 5%, 5 to 15%, 15% plus)

WILDLIFE (rare or endangered species)

FISH (species and abundance)

STREAMS, LAKES, OR PONDS (type and significance)
WILDLIFE (species and abundance)

VEGETATION TYPES AND LAND USE (species, maturity, percent, etc.)

FISH AND WILDLIFE POTENTIAL

OTHER COMPATIBLE USES

POTENTIAL DEVELOPMENT (for both existing and potential areas)

Does development or expansion appear feasible?  Yes  No  Explain

Special problems
Limitations

Suggest facilities to be constructed

EVALUATION, COMMENTS, AND RECOMMENDATIONS:

REFERENCE (persons and records consulted in obtaining above information and location of maps and pictures):
SURVEY CONDUCTED BY:

<table>
<thead>
<tr>
<th>NAME OF REPORTER(S)</th>
<th>AGENCY</th>
<th>DATE OF REPORT</th>
<th>DATE OF FIELD SURVEY</th>
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*Trail Planning and Layout.* Nature Center Planning Division, National Audubon Society, 950 Third Ave., New York, NY 10022. ($3.00)


*Promoting Natural Areas at School Sites.* Broad Press Book Press, Bennington, VT 05201.

Bush, Phyllis S. *Seven Steps for Developing an Outdoor School Area for Teaching Science–Conservation.* Project SPRUCE (operated through Title III ESEA), Box 96A, Pine Plains, NY 12567.


Columbus Metropolitan Park Board. *Nature Interpretation and Outdoor Education.* (Handbook for Park Naturalists, Camp Counselors, Leaders of Youth Groups and Others Who Conduct Outdoor Programs in the Woods and Natural Areas). 1969. The Columbus Metropolitan Parks, 1251 East Broad Street, Columbus, OH 43205.

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Educational Facilities Laboratories. Environmental Education/Facility Resources. (Developed in cooperation with the National Education Association and National Park Service). July 1972. Educational Facilities Laboratories, Inc., 477 Madison Ave., New York, NY 10022. ($2.00)


Garrison, Cecil. Outdoor Education: Principles and Practice. 1966. Charles C. Thomas, Publisher, 301 East Lawrence Ave., Springfield, IL 62703. ($9.50)

Glascock, Martha D.; Christie, Nancy E.; and Knapp, Clifford E. Selected Sources of Information for Interpretive Naturalists: An Annotated Bibliography. April 1969. Association of Interpretive Naturalists, 1251 East Broad St., Columbus, OH 43205.


Higginson, Thomas W. Outdoor Studies. (Reprint of 1900 ed.) 1973. Richard West, Publisher, Box 711, Haverton, PA 19083. ($20.00)


Indianapolis Public Schools, Division of Curriculum and Supervision. Outdoor Education: Some Suggestions Useful in Planning. Indianapolis Public Schools, Division of Curriculum and Supervision, Education Center, 120 East Walnut, Indianapolis, IN 46204.

15

12


*Open Land for Your Community.* 1969. National Audubon Society, Nature Center Planning Division, 950 Third Ave., New York, NY 10022. ($1.00)


Environmental Education: Reference Sources for Development of Programs and Sites. Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. ($0.60)


PAPERS


The Model Environmental Education Program

A model environmental education program is one which helps the individual become (1) aware of the environment and its associated problems; (2) concerned, knowledgeable, and accurately informed about the problems; (3) knowledgeable and informed about the possible future consequences of the problems; (4) engaged in clarifying values and making decisions based on attitudes and beliefs; (5) involved in finding the solutions to environmental problems—alternatives, tradeoffs, compromises, and costs; and (6) committed to and involved in some type of constructive action which enhances environmental quality.

—Jonathan M. Wert, Ph.D.