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ABSTRACT

Project Man's Environment was organized in 1969 to establish a basis for the development of environmental education in the school curricula. Pilot surveys were conducted by the NEA Research Division and a nationwide survey was conducted of public school programs in environmental, conservation, and outdoor education for systems enrolling 1,000 or more students. This report presents survey results in six major sections. An initial survey overview section is followed by five sections providing the following detailed findings: (1) the emphases and purposes of programs and the basic statistics related to their scope; (2) each program's curriculum and activities; (3) the number, size, accessibility, and features of sites as well as the administrative procedures for requisitioning sites for school use; (4) a description of program personnel, and (5) the financing of environmental education programs. A postscript reports briefly on needs for the future development of environmental education. (Author)

Research Division
National Education Association

ED046132
SPECIAL REPORT

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Environmental Education in the Public Schools



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**Research Division
National Education Association**

SPECIAL REPORT

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Environmental Education in the Public Schools

A Pilot Study

A report prepared by the Research Division of the National Education Association for the National Park Service, U.S. Department of the Interior, with funds provided to the American Association for Health, Physical Education, and Recreation, a national affiliate of the NEA, and administered through Project Man's Environment.

ENVIRONMENTAL EDUCATION IN THE PUBLIC SCHOOLS—A Pilot Study

Prepared by the NATIONAL EDUCATION ASSOCIATION

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FOREWORD

WITHIN THE PAST FEW YEARS, the relation of man to his environment has acquired new significance. For centuries, man has viewed the natural world as his enemy, a dangerous and hostile force, which he had to battle, conquer, and exploit to build a superior environment of civilization. Recently, however, dwindling natural resources and mounting pollution, the by-products of our urban, industrial civilization, have forced a reversal of this view. Man now appears as the enemy of nature, the destroyer and corrupter of the natural environment on which his civilization is based.

Public concern about contemporary problems of human ecology has found expression partly in increased interest in environmental education programs in the schools. Although in the past the curricula of some school systems has included such topics as outdoor education, nature study, or conservation education, current attention to environmental problems has given fresh impetus to the development and expansion of programs in this area. Through such programs, it is hoped, children and young people will gain appreciation of their environment and understanding of the appropriate utilization of all resources—natural and cultural—which will better equip them to deal with the environmental problems facing society.

In May 1969, the National Education Association responded to the need for comprehensive environmental education programs and to the intent of the National Park Service to make the vast natural and cultural resources of the National Park System more responsive to the educational community by establishing Project Man's Environment. Funded under a contract with the National Park Service of the U. S. Department of the Interior and administered by the American Association for Health, Physical Education, and Recreation, a national affiliate of NEA, the Project Man's Environment set about the task of establishing a basis for the development of environmental education in the school curricula. A major part of this effort was a pilot survey conducted by the NEA Research Division. Results of this first national survey of public school programs in environmental, conservation and outdoor education are given in this report.

School administrators in public school systems enrolling 1,000 or more pupils were asked whether their school systems conducted a program in outdoor education, environmental education, conservation education, interpretive naturalism, or a similar effort in which a staff person was employed for the equivalent of at least one-half time. Since all school systems answering affirmatively were included, the survey is based upon a defined universe and, therefore, is not subject to the sampling variation associated with random samples.

The NEA Research Division wishes to acknowledge with appreciation the valuable assistance given by Donald E. Hawkins and Dennis A. Vinton of Project Man's Environment. Special acknowledgment is due Joe Ann Stenstrom, Elizabeth Moffatt, and Gaye Becker of the NEA Research Division staff for their contributions to the study.

The Division also expresses appreciation to the educators and public school systems providing the information contained in the study.

Glen Robinson
Director, Research Division

INTRODUCTION

ENVIRONMENTAL EDUCATION has recently been undergoing new developments. To the familiar concepts of outdoor education and conservation education have been added new concerns with pollution and human ecology. Long-established areas of study, such as nature study in the lower grades, and sciences in the upper grades, social studies, history, and geography, have been placed in a new light when viewed as different aspects of the complex interrelation of man and his environment. In some cases, old educational programs may have been continued and adapted to new needs. In others, entire new programs may have been devised to approach environmental education in a new way. The purpose of this study was to provide information about the current status of programs in the area of environmental education in the nation's public schools and specifically about the use which such programs make of local, state, and national park services and other similar resources.

The study was designed as a nationwide survey of programs in environmental, outdoor, and conservation education in operation in public schools in 1969-70 and covered all public school systems in the United States enrolling 1,000 or more pupils. These school systems collectively enroll 90 percent of all public school pupils in the country. The survey was limited to school systems which had the equivalent of at least one half-time staff person assigned to a program in the area of environmental education. It included all school systems with enrollments of 1,000 or more which offered environmental programs at any level from prekindergarten through adult education and met this criterion.

To determine the survey universe, a brief inquiry asked 7,143 superintendents of systems with enrollments of 1,000 or more if their systems were conducting programs in environmental education in which a staff person was employed for the equivalent of at least one-half time. Responses received from 5,173, or 72 percent of those surveyed, revealed 781 systems which met the criteria for inclusion in the survey.

An extensive literature search and consultation with experts in the field of environmental educa-

tion provided the basis for developing an instrument to survey programs meeting the established criteria. Educational journals, outdoor publications, and selected books yielded information about features of specific programs that had been conducted by school systems in the United States. Additional information and suggestions came from consultants, all of whom either had been or were currently involved in environmental education programs. Material from these sources was used to prepare a 4-page, 37-item questionnaire on environmental, outdoor, and conservation education to be answered by school systems qualifying for inclusion in the survey.

Response to initial inquiry

<u>System size</u>	<u>Total mailed</u>	<u>Number responding</u>	<u>Percent responding</u>
25,000 or more pupils	186	172	92.5%
3,000-24,999 pupils ..	2,878	2,229	77.4
1,000-2,999 pupils	4,079	2,772	68.0
Total	7,143	5,173	72.4%

The 781 systems identified in the initial inquiry as having programs that met the established criteria received copies of the survey instrument. Of these, 702, or 90 percent of those surveyed, returned completed questionnaires.

Response to questionnaire survey

<u>System size</u>	<u>Total mailed</u>	<u>Number responding</u>	<u>Percent responding</u>
25,000 or more pupils	73	65	89.0%
3,000-24,999 pupils ..	412	379	92.0
1,000-2,999 pupils	296	258	87.2
Total	781	702	89.9%

Responses were analyzed on the basis of school system size, the grade level at which systems provide environmental education, and the geographic region in which systems are situated. For analysis by size, school systems were classified according to the total number of pupils enrolled in the system in three groups as follows:

Large - 25,000 or more pupils
 Medium - 3,000-24,999 pupils
 Small - 1,000-2,999 pupils

The following table shows the number and percent of systems in each group.

Distribution of responses by system size

<u>Size of system</u>	<u>Number</u>	<u>Percent</u>
Large	65	9.3%
Medium	379	54.0
Small	258	36.8
Total	702	100.1%

Analysis of responses according to the grade level of environmental programs made use of three categories, defined as follows:

Elementary—programs which provide environmental education only in some one or more of the elementary grades, prekindergarten through grade 6.

Junior-senior high—programs which provide environmental education only in some one or more of grades 7 through 12 or to adults.

Combined—programs which provide environmental education both in some one or more of the elementary grades, prekindergarten through grade 6, and in some one or more of grades 7 through 12 or to adults.

The following table gives the number and percent of responses in each category. The total number reported here is less than the total responding to the questionnaire because some respondents (13) failed to indicate the grade levels included in their programs.

Distribution of responses by grade level restriction of program

<u>Grade level restriction</u>	<u>Number</u>	<u>Percent</u>
Elementary	259	37.6%
Junior-senior high	110	16.0
Combined	320	46.0
Total	689	100.0%

For geographic analysis, the country was divided into four regions:

Northeast—Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

Southeast—Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia

Middle—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

West—Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, Wyoming

In the table below showing the number and percent of systems in each geographic region, the Southeast appears as having considerably fewer systems meeting the criteria for inclusion in the survey than other regions. This factor should be kept in mind when considering the results of regional analysis.

Distribution of responses by geographic region

<u>Region</u>	<u>Number</u>	<u>Percent</u>
Northeast	201	28.6%
Southeast	50	7.1
Middle	244	34.8
West	207	29.5
Total	702	100.0%

This report presents results of the questionnaire survey in six major sections. An initial section, devoted to an overview of principal findings from the survey as a whole, is followed by five sections each of which gives detailed findings on some aspect of environmental education programs. General descriptive material occupies the first section of detailed findings; it includes data on the emphasis and purposes of programs and basic statistics related to the scope of programs, such as the number of students and teachers involved and the amount of time devoted to programs. The next section reports on the curriculum and activities of environmental education programs and on related procedures. The important question of the utilization of sites, including park service facilities, is treated in the following section; this material includes data on the number, size, and accessibility of sites, as well as on the facilities and features of sites and on administrative arrangements pertaining to the use of sites by school systems. The last two major sections of the report concern, respectively, program personnel and the financing of environmental education programs. A postscript reports briefly on needs for the future development of environmental education.

In considering the findings presented here, it should be remembered that this survey represents a first effort to collect and report on a nationwide basis data relating to an area of education currently in a developmental stage. At present there does not exist a well-established set of criteria for identifying

and distinguishing environmental education programs, nor even, at times, a generally accepted terminology for describing the characteristics of environmental programs. While these conditions have necessarily limited what could be accomplished by

this study and the conclusions that could be drawn from it, a secondary purpose of the endeavor has been to define some of the procedures and areas relevant for further study of environmental education programs.

OVERVIEW OF MAJOR FINDINGS

CAUTION NEEDS to be used in attempting to formulate general statements about environmental education on the basis of findings in this survey. Possibly the single most important general conclusion to be derived from the study is that there is no general type of environmental education program. On the contrary, the data repeatedly point to the existence of a wide variety of different types of programs. From the analysis of data it has been possible to suggest tentatively the outlines of three major types, distinguished by the grade level of pupils who participate in them. These three types differ from one another in emphasis, scope, curriculum, types of sites utilized, personnel, and financing. Indications of diversity within and apart from these three types also appear.

Consequently, a summary of the principal findings from the survey as a whole should be understood not as an over-all picture of environmental programs, applicable to most of them in most respects, but as the somewhat artificial amalgam of several quite distinct types of programs. With this qualification in mind, the following points may be noted.

Summary of Findings

General Description of Programs

A majority of environmental education programs are entitled "Outdoor Education" and are intended to give pupils a general acquaintance either with the outdoors or with the over-all subject of human ecology. Programs are aimed chiefly at pupils in the upper elementary grades. Participation in terms of medians for all programs responding is: 550 elementary pupils and 20 elementary teachers; 300 junior-high pupils and 6 junior-high teachers; and 182 senior high students and 4 senior high teachers.

Over one-half of all programs operate either all year around or throughout the entire school year. However, those with year-round operation represent only one-fourth of the total, and for a majority of programs, scheduling is limited to the regular school week. In terms of medians, the amount of time spent on the program by elementary pupils is 10

days in the classroom and 5 days outside the classroom; by junior high pupils, 12 days in the classroom and 5 days outside the classroom; and by senior high students, 20 days in the classroom and 5 days outside the classroom.

The administration of most programs is centralized within the school system, but a fairly large proportion are administered on a decentralized basis within the system.

Program Content and Procedures

The great majority of programs combine classroom study with some type of on-site experience and provide both prior preparation to on-site experience and follow-up activities afterwards. Discussions and reading, audiovisual presentations, and visits to the classroom by resource persons are all widely used for prior preparation. Follow-up activities usually take the form of oral reports and discussion; the examination, identification, and use of specimens gathered at the site; displays and exhibits; written reports and/or essays; films, slides, and/or transparencies; reading to extend the learning experiences of the on-site visit; and art activities.

The curriculum of programs most often focuses on the sciences and applied sciences. The areas of study included in the greatest number of programs are conservation, ecology, biology, insect study, geology, botany, general science, and weather study.

In regard to curriculum resources, more than half of all programs make use of one or more types of resources available from the National Park Service. The most widely used types are media resources, such as films or pamphlets, and resources available at sites, such as visitor centers, nature trails, historic walks, or interpretative programs.

The curriculum of the programs is most often determined by an instructional team. In many cases, field lessons are prepared by the teacher for each trip, and pupil interests also influence curriculum planning.

In most programs, an attempt has been made to determine attitude change on the part of pupils toward their environment. Although few programs give grades, a larger proportion grant academic credit for work done in the program.

Utilization of Sites

The typical program utilizes (in terms of medians) 2 sites in the immediate school environs of a total of 20 acres, 1 day-use environmental study center of 77 acres at 12 miles distance from the school district, and 1 site with resident facilities of 200 acres at 50 miles distance from the school district. In most cases, sites in the immediate school environs are owned by the school system; however, a large proportion of such sites are not owned by the system but are used free of charge. Day-use environmental study centers are usually used free of charge, and sites with resident facilities are most often leased. In the few instances where school systems own day-use environmental study centers or sites with resident facilities, a majority of the systems have purchased these sites rather than acquiring them by other means. Sites that are used free of charge are generally publicly rather than privately owned. Those in the immediate school environs are most often owned by the local government, while day-use environmental study centers used free of charge are owned by local or state governments. Sites with resident facilities are rarely used free of charge; when they are, they are as likely to be owned by the federal or state government as by the local government. In this connection, slightly fewer than 2 in 5 programs have a National Park Service area within 50 miles of the school district. The utilization of sites not owned or leased by the school system is rarely hampered by school system restrictions on pupil travel; most systems do not have such restrictions, and those that do, tend to provide generous allowances for different types of trips.

A majority of programs use sites with resident facilities. Most of these are equipped with sleeping accommodations in the form of cabins or bunkhouses, cooking and dining facilities, an infirmary, and administrative offices. Educational and recreational facilities most often found at such sites are indoor meeting rooms, classrooms, a display and exhibit center, swimming area, and a crafts shop. Most of these sites have administrative, instructional, and operational personnel residing at them permanently.

Sites not owned or leased by school systems, including park service facilities, are most often characterized by natural features or facilities designed specifically for the appreciation of outdoors. Features of the most widely used types of sites are forest, woodland, ponds, lakes, a recreation area, camp grounds, or a wildland natural area.

Program Personnel

The majority of programs use the services of regular school staff, classroom teachers and principals, with the assistance of a resource person. Part-time staffing of programs is more common than full-time staffing.

The great majority of persons in charge of environmental programs hold a master's or higher degree, but few of them have had preservice training specifically in an area of environmental studies. A large proportion, however, have specialized in some area of the sciences, although nearly as many majored in education or administration. The vast majority of school systems with environmental programs provide or support opportunities for inservice training of personnel, chiefly in the form of workshops, institutes, or conferences; staff meetings; inservice training courses; field trips; and reference or library materials.

Financing

The median program budget in 1969-70 for all programs reporting this information was \$3,000 for capital outlay and \$7,000 for current operating expenditures. Just over one-half of all programs receive funds only from local sources, while 4 percent receive funds from local sources either alone or in combination with state and/or federal and/or other sources. The local board of education is the source from which the great majority of programs obtain funds.

Future Needs

In addition to increased financial support, a majority of programs also acknowledge a need for assistance with instructional materials and inservice training guidelines in order to develop further.

Analysis of Data

Analysis of data by the grade level of programs indicates three distinct types of programs: a rather

limited program for elementary pupils only, designed chiefly to give them an acquaintance with and appreciation of the outdoors and nature; a largely academic, classroom-oriented program for junior-senior high pupils only, focusing primarily on scientific and technical aspects of environmental study; and a more comprehensive program including both elementary and secondary pupils, which attempts to cover a number of different aspects of ecological and environmental study. Programs of the combined elementary and secondary type together with programs of the elementary-only type make up the majority of programs included in the survey.

As would be expected, the analysis of data by size of school system shows that large school systems have the most comprehensive programs in all respects. Over half of the programs in large school systems are of the combined elementary-secondary type.

Analysis of data by geographic region proves most meaningful in connection with the utilization of sites and especially National Park Service resources, which are for the most part more extensively used by programs in the West than in other regions of the country. A unique situation exists in the Southeast where, as has already been seen, fewer school systems have environmental education programs meeting the basic criteria for inclusion in this survey. The programs that do exist in the Southeast, however, appear to be quite highly developed, for percentages of Southeastern systems responding to questions about specific features of programs tend to run high throughout the survey in comparison with the other three regions of the country. This unusual situation deserves further investigation, but differences have not been reported or discussed in the detailed findings because of the relatively small proportion of programs in the country as a whole that are involved.

Implications for Future Research

As an initial effort to survey environmental education programs on a nationwide basis, this study

cannot claim to have produced information as complete or precise as could be desired about environmental education. Certain areas, such as program personnel and the financing of environmental programs, have been touched on only briefly. In particular, the important topic of inservice training needs further investigation. More could also be learned about the utilization of sites. This study did not consider the frequency with which school systems used different types of sites, nor the frequency and duration of on-site experiences for pupils. Administrative arrangements relating to the use of sites, such as the costs of transportation, lodging, or equipment, and whether such costs are borne by the school system or by the pupils, also lay outside the questions covered by this survey.

In addition, data collected in this survey at several points suggest the relevance of certain approaches to the study of environmental education that were not used in this study. Indications exist that environmental education is related to the school curriculum in a variety of ways, and more information about the types of programs could be obtained by determining whether programs are separate from the regular curriculum or separate courses within the curriculum, whether courses are elective or required, and other such possibilities. Again, at a number of points the data suggest that not only the types of sites utilized but also the emphases of programs may be related to the type of community the school system serves. This survey did not attempt to identify school systems by their location in urban or rural areas or to determine the extent to which environmental education programs attempted to acquaint pupils with the environmental opportunities and problems of their own community or to extend their knowledge to the awareness of environments different from that in which they live.

These few points represent only some of the possible areas and approaches for further study suggested by the findings of this survey. Other possibilities will doubtless occur to the reader as he examines the detailed findings.

GENERAL DESCRIPTION OF PROGRAMS

ENVIRONMENTAL EDUCATION, as a whole, is a broad field, offering a variety of possible approaches to the educator. An environmental program is sometimes designed primarily to enhance student appreciation of outdoor activities; in other cases, a program may emphasize the study of human ecology. Some programs offer a general introduction to the natural world, while others focus upon specific ecological problems, such as conservation and pollution. With so many possible approaches, determining the basic emphasis of existing environmental education programs is fundamental to providing a general description of them.

A second factor of importance in forming a general picture of such programs is their scope. Quantitative measures, such as the number of students and teachers involved in programs, the amount of time devoted to programs, or the range of grade levels they include, contribute to a description of the extensiveness of environmental study within the school program.

Information on these two points constitutes a general framework within which to view the detailed features of environmental education programs. Consequently, much of the first part of the survey instrument was devoted to questions designed to yield data on these topics.

Program Emphasis

A general indicator of program emphasis is the official title of the program. The survey covered programs in environmental, conservation, and outdoor education, and respondents were asked to indicate which, if any, of these three titles they used for their programs.

Results show that a majority of school systems call their programs "Outdoor Education." About three times as many use this title as call their programs "Environmental Education." Those identifying their programs as "Conservation Education" represent a still smaller percentage than those who use the title "Environmental Education." In some cases (about 1 in 10), a combination of terms, such as "Outdoor and Environmental Education," is used, while a small percentage of respondents report using some other, entirely different title.

Not surprisingly, program titles vary with the grade level of the students at which programs are aimed. Over three-quarters of the school systems with programs restricted to pupils in the elementary grades use the title "Outdoor Education," while more than half the programs restricted to the junior-senior high grades either use the more sophisticated title "Environmental Education" or adopt the more specialized

TABLE 1.—TITLE OF PROGRAM

Title	Total	Grade level restriction		
		Elementary	Junior-senior high	Combined
1	2	3	4	5
Outdoor Education	55.1%	77.2%	19.1%	49.1%
Environmental education	18.8	8.9	28.2	24.1
Conservation education	13.7	7.3	35.5	11.6
Combination of two or more of the above	8.9	6.3	5.4	11.9
Other	3.6	0.4	11.8	3.4
	100.1%	100.1%	100.0%	100.1%
Number responding	702	259	110	320

TABLE 2.—INTENT OF PROGRAM

Intent of program	Total	Grade level restriction		
		Elementary	Junior-senior high	Combined
1	2	3	4	5
Education for and in the outdoors	31.3%	37.7%	18.7%	30.5%
Man and his relationship to his cultural, natural, and physical environment	27.9	23.7	20.6	33.3
Development of environmental awareness and ethics	14.4	12.5	17.8	14.9
Rational utilization of our environment .	4.8	2.7	11.2	4.4
Conservation of our natural resources	11.0	9.3	17.8	9.8
Pollution control education	2.3	0.8	7.5	1.9
Nature study and interpretation	8.3	13.2	6.5	5.1
	100.0%	99.9%	100.1%	99.9%
Number responding	689	257	107	315

approach of "Conservation Education." Combined programs (those which include pupils both in elementary and in secondary grades) stand between these extremes; by far the largest proportion of combined programs, as in the case of elementary programs, have for their title "Outdoor Education," but the proportion of combined programs with this title (about one-half) is considerably less than the proportion of elementary programs (over three-fourths); at the same time, a far smaller proportion of combined programs are called "Conservation Education" than of junior-senior high programs, while a considerably greater percentage of combined than of elementary programs are entitled "Environmental Education." Thus, combined programs tend to be called either "Outdoor Education" or "Environmental Education," while elementary programs are usually called "Outdoor Education" and junior-senior high programs are either "Conservation Education" or "Environmental Education."

More precise information about the emphasis of programs comes from a question which presented respondents with a list of capsule statements and asked them to indicate which one best described the basic intent of their programs. General purposes, acquainting students with the outdoor world or with the over-all subject of human ecology, were mentioned by more respondents than specialized program objectives focusing on a particular aspect of environmental study. The following table of responses shows that a majority of respondents (59 percent) describe the basic intent of their programs either as "education for and in the outdoors" or as "man and his re-

lationship to his cultural, natural, and physical environment."

The relationship of responses to the grade level of programs follows much the same pattern here as in the case of program titles. Programs at the junior-senior high level are distinguished from elementary and combined programs by more specialized and technical emphasis. Over 60 percent, both of elementary and of combined programs, are directed to education for the outdoors or the general study of man in his environment, while these two descriptions account for less than 40 percent of the junior-senior high programs. Conversely, the intent of over half the junior-senior high programs is represented by environmental awareness and ethics, rational utilization of the environment, conservation of natural resources, and pollution control.

However, some differences between elementary and combined programs also deserve mention. Although education for the outdoors and man's relation to his environment together describe the objectives of most of both elementary and combined programs, the balance between these two descriptions of intent shifts with the grade level of the program. A higher percentage of elementary than of combined programs is directed to education for the outdoors, 38 as compared with 31 percent, while a greater proportion of combined than of elementary programs, one-third as compared with less than one-fourth, focus on the study of man in relation to his environment. At the same time, more

than twice as great a percentage of elementary as combined programs (13 as compared with 5 percent) are devoted to nature study and interpretation. Combining responses in a different way, therefore, produces a rather different picture of the emphasis of combined as compared with elementary programs. Over half (51 percent) of the elementary programs have as their intent education for the outdoors and nature study, but these two purposes describe only 36 percent of the combined programs. On the other hand, almost half (48 percent) of the combined programs are devoted to the study of man in relation to his environment and the development of environmental awareness and ethics, as compared with 36 percent of elementary programs directed to these two purposes.

Responses to the two questions related to program emphasis, when taken together, indicate that the general study of man in relation to his environment is most widespread among programs including both elementary and secondary pupils, while the bulk of programs restricted to elementary pupils emphasize study of the outdoors and nature, and programs restricted to the junior-senior high level focus on a variety of topics specifically related to the utilization of the environment. This pattern of emphasis seems quite appropriate to the ages of the pupils involved.

Scope of Programs

Grade Levels Included

Data considered thus far have shown that the grade levels of programs bear an important relationship to the basic nature of the programs. For this reason, a description of the scope of environmental education programs best begins with a consideration of which grades and how many grades are included in the programs.

The largest proportion of school systems is included in this survey have combined programs offering environmental education to both elementary and secondary pupils. Programs restricted to the elementary grades comprise a slightly smaller, and programs restricted to the junior-senior high grades a very much smaller, proportion of the total.

The majority of programs in large systems are combined programs. In medium size systems, the proportions of elementary and combined programs are more nearly equal. In small systems, programs restricted to the junior-senior grades represent a larger percentage of the total than in large or medium systems; however, even in small systems, junior-senior high programs remain by far the smallest proportion of the total.

A more detailed picture emerges from considering the specific grades, prekindergarten through adult education, which participate in environmental programs. If all school systems in the survey are taken together, it appears that programs are aimed chiefly at the upper elementary grades. As shown in Figure 1, over three-fourths of all programs are given in grade 6, and over one-half in grade 5, while percentages for all other grades are smaller.

Some differences related to school system size appear in the grade level distribution of programs. Large, medium, and small systems all show generally the same pattern of distribution, with the percentage of programs including each grade increasing gradually throughout the elementary grades and then dropping off in the junior and senior high grades. However, the percentages for large systems run consistently higher than for medium or small systems; similarly, the percentages for medium-size systems generally exceed those for small systems, although the greater concentration of programs restricted to the junior-senior grades in small systems alters this pattern somewhat in grades 7 through 12. Differences related to

TABLE 3.—DISTRIBUTION OF PROGRAMS BY SYSTEM SIZE

Grade level restriction	Total	Large	Medium	Small
1	2	3	4	5
Elementary	37.6%	30.8%	41.5%	33.7%
Junior-senior high	16.0	12.3	12.2	22.4
Combined	46.4	56.9	46.3	43.9
	100.0%	100.0%	100.0%	100.0%
Number responding	689	65	369	255

16 system size are most noticeable at the prekindergarten and adult education levels, which environmental programs least frequently include. Although among all responding systems only about 1 in 20 includes either the prekindergarten or the adult education level, 1 in 10 of the large systems gives its programs at the prekindergarten level and about 1 in 6 offers environmental education to adults.

This picture, however, observes some important differences, for it groups together both combined elementary-secondary programs and programs that are restricted to one or the other grade level. If programs are separated on the basis of grade level restriction, a different type of pattern is found in each type of program, as shown in Figure 2. Programs restricted to the elementary grades are directed chiefly at grade 6; 87 percent of the elementary programs include grade 6, while none of the other elementary grades is included in more than one-half the elementary programs. Programs restricted to junior and senior high grades, however, concentrate on the senior high grades; over one-half of these programs include grades 10, 11, or 12, while considerably less than half include grades 7, 8, or 9. Combined programs, on the other hand, focus chiefly on

the middle grades, with 70 percent or more including each of grades 4 through 8; grade 6 shows the highest percentage, being included in 93 percent of the combined programs, while grades 5 and 7 are each included in more than 80 percent.

This information sheds further light on the basic differences of emphasis which distinguish the junior-senior group of programs from the others and the more subtle differences that separate the elementary and combined programs. The junior-senior high programs are primarily senior high programs and designed for older students. This distinguishes them from the group of combined programs, which, although including the same grades, are more likely, at the secondary level, to be directed at junior high students. Again, while elementary and combined programs share a common focus on grade 6, the combined programs are essentially middle grade programs, and the fact that a large proportion of them include grades 7 and 8 may account for the slightly different emphasis which this group of programs shows in comparison with the elementary group.

Statistics considered up to this point relate only to the question of WHICH grades are included in

TABLE 4.—GRADES IN WHICH PROGRAM IS GIVEN

Grade	Total	System size		
		Large	Medium	Small
1	2	3	4	5
Prekindergarten	4.4%	10.8%	4.3%	2.7%
Kindergarten	24.4	29.2	26.0	20.8
Grade 1	32.4	38.5	34.7	27.5
Grade 2	32.8	41.5	35.0	27.5
Grade 3	35.8	43.1	38.2	30.6
Grade 4	43.0	52.3	43.9	39.2
Grade 5	56.3	67.7	58.8	49.8
Grade 6	75.9	81.5	78.9	70.2
Grade 7	40.9	47.7	40.4	40.0
Grade 8	39.0	49.2	38.2	37.6
Grade 9	32.9	46.2	28.7	35.7
Grade 10	36.5	52.3	32.5	37.6
Grade 11	36.1	49.2	32.5	38.0
Grade 12	35.6	53.8	32.0	36.1
Adult education	6.1	16.9	6.0	3.5
Number responding	689	65	369	255

TABLE 5.—NUMBER OF PUPILS AND TEACHERS PARTICIPATING IN PROGRAMS

Item	Pupils			Teachers		
	Elementary	Junior high	Senior high	Elementary	Junior high	Senior high
1	2	3	4	5	6	7
ALL PROGRAMS						
Mean	1,583	604	607	63	15	14
Median	550	300	182	20	6	4
Low	10	6	4	1	1	1
High	45,193	7,325	17,000	1,700	125	405
Number responding	440	192	209	404	179	189
COMBINED PROGRAMS						
Mean	2,035	692	838	83	17	19
Median	800	400	300	30	8	6
Low	10	6	12	1	1	1
High	45,193	7,325	17,000	1,700	125	405
Number responding	220	149	137	200	135	125
ELEMENTARY PROGRAMS						
Mean	1,149	...	...	44	...	...
Median	418	...	...	16	...	...
Low	30	...	...	1	...	...
High	18,000	...	...	600	...	...
Number responding	208	...	...	194	...	...
JUNIOR-SENIOR HIGH PROGRAMS						
Mean . . . . .	...	297	174	...	10	3
Median . . . . .	...	186	60	...	5	1
Low . . . . .	...	20	9	...	1	1
High . . . . .	...	1,400	2,627	...	85	54
Number responding . . . . .	...	29	67	...	25	58

programs. Another question that deserves an answer is: HOW MANY grades do programs include? For example, is an elementary program simply a one-year program in grade 6, or a comprehensive program comprising all the elementary grades? Again, a combined program by definition must include at least one elementary and one secondary grade, but do such programs customarily comprise only one elementary and one secondary grade, or do they cover all the elementary and all the secondary grades?

Figure 3 shows on the left side at the top the number of elementary grades which elementary programs include and at the bottom the number of junior-senior high grades which junior-senior high programs include. For the purposes of comparison, the right side of the graph shows at the top the number of elementary grades which combined programs include and at the bottom the number of junior-senior high grades that combined programs include.

It can readily be seen that each of the three types of programs represents a different pattern in the number of grades included. Programs restricted to the elementary or to the junior-senior high grades are distinguished by the tendency to comprise only a small number of grades. However, elementary and junior-senior high programs also differ from each other; the majority of elementary programs (61 percent) are one-year programs, while a majority of junior-senior high programs (59 percent) comprise either two or three grades, with the largest proportion (32 percent) comprising three grades. If these facts are considered in relation to the grade level distribution shown in Figure 2, it seems fair to conclude that the majority of elementary programs are one-year programs, confined chiefly to grade 6, while a majority of the junior-senior high programs are limited to two or three of grades 10 through 12.

Combined programs exhibit a different pattern altogether and can be seen to be more comprehensive both at the elementary and at the secondary level.

TABLE 6.—NUMBER OF PUPILS AND TEACHERS PARTICIPATING IN PROGRAMS, BY SYSTEM SIZE

Item	Pupils			Teachers		
	Elementary	Junior high	Senior high	Elementary	Junior high	Senior high
1	2	3	4	5	6	7
LARGE SYSTEMS						
Mean	6,216	1,167	2,411	273	36	55
Median	3,240	350	280	117	16	10
Low	70	40	26	2	2	1
High	45,193	7,325	17,000	1,700	122	405
Number responding	43	16	22	38	14	21
MEDIUM-SIZE SYSTEMS						
Mean	1,478	737	598	58	18	13
Median	700	480	300	30	9	5
Low	15	6	9	1	1	1
High	12,733	3,600	5,000	520	125	102
Number responding	247	107	98	217	97	85
SMALL SYSTEMS						
Mean	429	267	171	17	5	5
Median	220	200	100	10	4	2
Low	10	10	4	1	1	1
High	2,500	1,200	1,150	104	30	54
Number responding	150	69	89	149	68	83

TABLE 7.—SEASON OF YEAR PROGRAM IS IN OPERATION

Season	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
All year (four seasons)	25.2%	36.9%	25.7%	21.5%	15.9%	20.9%	34.9%
All school year (fall, winter, spring)	26.6	24.6	27.9	25.4	20.2	44.5	26.1
Summer only	7.6	9.2	6.6	8.6	4.3	8.2	10.4
Summer plus fall and/or spring ..	4.9	10.8	5.1	3.2	4.0	0.9	7.0
One season only within school year (fall or winter or spring) ..	22.5	4.6	21.7	28.1	41.5	14.5	10.1
Two seasons within school year (fall and winter, winter and spring, fall and spring)	13.1	13.8	12.9	13.3	14.4	10.9	11.6
	99.9%	99.9%	99.9%	100.1%	100.3%	99.9%	100.1%
Number responding	698	65	377	256	258	110	318

Since the survey covered all grade levels from pre-kindergarten through adult education, there are actually a total of eight elementary grades (PK-6) and seven secondary grade levels (7-adult education) to be considered. Over half (52 percent) of the combined programs include six or more of the elementary grades, while at the secondary level the largest proportion (40 percent) of combined programs includes six or more grades. By comparison, only 17 percent of the elementary programs include six or more elementary grades, and only 5 percent of junior-senior high programs include six or more secondary grades.

If the total number of grades included in combined programs is computed, it appears that over half of them (54 percent) include nine or more grades and that over one-fourth of them include 13 or more grades.

**Number of grades
in combined programs**

2 or 3	14.1%
4 or 5	16.9
6, 7, or 8	15.3
9 or 10	15.3
11 or 12	11.9
13 or more	26.6
Number responding	320

From this information, it is possible to put together a general picture of three different types of environmental education programs in terms of the grade levels they reach. The largest proportion of

environmental education programs include both some elementary and some secondary grades. A majority of these programs include nine or more grades, with over half of them including six or more elementary grades and a substantial portion of them including six or more secondary grades. Such programs focus chiefly on grades 4-8. However, there also exists a substantial group of environmental programs which are given only at the elementary level. Most of these are one-year programs and directed at grade 6. In addition, there is a small group of programs restricted to the junior-senior high level, which are aimed primarily at grades 10 through 12 and offer two or three years of environmental study.

**Number of Pupils and
Teachers Participating**

Another measure of the scope of programs is the number of pupils and teachers who participate in them. Although some respondents to the survey did not answer the questions concerning enrollment and teacher participation, the following data give a limited picture of the scope of environmental programs in terms of the numbers of participants.

All responding programs together enroll a median of 550 elementary pupils, 300 junior-high pupils, and 182 senior-high pupils, and involve the participation of a median of 20 elementary teachers, 6 junior high teachers, and 4 senior-high teachers.

FIGURE 1
GRADES IN WHICH PROGRAM IS GIVEN
(PERCENT OF ALL PROGRAMS)

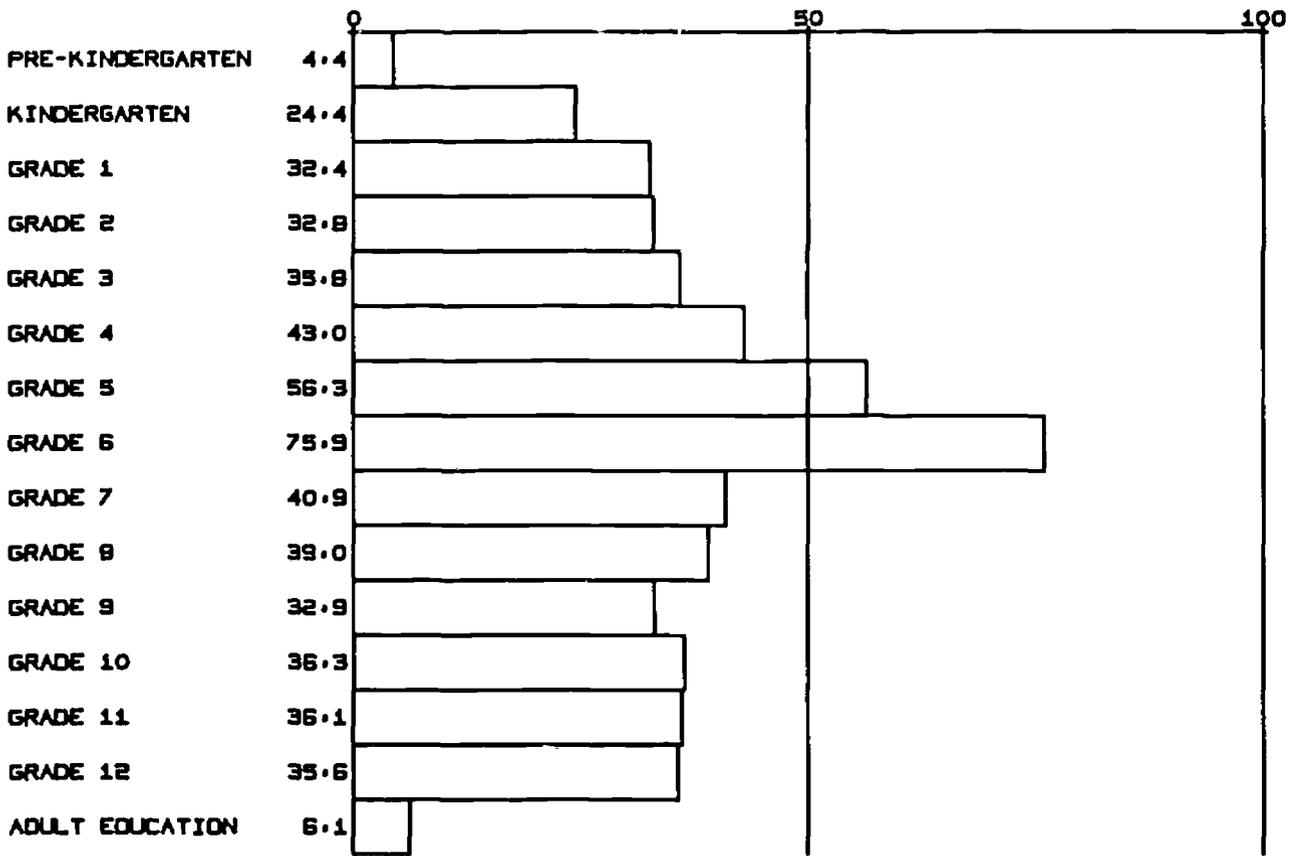


FIGURE 2
GRADES IN WHICH PROGRAM IS GIVEN
(PERCENT OF ALL PROGRAMS AS RESTRICTED BY GRADE LEVEL)

ELEMENTARY
 JR. SR. HIGH
 COMBINED

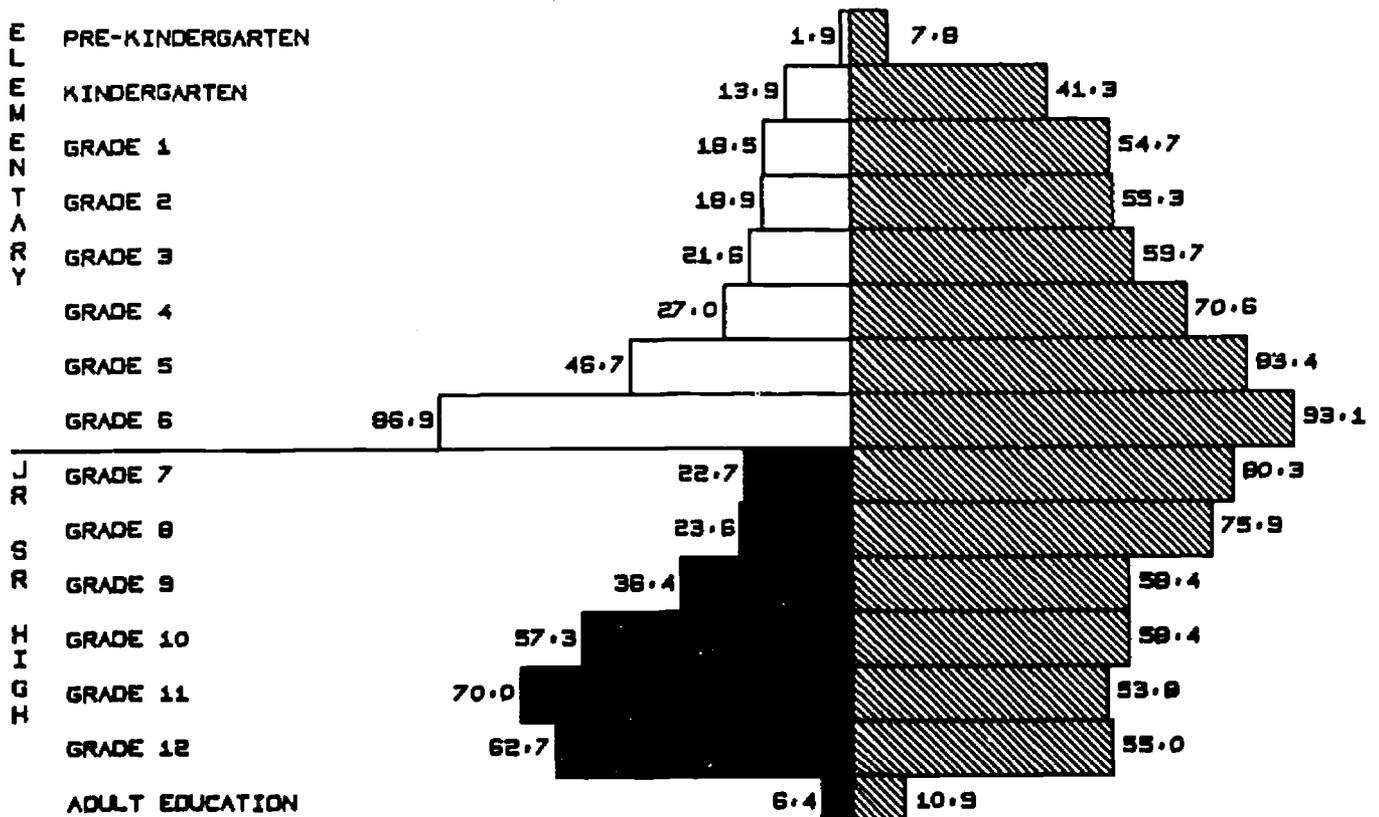


TABLE 8.—SCHEDULING OF PROGRAM

Scheduling of program	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
Regular school week only	66.7%	44.6%	67.6%	71.0%	83.5%	67.9%	52.4%
Out of regular school hours only (school vacations and/or week-ends and/or summer vacations)	7.1	9.2	6.2	8.3	3.1	8.2	9.7
Regular school week and summer vacation	12.5	21.5	13.6	8.6	9.4	6.4	17.2
Regular school week plus time out of regular school hours within school year (school week plus weekends and/or school vacations)	5.9	4.6	5.8	6.3	2.0	14.7	6.2
Regular school week and summer vacation plus time out of school hours within school year (school week and summer vacation plus school vacations and/or weekends)	7.7	20.0	6.9	5.8	2.0	2.7	14.4
	99.9%	99.9%	100.1%	100.0%	100.0%	99.9%	99.9%
Number responding	696	65	376	255	255	109	319

The typical combined program enrolls a median of 800 elementary pupils, 400 junior high pupils, and 300 senior high pupils. A median of 30 elementary teachers, 8 junior high teachers, and 6 senior high teachers participate in combined programs. By comparison, programs restricted to the elementary grades enroll a median of 418 pupils and involve the participation of a median of 16 teachers, while programs restricted to the junior-senior high grades enroll a median of 186 junior high and 60 senior high pupils and involve the participation of a median of 5 junior high teachers and 1 senior high teacher. Thus, combined programs are more extensive in the number of their participants at both elementary and secondary levels than are separate elementary and secondary programs.

Because the survey comprised school systems of widely different sizes, a more meaningful picture of the scope of programs can be obtained by considering the number of pupil and teacher participants in relation to school system size. In large systems, which enroll a total of 25,000 or more pupils, the median program enrollment is 3,240 elementary pupils, 350 junior high pupils, and 280 senior high pupils; the median number of teachers participating is 117 elementary teachers, 16 junior high teachers,

and 10 senior high teachers. Medium-size systems, enrolling between 3,000 and 25,000 pupils, have a median program enrollment of 700 elementary pupils, 480 junior high pupils, and 300 senior high pupils; the median number of teacher participants is 30 elementary teachers, 9 junior high teachers, and 5 senior high teachers. In small systems, with total enrollments between 1,000 and 3,000, programs enroll a median of 220 elementary pupils, 200 junior high pupils, and 100 senior high pupils; these programs involve the participation of a median of 10 elementary teachers, 4 junior high and 2 senior high teachers.

In relating the number of program participants to the size of school systems, it is advisable to keep in mind the varied methods which may be used to include environmental study in the school program. Environmental education may be a part of the required curriculum or a voluntary activity in the form of either elective courses or an extracurricular program out of school hours. Thus, the number of pupils enrolled in a program may be an index of the availability of the program or an index of pupil interest in the program. Again, in cases where environmental education is part of the required curriculum, the restriction of the program to certain grade levels may mean that only a small portion of the

total system enrollment will be involved in the program in any one year, although the program may ultimately reach all pupils in the system as they move through the grades.

(b) school vacations, (c) weekends, and (d) summer vacation.

Time Devoted to Programs

A third measure of the scope of programs is the time they involve. Two questions in the survey related to the times at which programs were in operation. One question asked respondents to indicate in which of the four seasons of the year (fall, winter, spring, and summer) their programs operated. The other question asked at what times the program operated: (a) regular school week,

From responses to the first question, it appears that a majority of programs operate either year-round (all four seasons) or throughout the entire school year (fall, winter, and spring). About one-fourth of the responses fall into each of these two categories. Only 8 percent of the respondents indicated programs during the summer only, but over one-fifth (23 percent) reported that their programs operated only during one season within the school year (fall or winter or spring).

TABLE 9.—AVERAGE NUMBER OF DAYS EACH PUPIL SPENDS IN PROGRAM

Item	In classroom			Outside classroom		
	Elementary	Junior high	Senior high	Elementary	Junior high	Senior high
1	2	3	4	5	6	7
ALL PROGRAMS						
Mean	21	36	55	6	10	18
Median	10	12	20	5	5	5
Low	1	1	1	1	1	1
High	180	180	200	200	150	180
Number responding	356	163	185	449	178	176
COMBINED PROGRAMS						
Mean	21	29	42	6	8	11
Median	10	10	12	5	5	5
Low	1	1	1	1	1	1
High	180	180	200	50	90	90
Number responding	183	125	105	211	135	110
ELEMENTARY PROGRAMS						
Mean	22	...	...	5	...	...
Median	10	...	...	5	...	...
Low	1	...	...	1	...	...
High	180	...	...	60	...	...
Number responding	166	...	...	229	...	...
JUNIOR-SENIOR HIGH PROGRAMS						
Mean .....	...	67	72	...	20	32
Median .....	...	40	43	...	5	10
Low .....	...	1	1	...	1	1
High .....	...	180	190	...	150	180
Number responding .....	...	30	78	...	31	61

FIGURE 3

NUMBER OF GRADES WITHIN EACH GRADE LEVEL AT WHICH PROGRAM IS GIVEN
(PERCENT OF ALL PROGRAMS AS RESTRICTED BY GRADE LEVEL)

ELEMENTARY
 JR. SR. HIGH
 COMBINED

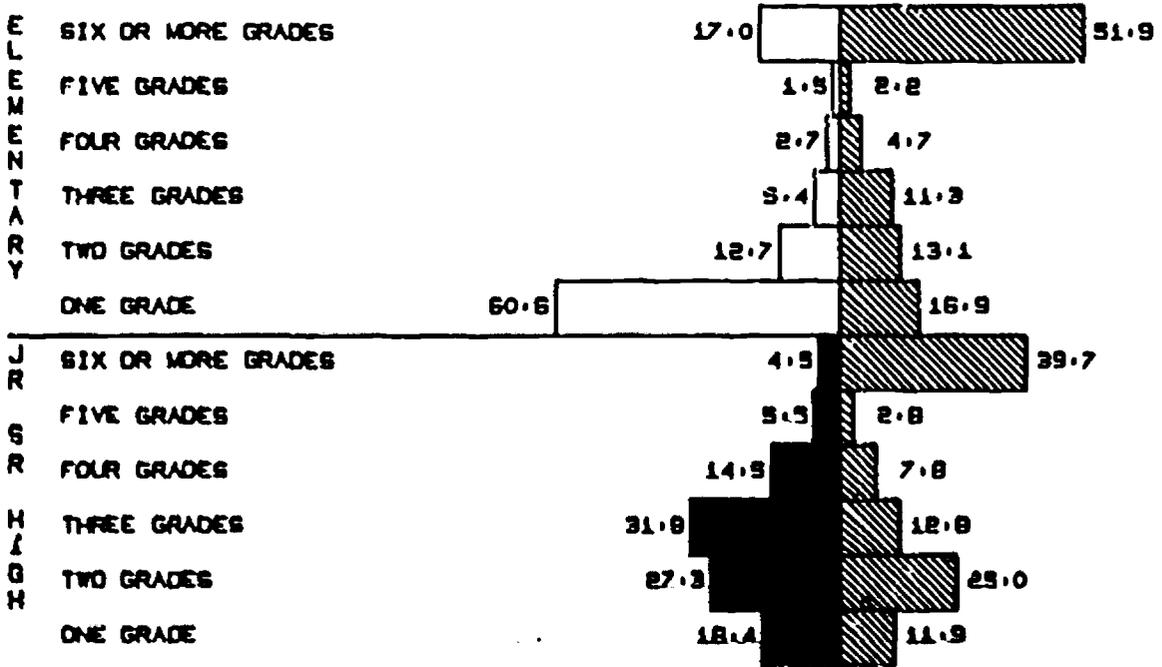


TABLE 10.—PROGRAM ADMINISTRATION

Type of administration	Total	System size			Region			
		Large	Medium	Small	North-east	South-east	Middle	West
1	2	3	4	5	6	7	8	9
Decentralized within the school system	30.7%	29.0%	32.3%	28.6%	45.1%	26.0%	23.2%	26.6%
Centralized within the school system	51.4	58.1	50.4	51.2	39.5	52.0	65.8	45.8
In cooperation with other school systems	12.5	6.5	12.9	12.7	8.7	16.0	7.2	20.7
Other	5.7	6.5	4.3	7.5	6.7	6.0	3.8	6.9
	100.1%	100.1%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%
Number responding	685	62	371	252	195	50	237	203

The times of year at which programs operate is clearly related to the grade level of the programs. Combined programs have the most extensive operation; the largest proportion of them (35 percent) operate year-round. In contrast, the largest proportion of junior-senior high programs (45 percent) operate throughout the school year, while elementary programs have the most limited operation, with their largest proportion (42 percent) operating only at one season within the school year.

Large systems have programs with more extensive operation than medium or small systems. A much larger percentage of programs in large than in medium or small systems operate year-round. Conversely, the percentage of programs that operate during only one season within the school year is much higher in medium and small systems than in large systems.

In regard to scheduling, most programs are limited to the regular school week. Two-thirds of the respondents indicated that their programs operated during the regular school week only. One program in 8 operates during the regular school week and summer vacation, and in addition 8 percent operate at these two times as well as in time outside regular school hours during the school year (i.e., school vacations and weekends), making a total of one-fifth of all programs that operate during the school week and summer vacation with or without the use of additional time during the school year. However, only a small percentage of programs (6 percent) uses time out of school hours within the school year (school vacations and weekends) in addition to the regular school week. Few programs (7 percent) op-

erate entirely outside regular school hours (i.e., during school vacations, weekends, and summer vacation).

Differences in scheduling of programs bear some relation to grade level. Although a majority of all three types of programs classified by grade level operate during the school week only, the size of the majority varies greatly, from over four-fifths for elementary programs, to more than two-thirds for junior-senior high programs, to little more than one-half for combined programs. In view of the large proportion of combined programs that operate year-round, it is not surprising to find that a considerable percentage of these programs (32 percent) operate during summer vacation as well as during the regular school week; almost one-half of these (14 percent) use time outside school hours within the school year in addition to the school week and summer vacation. Junior-senior high programs, the largest proportion of which operate throughout the school year, naturally do not use the summer vacation to the extent that combined programs do; however, 15 percent of these programs use time outside school hours within the school year in addition to the regular school week.

Differences related to the size of school systems are even more striking. Fewer than half the programs in large systems are limited to the regular school week, while over one-fifth of them operate during both the school week and summer vacation, and an additional one-fifth use time outside school hours within the school year as well as the school week and summer vacation.

Another question approached the matter of time differently. This question asked respondents to state the average number of days each pupil spends in the program. Because environmental education customarily includes on-site experience, such as field trips, weekend or summer camp activity, in addition to regular classroom instruction, respondents were asked to give both the number of days a pupil spent in the classroom and the number of days spent outside the classroom. Amounts for elementary, junior-high, and senior high pupils were recorded separately.

Results show that most of the pupil's time is spent in classroom activity and that older pupils spend a greater amount of time in the classroom than younger ones. The median number of days that elementary pupils spend in the classroom is 10; for junior-high pupils, the median is 12 days; and for senior-high pupils, it is 20 days. The median amount of time spent outside the classroom is 5 days for all grade levels.

If responses are analyzed by the grade level of programs, some interesting differences appear at the junior and senior high-school levels. Although elementary pupils in programs restricted to the elementary grades spend about the same amount of time both in and out of the classroom as elementary pupils in combined programs, junior high and senior high pupils in programs that operate only in the secondary grades customarily spend more time in the program than junior high and senior high pupils in combined programs.

The over-all value of these data is somewhat limited by the variety of ways in which environmental education may be presented. Study of the environment may be integrated with the material of other courses (for instance, the science program) which meet every day throughout the school year. In this case, the pupil spends some part of every school day on classwork related to the program; if these courses carry daily homework assignments, he will also spend some part of every school day on work outside the classroom that is related to the program. This is apparently the case in some programs where respondents indicated that pupils spent 180 days both in the classroom and out of the classroom. In other cases, environmental education may be represented by a separate course meeting one or more times a week throughout the year or throughout one semester, or it may be a special unit of work within another course, involving intensive work for several weeks. Some programs may revolve chiefly

around selected field trips with special class activities before and after. In other programs, activity out of the classroom may include independent pupil work on special projects or group activities before or after school, such as science clubs or nature study groups. Such differences, and consequent differences in the apportioning of pupil time in the program, are present, though not visible, in the calculation of over-all means and medians of days spent by pupils in widely different types of programs.

Data related to the temporal scope of programs corroborate other evidence for three different types of environmental education programs distinguished by grade level. Combined programs tend to be the most comprehensive in that a larger portion of them operate on a year-round basis and utilize time outside the regular school week. Elementary programs are the most limited, operating chiefly within the regular school week and often at only one season of the school year. Programs offered only at the junior-senior high level appear to be of a different kind altogether, representing a more intensive approach within a traditional academic framework. These programs tend to operate throughout the school year, utilizing chiefly the regular school week but also in some cases weekends and school vacations during the year, and involving a greater amount of classroom work by students.

Program Administration

A final descriptive factor that may help to explain some of the diversity among programs that has already been seen and will be seen in data to follow is the differing basis of program administration.

About one-half of all programs are administered on a centralized basis within the school system, about 3 in 10 have decentralized arrangements, and about 1 program in 8 is administered in cooperation with other school systems. Not surprisingly, centralized administration is most prevalent among large systems, while a higher percentage of medium and small than of large systems operate their programs in cooperation with other school systems.

Decentralized arrangements are most common in the Northeast; centralized administration prevails most heavily in the middle section of the country; and a higher percentage of school systems in the West than in other regions administer their programs in cooperation with other school systems.

PROGRAM CONTENT AND PROCEDURES

ENVIRONMENTAL EDUCATION offers a wide range of possible learning experiences for pupils. The environment may be studied scientifically through various academic disciplines. Or pupils may learn about the practical use of natural resources through the study of such subjects as agriculture and forestry, or about the use of the environment for pleasure through the development of skills in outdoor sports. Cultural and social implications of human ecology can contribute to the study of history, or an appreciation of nature can be enhanced through art activities. Other skills, such as mathematics or English composition, may also be used in studying the environment.

Pupils can learn about the environment through a variety of media and activities in the classroom or through an extended experience in outdoor living. Field trips undertaken for specific purposes can provide pupils with an opportunity to apply their classroom learning or to bring back to the classroom new experiences and ideas for further study.

In surveying environmental education programs throughout the country as a whole, it is essential to determine the nature of the experiences, activities, and areas of study that make up the content of programs. Accordingly, a number of questions in the survey instrument were directed to this purpose. Other questions were designed to illustrate related procedures in such areas as curriculum planning and resources, and pupil evaluation.

Pupil Activities and Experiences

Utilization of On-site Experience

Study of the environment can profitably be approached through experiences on sites outside the classroom in addition to regular classroom instruction. Such experiences may take the form of an extended period spent in residence at a particular site, a series of visits during the day to sites without remaining overnight, or separate field trips for part or all of a day to visit a particular site of relevance to the curriculum. Three questions in the survey concerned the utilization of such on-site experiences.

One question presented respondents with a list of possible types of pupil experience and asked them to indicate which ones were used in their programs. The list included: (a) on-site resident experience (overnight); (b) sequential day visit program; (c) selected field trips; (d) classroom experiences.

Responses show that a majority of programs use some form of on-site experience in addition to classroom instruction. Less than 3 percent of respondents indicated that their programs were confined to classroom experience. However, one-fourth reported that they use on-site experiences without classroom instruction; 15 percent use on-site residence experience only. About 3 programs in 10 use, in addition to classroom study, on-site experiences that are limited to day visits (field trips and sequential day visits); 1 program in 6 is limited to classroom experience plus selected field visits. Twenty percent of all programs use on-site resident experience in addition to classroom experience and field trips, and 14 percent include all four types of experience.

Types of pupil experiences relate to the grade level of programs. The largest proportion of elementary programs (31 percent) involve on-site resident experience only, and 20 percent use classroom experiences and field trips in addition to resident experience. The largest proportion of junior-senior high programs (40 percent) in keeping with their more traditional, academic orientation are limited to classroom experience and selected field trips; 19 percent include sequential day visits in addition to classroom experience and field trips. Combined programs, as might be expected from their distinguishing general characteristics, are more comprehensive in the types of experience they offer; 22 percent of them include all four types of experience, and 23 percent use resident experience in addition to classroom experience and field trips.

If on-site experiences are used in conjunction with classroom work, it is important to consider the ways in which such activities are incorporated into the regular class program. Two other questions in the survey dealt with this topic. These concerned, respectively, prior preparation for on-site experience and follow-up activities.

TABLE 11.—TYPES OF PUPIL EXPERIENCES

Experience	Total	Grade level restriction		
		Elementary	Junior-senior high	Combined
1	2	3	4	5
Classroom experience only	2.5%	2.0%	5.5%	1.9%
On-site resident experience only	15.2	31.0	3.7	6.0
Resident experience, sequential day visits and/or selected field trips	5.4	7.1	1.8	4.7
Sequential visits and/or field trips	6.1	6.3	7.3	5.0
Classroom and field trips	16.5	6.7	40.4	16.1
Classroom, field trips, and sequential visits	12.1	5.9	19.3	14.6
Classroom, field trips, and resident experience	19.5	20.0	10.1	22.8
Classroom, sequential visits and/or resident experience	8.5	13.8	1.8	6.9
All types of experience	14.4	7.5	10.1	21.8
	100.2%	100.3%	100.0%	99.8%
Number responding	693	255	109	316

The overwhelming majority of respondents indicated the use of both prior preparation and follow-up activities. Only 5 percent reported that they had no prior preparation activities and only 7 percent indicated that the question on follow-up activities was not applicable, either because they belonged to the very small minority of systems that use no on-site experiences or because they do not engage in these activities. Slightly fewer junior-senior high programs use prior preparation and follow-up activities than do elementary and combined programs.

PROGRAMS USING PRIOR PREPARATION

	Percent	Number responding
Elementary	98.8%	257
Junior-senior high ...	83.7	108
Combined	94.8	310
Total	94.6%	683

PROGRAMS USING FOLLOW-UP ACTIVITIES

	Percent	Number responding
Elementary	96.1%	257
Junior-senior high ...	85.2	108
Combined	93.9	310
Total	93.3%	686

Each of these two questions presented a checklist of possible activities and asked respondents to indicate which ones they used in their programs. Among prior preparation activities, discussions and reading in class are used in nine-tenths of all programs, audiovisual presentations in more than three-fourths, and visits by resource persons in about two-thirds. Visits of resource persons are most heavily used in combined programs and least in junior-senior high programs. Junior-senior high programs also use audiovisual presentations to about the same extent as discussions and reading, while discussions and reading are used in a greater percentage of elementary and combined programs than are audiovisual presentations.

Among follow-up activities, oral reports and discussions have the widest use, being utilized in 85 percent of all responding programs. About three-fourths of the programs have activities which use specimens gathered in the on-site experience, displays or exhibits, and written reports or essays. Films, slides, and transparencies; reading to extend learning experiences of the on-site visits; and art activities are also among the follow-up activities which more than half the programs use.

Since the types of activities used must be adapted to the age and interests of pupils, it is not surprising to find some variation of responses related to the grade level of the program. The most noticeable difference occurs in regard to art activities, which are used in a large proportion of elementary programs (61 percent) and combined programs (53 percent), but in only a small percentage of junior-senior high programs (17 percent). The proportion of junior-senior high programs using reading to extend learning experiences (fewer than 4 in 10) is also much smaller than the proportion of combined or elementary programs (about 6 in 10 for both) using this activity. The two types of activities utilized by the largest proportion of junior-senior high programs are the examination, identification, and use of specimens; and films, slides, or transparencies. Action programs, such as conservation projects, do not stand among the most widely used follow-up activities, but they are used in a greater percentage of combined and junior-senior high programs than of elementary programs.

Areas of Study and Activity

To determine the subject-matter content of programs, the survey instrument included a checklist question of 39 items representing different subject-matter areas, specialties, skills, or activities which might be included in environmental education programs. An additional item provided respondents with the opportunity to indicate additional areas of study; however, only 6 percent did so.

Although the items were listed alphabetically in the questionnaire, they were grouped into categories of related topics for convenience in reporting.

A large number of the items on the list represent branches of the sciences which have a direct relation to study of the environment, such as biology, botany, or geology. Applied sciences, such as conservation, agriculture, or forestry, comprise a second category. A third group consists of related studies, such as chemistry and physics, geography and history, which do not utilize environmental experiences as directly as the first group. Various sports and recreational activities make up another group, while a fifth category represents the arts, including items such as art, creative writing, drama, and music. The assignment of items to different categories is, of course, arbitrary and might in some cases be disputed; the system of categories is intended only to serve as a general means of distinguishing the various aspects of program content.

Responses show that most programs have a scientific orientation. Figure 3 shows the items ranked by the percentage of response for each and identified by the category to which each belongs. It can readily be seen that the light and lightly shaded areas which represent, respectively, the environmental sciences and the applied sciences predominate toward the top of the graph and that the darker areas representing related studies, sports, and arts predominate toward the bottom. The range above 70 percent is wholly occupied by the environmental sciences with the exception of the top-ranking applied science, conservation. Between 50 and 70 percent, applied sciences and environmental sciences together represent the dominant element. Related studies predominate between 40 and 50 percent, and art activities between 30 and 40 percent. Sports activities are dominant only between 20 and 30 percent, although isolated items in this category stand much higher.

TABLE 12.—TYPES OF PRIOR PREPARATION USED

Type of preparation	Total	Grade level restriction		
		Elementary	Junior-senior high	Combined
1	2	3	4	5
Discussions and reading in class	89.9%	93.4%	76.9%	91.3%
Audiovisual presentations in class	76.0	75.9	73.1	77.1
Visit to classroom by resource persons .	66.5	64.2	54.8	72.9
Other	15.1	14.8	17.3	14.5
Number responding	683	257	104	310

TABLE 13.—TYPES OF FOLLOW-UP ACTIVITIES USED

Type of follow-up activities	Total	Grade level restriction		
		Elementary	Junior-senior high	Combined
1	2	3	4	5
Oral reports and discussions	85.3%	89.9%	67.4%	86.9%
Examination, identification, and use of specimens gathered	74.5	70.0	73.9	79.4
Displays and exhibits	75.6	73.7	64.1	75.9
Written reports and/or essays	73.6	76.9	62.0	75.3
Films, slides and/or transparencies	63.1	57.9	73.9	64.3
Reading to extend learning experiences	55.3	57.9	35.9	59.1
Art activities	50.9	60.7	17.4	52.9
Action program (i.e., conservation project)	45.0	37.7	45.7	31.2
Structured lessons	35.4	36.0	21.7	34.7
Sound recording	18.0	13.0	13.0	23.7
Drama	12.3	13.8	1.1	14.8
Other	3.8	6.1	7.6	4.5
Number responding	640	247	92	291

To compare percentages within categories, the table groups items by categories and ranks them by percent within categories. As might be expected, broad areas of study show higher percentages within each group than specific subjects or activities. For example, a higher percentage of respondents checked the general area of study "conservation" than the specific subject "forestry" in the applied sciences, while in the sports area, more indicated that their programs included the general activity "recreation" than any of the specific sport skills. Similarly, a higher percentage checked specific subjects or activities, such as biology or art, than specialties like marine biology or sculpture. This tendency for more programs to include the more general areas of study and activity, while predictable, also indicates that many of these programs are directed to general rather than specific objectives, as the descriptions of program intent have already shown.

In considering the separate categories, the environmental sciences deserve special attention because of the inclusion of most of them in a majority of programs. These fall into three groups: the top group comprises ecology, biology, insect study, geology, botany, general science, and weather study,

all of which are found in a substantial majority of programs; limnology, zoology, and astronomy make up a middle group and are included in a large proportion of programs; marine biology, marine zoology, and oceanography are the sciences least frequently included in programs.

Among the applied sciences, after the top-ranking general subject of conservation, forestry, and map and compass stand highest; health, agriculture, and home economics are included in far fewer programs. Geography, mathematics, social studies, and history are the related studies most often included in programs; chemistry, physics, and psychology are more rarely included.

In the area of sports, more programs include recreation and physical education than the more specialized sports skills and activities listed, while art and creative writing are the two areas of arts activity that are most frequently used in programs.

Analysis of responses by grade level of program shows a number of differences that distinguish elementary and combined programs from junior-senior high programs. In the area of environmental sciences are several subjects that a much larger percentage of elementary and combined programs than of

junior-senior high programs include. These are insect study, general science, weather study, and astronomy.

	Grade level restriction		
	Elementary	Junior-senior high	Combined
Insect study	81.0%	50.0%	82.8%
General science	76.7	52.7	81.5
Weather study	72.5	48.2	76.5
Astronomy	55.4	21.8	49.5
Number responding ..	258	110	319

A similar phenomenon occurs in the group of related studies, where a much larger percentage of elementary and combined programs than of junior-

senior high programs include mathematics and social studies.

	Grade level restriction		
	Elementary	Junior-senior high	Combined
Mathematics	48.8%	23.6%	54.9%
Social studies	41.1	20.0	51.7
Number responding ..	258	110	319

In the area of the arts, none of the activities or subjects is included in more than a fourth of the junior-senior high programs, while art and creative writing are part of the content of more than 60 percent of both elementary and combined programs.

TABLE 14.- AREAS OF STUDY AND ACTIVITIES INCLUDED IN PROGRAM

Area	Percent of programs	Area	Percent of programs
1	2	1	2
ENVIRONMENTAL SCIENCE		APPLIED SCIENCE	
Ecology	86.8%	Conservation	95.6%
Biology	79.1	Forestry	69.8
Insect study	77.0	Map and compass	65.5
Geology	76.8	Health	52.1
Botany	75.5	Agriculture	33.3
General science	75.1	Home economics	12.7
Weather study	70.4	SPORTS	
Limnology	61.8	Recreation	67.0%
Zoology	54.6	Physical education	47.1
Astronomy	47.4	Hunter safety	27.5
Marine biology	35.3	Angling and casting	22.5
Marine zoology	25.0	Canoeing and water safety	20.3
Oceanography	15.3	ARTS	
RELATED STUDIES		Art	58.1%
Geography	49.8%	Creative writing	54.2
Mathematics	47.5	Reading	38.1
Social studies	42.8	Music	35.1
History	38.2	English	32.5
Chemistry	22.5	Drama	21.9
Physics	12.4	Literature	19.3
Psychology	6.3	Sculpture	9.4
Number responding	699	Number responding	699

FIGURE 4

PERCENT OF ALL PROGRAMS INCLUDING EACH AREA OF STUDY OR ACTIVITY

ENVIRONMENTAL SCIENCE
 APPLIED SCIENCE
 RELATED STUDIES
 SPORTS
 ARTS

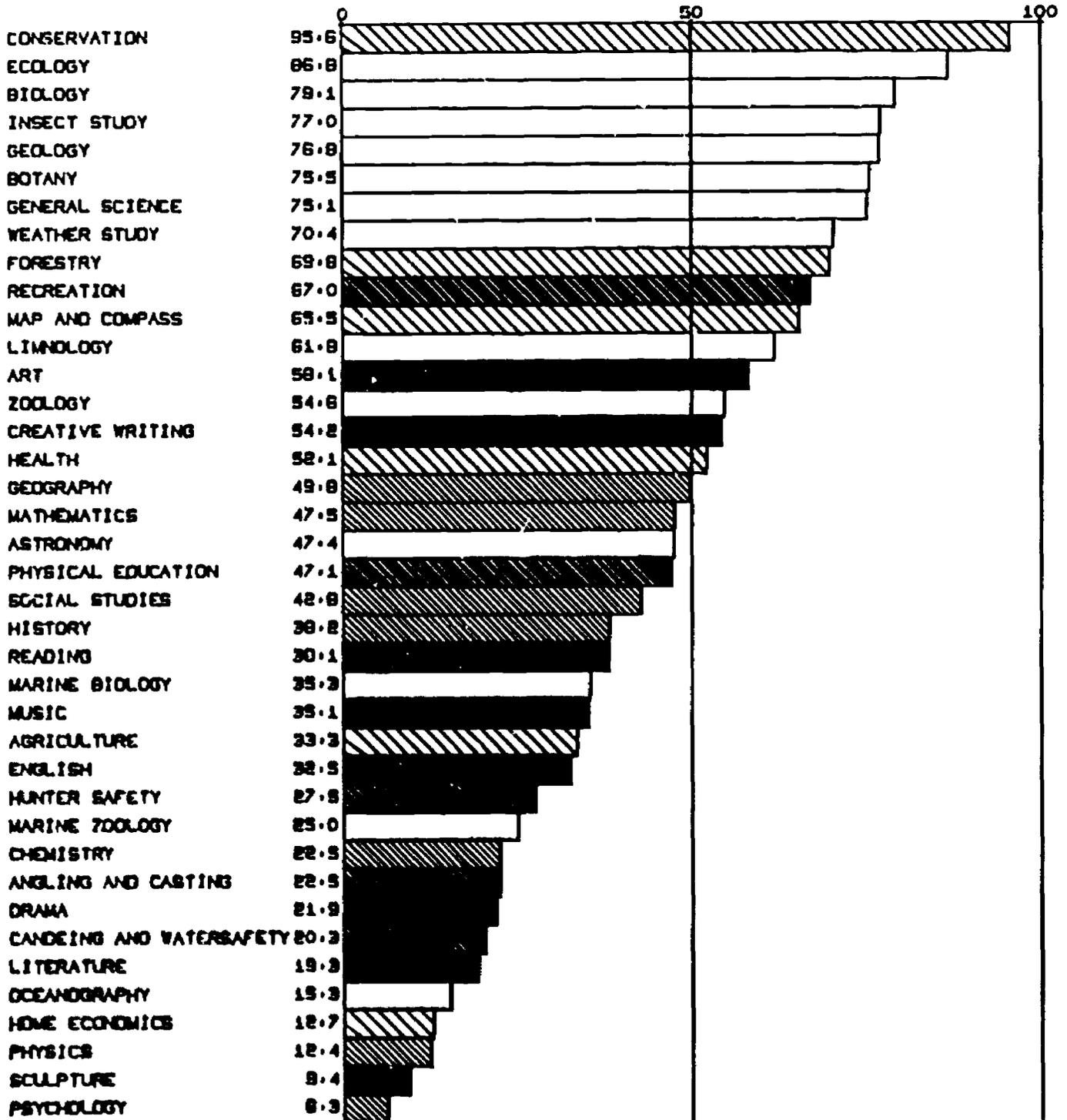


TABLE 15.—USE OF NATIONAL PARK SERVICE RESOURCES, BY SYSTEM SIZE

Resource	Total	Large	Medium	Small
	1	2	3	4	5
Use of National Park Service media resources such as films, pamphlets	71.3%	71.4%	72.4%	69.3%
Visitor centers, nature trails, historic walks, interpretive programs, etc.	52.8	71.4	52.9	46.7
Lectures by visiting National Park Service personnel	40.5	47.6	37.6	43.1
Technical assistance in developing local environmental study areas or utilizing existing environmental study areas in the National Park System	35.8	50.0	33.5	35.0
Experimental instructional materials being developed in the NEED program (National Environmental Education Development)	24.5	45.2	25.3	16.8
Other	5.0	4.8	5.0	5.1
Number responding	400	42	221	137

However, among sports activities and applied sciences, the general areas of health and physical education are much more heavily represented in elementary and combined programs than in junior-senior high programs, but a much larger proportion of junior-senior high programs include the specific topics, agriculture and hunter safety.

	Grade level restriction		
	Elementary	Junior-senior high	Combined
Health	57.8%	31.8%	55.2%
Physical education	58.1	22.7	46.4
Agriculture	25.6	51.8	33.9
Hunter safety	20.2	48.2	27.3
Number responding ..	258	110	319

These findings enlarge the general picture, already established, of different types of programs distinguished by grade level. The elementary and combined programs, being designed for younger pupils and intended to give them a general acquaintance with the environment, include a broader range of subjects and activities. Programs directed only at the junior-senior high level, on the other hand, are more likely to be limited to subjects that form part of the traditional high-school curriculum, such as biology, botany, or agriculture, and to specific activities of interest to older pupils; they are less likely to include tangentially related subjects or to creative activities as a method of learning.

School system size also bears a relation to the areas of study and activity included in programs. Since large systems have a greater number of pupils to serve and more extensive resources with which to serve them, it might be expected that they would offer more comprehensive programs. This supposition is confirmed by the fact that most of the areas of study and activity on the list are included in a higher percentage of programs in large systems than in medium or small systems. In the environmental sciences, related studies, and the arts, percentages are almost invariably higher for large systems than for medium-size systems, and for medium-size systems than for small systems. Percentages for medium-size systems sometimes conform more closely to those for large systems and sometimes to those for small systems. In a few cases, the percentages for medium-size systems actually exceed those for large systems, but never by more than 3 percentage points. Differences on the whole tend to be of less magnitude than those noted in the grade-level analysis. The greatest differences occur in regard to zoology, astronomy, history, mathematics, social studies, and all the areas of the arts.

This pattern is broken by several items among the applied sciences and sports activities. Although the percentages for large systems are the highest in a number of cases, and health education in particular is included in a much larger proportion of the programs in large systems, conservation and forestry are about as widely, or more widely, studied in the programs of medium and small systems as in the programs of large systems. The proportion of small

TABLE 16.—USE OF NATIONAL PARK SERVICE RESOURCES, BY REGION

Resource	Total	Northeast	Southeast	Middle	West
1	2	3	4	5	6
Use of National Park Service media resources such as films, pamphlets	71.3%	66.1%	61.1%	66.0%	80.0%
Visitor centers, nature trails, historic walks, interpretive programs, etc.	52.8	61.5	61.5	34.0	56.1
Lectures by visiting National Park Service personnel	40.5	25.7	61.5	24.7	55.5
Technical assistance in developing local environmental study areas or utilizing existing environmental study areas in the National Park System	35.8	22.9	56.4	28.9	43.9
Experimental instructional materials being developed in the NEED program (National Environmental Education Development)	24.5	19.5	53.8	25.8	20.0
Other	5.0	1.8	5.1	10.3	3.9
Number responding	400	109	39	97	155

systems including agriculture in their programs is similar to the proportion of large systems and considerably greater than the proportion of medium-size systems. In the area of hunter safety, the percentage of small systems including this specialty is greater than the percentages of both medium and large systems.

	Large systems	Medium systems	Small systems
Conservation	92.5%	96.6%	94.9%
Forestry	73.8	68.5	70.7
Agriculture	40.0	26.7	51.4
Hunter safety	26.2	25.5	55.6
Number responding ..	65	378	256

These findings reflect another factor related to school system size: small school systems are most often located in rural communities and consequently show a comparatively greater degree of interest in areas of study and activity that have particular relevance to rural life. In regard to agriculture and hunter safety, a contributing factor is that these are typically secondary-school specialties, and small school systems have a greater concentration of programs restricted to the junior and senior high grades.

Regional differences in areas of study tend to reflect the geographic features of different regions of

the country. Predictably, programs in the middle section of the country represent the highest percentage of programs including agriculture and the lowest percentage including oceanography. Limnology is most widely studied in the Northeast and forestry in the Middle states and West.

Curriculum Resources and Planning

National Park Service Resources

Important resources for the development of curriculum in environmental programs, and especially for the utilization of on-site experience, are provided by the National Park Service. In addition to the services available at sites, such as visitor centers and nature trails, the National Park Service can assist school systems by providing resource persons to lecture in the classroom or by giving technical guidance in the development or utilization of sites for environmental study. Media resources, such as films or pamphlets, developed by the National Park Service are available for use in the classroom, and the National Environmental Education Development (NEED) program is developing experimental instructional materials designed chiefly for elementary and secondary pupils.

Results of a question asking respondents which of these resources they used in their program show that the most widely used is media resources. Seven responding systems in 10 use this resource. In addition, over half use visitors centers, nature trails, and other resources of this type. Lectures by visiting National Park Service personnel and technical assistance in the development and utilization of environmental study areas are less widely used. One-fourth of all responding systems participate in using the experimental materials of the NEED program.

Large school systems tend to use National Park Service Resources to a greater extent than medium or small systems, especially in regard to visitor centers and other such resources and in regard to technical assistance in developing and utilizing environmental study areas. Large school systems also show a higher percentage of programs using NEED instructional materials; 45 percent of the large systems responding indicated that they use these materials.

Regional analysis shows a more extensive use of National Park Service resources in the West than in other regions of the country. The percentage of programs in the West is higher than in the Northeast or Middle states in regard to the use of media resources, lectures by visiting Park Service person-

nel, and technical assistance in the development and utilization of environmental study areas.

Differences related to the grade level of programs are not particularly meaningful in connection with this question but tend rather to reflect the nature of the three types of programs as revealed by other data. In general, combined programs, being the most comprehensive, tend to use National Park Service resources to the greatest extent, while junior-senior high programs, having a more academic, classroom-centered orientation, use National Park Service resources least.

Although these data indicate a fairly extensive use of certain types of National Park Service resources in environmental education programs, the fact that 43 percent of those surveyed did not respond to the question suggests that a large number of school systems may not be aware of the resources available to them from the National Park Service.

Determining the Curriculum

In view of the wide range of different experiences, areas of study, and activities that may be included in environmental education programs, it is

TABLE 17.—USE OF NATIONAL PARK SERVICE RESOURCES, BY GRADE LEVEL RESTRICTIONS

Resources	Total	Elementary	Junior-senior high	Combined
1	2	3	4	5
Use of National Park Service media resources such as films, pamphlets	71.3%	68.5%	62.3%	75.5%
Visitor centers, nature trails, historic walks, interpretive programs, etc.	52.8	47.6	50.9	58.2
Lectures by visiting National Park Service personnel	40.5	46.9	34.0	37
Technical assistance in developing local environmental study areas or utilizing existing environmental study areas in the National Park System	35.8	36.4	24.5	39
Experimental instructional materials being developed in the NEED program (National Environmental Education Development)	24.5	25.9	18.9	2
Other	5.0	3.5	7.5	
Number responding	400	143	53	19

TABLE 18.—METHOD OF CURRICULUM DETERMINATION

Method	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
By an instructional team	67.1%	71.9%	69.3%	62.7%	73.0%	47.2%	69.2%
Field lessons prepared by the teacher for each trip	51.4	51.6	53.5	48.4	43.8	53.7	57.1
Student interests	49.3	57.8	51.6	43.7	43.4	54.6	53.7
By the school system	33.9	51.6	35.8	26.6	33.6	13.9	41.3
By the state department of education	9.0	6.3	8.6	10.3	7.8	13.9	8.6
Other	14.1	10.9	14.7	14.3	12.9	18.5	13.7
Number responding	690	64	374	252	256	108	315

relevant to ask how the curriculum of such programs is determined. The survey instrument put this question to respondents with a short checklist comprising the following items: (a) by an instructional team; (b) field lessons prepared by the teacher for each trip; (c) student interests; (d) by the school system; and (e) by the state department of education. These are not, of course, mutually exclusive methods of determining curriculum; different ones may be used at different times or at different levels of curriculum planning. For example, the over-all curriculum may be determined at the school system level, but flexibility within this determination may allow for special lessons prepared by the teacher or activities dictated by student interests. The distribution of responses indicates that in a number of cases more than one method of curriculum determination is used. Other possibilities also exist in addition to the items on the list, and 14 percent of respondents indicated that they use other methods of determining curriculum.

Combining different disciplines in the sciences, social sciences, and arts, together with aspects of physical education, into a single integrated program logically calls for the instructional team approach to determining curriculum. Two-thirds of the respondents indicated that they do in fact use this method, a greater proportion than reported using any of the other methods listed. Since elementary and combined programs tend to be more comprehensive in their content, it is not surprising that such programs use the instructional team approach to a greater extent than junior-senior high programs

which tend to operate more within the traditional academic curriculum.

About half the respondents indicated that in their programs field lessons are prepared by the teacher for each trip, and a similar proportion reported that student interests influence the determination of curriculum in their programs. Not surprisingly, pupil interests are a determining factor in a greater percentage of programs including older pupils (combined and junior-senior high programs) than of programs restricted to the elementary grades. Less explicable is the fact that individual teacher preparation of field lessons also characterizes a smaller percentage of elementary than of junior-senior high or combined programs.

The curriculum of programs is rarely determined by the state department of education, but about a third of the respondents reported that the curriculum of their programs is determined by the school system. Predictably, a much higher percentage of programs in large than in medium or small school systems have their curriculum determined at the system level. In this connection it may be recalled that a greater percentage of large than of medium or small systems have their programs administered on a centralized basis within the school system. A much higher percentage of elementary and combined programs than of junior-senior high programs also have their curriculum determined by the school system. This may perhaps be explained by the greater comprehensiveness of the content in elemen-

tary and combined programs and the attendant complexities in curriculum-planning and decision-making.

Evaluation of Pupil Progress

A final aspect of program procedures that deserves attention is the approach to evaluating pupil progress. Depending on the objectives of a program, pupil progress may be evaluated on different bases and in different ways. If the emphasis of a program is primarily academic, pupil progress is appropriately evaluated on the basis of academic performance and recognized through the giving of grades and the granting of academic credit for work completed. On the other hand, the aims of a program may focus on the development of new attitudes and values on the part of pupils and in this case evaluating pupil progress is a matter of attempting to determine attitude change.

Both these approaches to evaluating pupil progress were covered in the survey instrument. A two-part question asked whether pupils (a) received a grade in the program, and (b) received academic credit for work in the program. Another question asked whether any attempt had been made to determine changed attitudes on the part of pupils toward their environment.

In response to the first question, the junior-senior high programs very clearly reveal their academic orientation in contrast to elementary and combined programs. Approximately 4 junior-senior high pro-

grams in 5 give both grades and academic credit. At the opposite extreme stand the elementary programs, among which only 1 in 3 carries academic credit and only 1 in 10 gives grades. Combined programs stand between these extremes but conform to the pattern of the elementary programs; about half of the combined programs carry academic credit but less than a third of them give grades. These differences in the approach to evaluating pupil progress mirror precisely the differences in program emphasis that distinguish junior-senior high programs from elementary and combined programs and elementary and combined programs from each other.

In contrast to the varied responses concerning the academic evaluation of pupil progress, a substantial majority of all three types of programs have attempted to determine attitude change on the part of pupils toward their environment. This majority is somewhat smaller, but still large, in the case of junior-senior high programs.

Thus, a majority of school systems whose programs include pupils at the secondary level give academic standing to their environmental education programs by granting credit for work done in the program, but few of them, apart from the minority restricted to the junior-senior high level, actually grade pupil performance. A large proportion of all programs, however, regardless of their particular emphasis or objectives, are concerned with the attitude of pupils toward their environment and attempt to measure pupil attitude change.

TABLE 19.—EVALUATION OF PUPIL PROGRESS

Method of evaluation	Total	Grade level restriction		
		Elementary	Junior-senior high	Combined
1	2	3	4	5
Pupils receive a grade in program	31.2%	11.1%	79.4%	31.3%
Number responding	682	253	107	510
Pupils receive academic credit for program	49.5%	32.2%	80.6%	52.3%
Number responding	660	242	108	298
Attempt made to determine pupil attitude change	70.6%	71.8%	63.6%	72.3%
Number responding	666	245	110	300

SITES UTILIZED IN ENVIRONMENTAL EDUCATION PROGRAMS

PHYSICAL FACILITIES and resources are perhaps more important and more problematical in environmental education than in any other area of study. Unlike textbooks, art supplies, musical instruments, and even some types of athletic equipment, the environment cannot be brought into the school building or the classroom without losing much of its character as environment. Instead, pupils must be taken to the environment. This necessity places unique demands on the school system providing environmental education. Yet the nature of environmental education is such that the resourceful educator has many opportunities to acquaint pupils with their environment through the utilization of a wide variety of public and private institutions, areas, and sites in the vicinity of the school system.

A major purpose of this survey was to study the use which school systems make of public park facilities and other similar sites in environmental education programs. The preceding sections of the report have established the general outlines of environmental programs in terms of their emphasis, scope, content, and procedures, and have revealed that the overwhelming majority of them utilize some type of on-site experience. This information provides the basis on which to consider the needs and opportunities for the utilization of sites by environmental programs and the extent to which such programs are using different types of sites.

Description of Sites and Their Use

Number, Size, and Location of Sites

To provide a general description of sites used by school systems, the survey instrument classified sites into three categories in terms of their use, under the labels of sites located in immediate school environs, day-use environmental study centers, and resident facilities. The descriptions in the survey instrument read as follows:

Environmental study programs usually use one or more of three types of sites: (a) immediate school environs (within walking distance of the school), (b) day-use environmental study center (i.e., outdoor education center, day camp, nature center, environmental school), and (c) resident facilities (i.e., resident outdoor school, school camp).

For each of these three types of sites, respondents were asked to state the number of sites used, the approximate total acreage of sites, and, for the last two, the number of miles distant from the school district.

The table shows responses for all reporting systems. From this it can be seen that the typical school system uses, in terms of median numbers, two sites of approximately 20 acres in the immediate school environs, one day-use environmental study center of approximately 77 acres 12 miles from the school district, and one site with resident facilities of approximately 200 acres 50 miles from the school district.

Some additional details serve to enlarge this picture. Despite a median of only two sites in the immediate school environs, almost 2 school systems in 10 use 10 or more sites in the immediate school environs. A similar proportion uses more than three sites in the category of day-use environmental study centers. On the other hand, nearly three-fourths use only one site with resident facilities. In regard to acreage, more than one-fourth of responding systems have sites of 50 or more acres in the immediate school environs; slightly less than one-fourth use day study centers of 200 or more acres; and more than one-fourth use sites with resident facilities consisting of 500 or more acres. Ninety percent of the systems report day-use centers within 50 miles of the school district and about 85 percent reported sites with resident facilities within 100 miles of the district.

The number, size, and location of sites vary with the size of the school system. Tables present data separately for large, medium, and small systems. Some of the most salient points are summarized here.

Large school systems use, in median terms, 10 sites of 10 acres in the immediate school environs, two sites of 152 acres 20 miles from the school district in the category of day-use environmental study centers, and two sites with resident facilities of 200 acres 48 miles from the school district. However, considerable variation exists in the characteristics of sites utilized by large school systems:

TABLE 20.—NUMBER OF SITES USED IN ENVIRONMENTAL STUDY PROGRAMS, TOTAL.

Number of sites	Immediate school environs	Day-use environmental study center	Resident facilities
	1	2	3
1 site	36.4%	51.5%	72.4%
2 sites	14.6	17.0	14.9
3 sites	11.0	11.5	6.8
4-5 sites	10.5	7.9	4.0
6-9 sites	9.0	4.3	0.3
10 or more sites	18.5	7.9	1.7
	100.0%	100.1%	100.1%
Mean	6	3	2
Median	2	1	1
Low	1	1	1
High	98	80	50
Number responding	335	305	355

- Although the size of sites in the immediate school environs is generally limited, nearly one-fourth of large systems report 50 or more acres at these sites.
- The greatest proportion of large systems, about 2 in 5, reported use of only one day-use environmental study center, but 1 in 5 reported using 10 or more such sites.
- Nearly one-third of the large systems reported less than 25 acres at day-use centers; and one-third, 200 or more acres.
- While few large systems, about 1 in 8, have day-use centers within 10 miles of the school district, more than 4 in 5 reported such sites less than 50 miles away.
- More than two-fifths of the large systems use only one site with resident facilities, but one-fourth use four or five sites of this type.
- The acreage of sites with resident facilities used by large systems tends to be either between 100 and 200 acres or 300 or more acres.
- Fewer than 1 large system in 8 has sites with resident facilities closer to the school district than 20 miles, but more than 4 in 5 have such sites within 100 miles.

For medium-size systems the general picture determined by medians is: three sites of 15 acres in the immediate school environs; one day-use environmental study center of 60 acres 10 miles from the school district; and one site with resident facilities of 200 acres 50 miles from the district. This general picture needs to be tempered with awareness of the following points:

- One medium-size system in 3 has only one site in the immediate school environs, but 1 in 5 has 10 or more.
- One-third of the medium-size systems has less than 10 acres at sites in the immediate school environs, but more than a fourth have 50 or more acres at such sites.
- Nearly one-half of the medium-size systems utilize more than one day-use environmental study center.
- One medium-size system in 5 reported 200 or more acres at day-use centers; and 1 in 6, between 100 and 200 acres.
- Over a third of the medium-size systems have day-use centers within 10 miles of the school district, but for another third such sites are 20 or more miles away; however, over 92 percent of medium-

size systems have day-use centers within 50 miles of the district.

- Nearly three-fourths of the medium-size systems use only one site with resident facilities.
- About 1 system in 4 reported less than 100 acres at sites with resident facilities, but more than 1 in 4 also reported 500 or more acres, and slightly less than 1 in 5, between 300 and 500 acres.
- Only 1 system in 6 reported sites with resident facilities less than 20 miles from the school district, while nearly 2 in 5 use sites of this type at a distance of 50 to 100 miles; however, for more than 4 medium-size systems in 5, sites with resident facilities lie within 100 miles of the district.

The corresponding general picture for small systems is, in terms of medians: two sites of 27 acres in the immediate school environs; one day-use environmental study center of 100 acres 12 miles from the school district; and one site with resident facilities of 123 acres 41 miles from the district. In connection with small systems, the following points are to be noted:

- Nearly one-half of the small systems have only one site in the immediate school environs.

- More than one-fourth of the small systems reported less than 10 acres at sites in the immediate school environs, but more than a fourth also reported 50 or more acres.
- Small school systems are almost evenly divided between those that have only one day-use center and those that have more than one.
- About one-third of the small systems reported less than 50 acres at day-use centers, but more than one-fourth, 200 or more acres at such sites.
- Nearly 2 small systems in 5 reported day-use centers within 10 miles of the school district.
- Four small systems in 5 use only one site with resident facilities.
- For one-fourth of the small systems, sites with resident facilities have less than 50 acres, but another one-fourth reported 500 or more acres at sites of this type.
- One-fifth of the small systems have sites with resident facilities within 20 miles of the school district, while one-third reported such sites between 50 and 100 miles away; however, for about four-fifths of the small systems, sites of this type are located within 100 miles of the district.

TABLE 21.—SIZE OF SITES USED IN ENVIRONMENTAL STUDY PROGRAMS, TOTAL

Immediate school environs		Day-use environmental study center		Resident facilities	
Size	Percent of programs	Size	Percent of programs	Size	Percent of programs
1	2	3	4	5	6
Less than 5 acres	15.4%	Less than 10 acres	7.9%	Less than 50 acres	17.9%
5-9 acres	15.4	10-24 acres	16.8	50-99 acres	13.2
10-19 acres	17.8	25-49 acres	13.1	100-199 acres	17.1
20-29 acres	10.1	50-99 acres	16.8	200-299 acres	9.3
30-49 acres	13.2	100-199 acres	21.5	300-499 acres	16.1
50 or more acres	<u>27.7</u>	200 or more acres	<u>23.8</u>	500 or more acres	<u>26.5</u>
	99.6%		99.9%		100.1%
Mean	53 acres	Mean	145 acres	Mean	499 acres
Median	20 acres	Median	77 acres	Median	200 acres
Low	1 acre	Low	1 acre	Low	2 acres
High	900 acres	High	998 acres	High	8,000 acres
Number responding	286	Number responding	214	Number responding	280

TABLE 22.—LOCATION OF SITES USED IN ENVIROMENTAL STUDY PROGRAMS, TOTAL

Day-use environmental study centers		Resident facilities	
Distance from school	Percent of programs	Distance from school	Percent of programs
1	2	3	4
Less than 5 miles	17.1%	Less than 10 miles	5.3%
5-9 miles	17.1	10-19 miles	12.2
10-19 miles	28.8	20-29 miles	12.2
20-29 miles	14.1	30-49 miles	19.1
30-49 miles	12.0	50-99 miles	35.7
50 or more miles	10.5	100 or more miles	15.3
	99.6%		99.8%
Mean	20 miles	Mean	57 miles
Median	12 miles	Median	50 miles
Low	1 mile	Low	1 mile
High	225 miles	High	310 miles
Not responding	257	Not responding	360

A comparison of these data shows that large systems have a greater number of sites with smaller total acreage in the immediate school environs than medium-size and small systems. This is to be expected since large systems comprise a greater number of schools and are for the most part situated in urban areas. Similarly, it is not surprising that large systems utilize a greater number of day-use environmental study centers and sites with resident facilities than smaller systems, nor that a larger proportion of medium-size and small systems than of large have such sites in closer proximity to the school district. A greater proportion of large systems than of medium-size or small systems also have a larger amount of acreage available at day-use centers and sites with resident facilities.

A comparison of medium-size and small systems shows a greater proportion of medium-size systems using more sites in the immediate school environs and a greater proportion of small systems with a larger amount of acreage at sites in the immediate school environs. Small systems also tend to have a greater amount of acreage at day-use centers than medium-size systems, but this picture is reversed in regard to the acreage of sites with resident facilities. The distribution of responses with regard to the number of day-use centers and sites with resident

facilities does not differ greatly for medium-size and small systems. Nor do medium-size and small systems differ greatly in regard to the location of day-use centers relative to the school district. On the other hand, a greater proportion of medium-size than of small systems use sites with resident facilities at a greater distance from the school district. Among all three groups of school systems, however, there appears to be general agreement that 50 miles is the maximum feasible distance for a site to be used for day visits, while 100 miles is the maximum appropriate distance for sites to be used for resident experience.

A final point to be considered in connection with these data is that for each part of the question there was a fairly large number of nonrespondents. It may be that the nonresponding systems do not use the particular type of site in question, especially since other data have shown that programs vary a great deal in the type of on-site experience they include. However, it is also possible persons completing the questionnaire failed to respond to this question because they did not have the required information at hand.

Administrative Arrangements for the Use of Sites

In follow-up of the question concerning the number, size, and location of sites, the survey instrument asked respondents about administrative arrangements regarding the use of each of these types of sites. The question offered a checklist of possible arrangements involving owning, leasing, or using sites free of charge.

Responses show that in the case of sites in the immediate school environs, a majority of school systems (about 3 in 4) own the property, although a substantial proportion (about 2 in 5) reported using sites free of charge. In the case of day-use environmental study centers, however, a majority (more than 6 in 10) indicated that sites are used free of charge, and none of the other items on the list offers serious competition to this type of arrangement. On the other hand, sites with resident facilities are most often leased, chiefly from private organizations, such as the YMCA or the Boy Scouts, from the state government, or from private camps.

School systems that owned day-use environmental study centers or sites with resident facilities were asked to indicate whether such properties were (a) purchased, (b) donated by business or industry, (c) donated by an individual, (d) willed, or (e) acquired by other means. Results show that purchase is unquestionably the major means of acquiring day-use centers and sites with resident facilities that are owned by school systems.

METHOD OF ACQUISITION OF DAY-USE CENTERS AND RESIDENT FACILITIES OWNED BY SCHOOL SYSTEMS

Purchased	70.4%
Donated by business/industry	14.1
Donated by individual	15.5
Willed	8.5
Other	16.9
Number responding	71

School systems that indicated they used sites free of charge were also asked to name the owner or benefactor making these sites available for use. From this it appears that most of the sites which school systems use free of charge are publicly owned and belong to local, state, or national park systems or similar governmental agencies. Sites in immediate school environs, when used free of charge, are most often the property of the local municipal or county government; more than three-fourths of the respondents using such sites free of

charge reported such ownership. Day-use environmental study centers, which are the type of site most often used free of charge, usually belong to local or state governments; half the respondents using sites of this type free of charge indicated they were local government property, but only slightly fewer (40 percent) reported using state-owned sites. Sites with resident facilities are much less frequently used free of charge than the other types of sites. Half the school systems that do use such sites without charge use local government facilities; facilities of state and federal governments are also used by one-half of this very small minority.

Responses to this question indicate fairly extensive utilization of local and state resources, especially in the area of day-use environmental study centers. Another question asked specifically about the availability of sites belonging to the National Park Service: "Is there a National Park Service area (i.e., National Seashore, National Park, etc.) within 50 miles of your school system?"

Slightly fewer than 2 respondents in 5 answered affirmatively. However, a number of respondents answering negatively indicated that their programs used National Park Services areas more than 50 miles away. Many regional differences exist. A majority of school systems in the West have National Park Service areas within 50 miles, as compared with a much smaller proportion in the Northeast, and only a small minority in the Middle states.

SCHOOL SYSTEMS WITH NATIONAL PARK SERVICE AREAS WITHIN 50 MILES

	Percent having such areas	Number responding
Total	37.3%	665
Northeast	39.5	190
Southeast	66.7	48
Middle	12.2	230
West	57.4	197

Another factor affecting the utilization of sites is school system regulations regarding pupil travel. If the school system sets limits on the distance pupils may travel, the use of sites and opportunities to give pupils on-site experiences can be seriously restricted. School system restrictions may thus limit the extent to which environmental programs utilize national, state, and local park service facilities. Therefore, respondents were asked specifically whether their school systems imposed restrictions

(Continued on page 48)

TABLE 23.—NUMBER, SIZE, AND LOCATION OF SITES, LARGE SYSTEMS

IMMEDIATE SCHOOL ENVIRONS

Number of sites		Approximate acreage	
1 site	21.7%	Less than 5 acres	17.6%
2 sites	8.7	5-9 acres	23.5
3 sites	13.0	10-19 acres	23.5
4-5 sites .....	...	20-29 acres	5.9
6-9 sites	4.3	30-49 acres	5.9
10 or more sites	52.4	50 or more acres	23.5
	99.9%		99.9%
Mean	22	Mean	119
Median	10	Median	10
Low	1	Low	2
High	98	High	900
Number responding	23	Number responding	17

DAY USE ENVIRONMENTAL STUDY CENTERS

Number of sites		Approximate acreage		Miles from school district	
1 site	38.9%	Less than 10 acres ..	12.5%	Less than 5 miles	4.3%
2 sites	16.7	10-24 acres	16.7	5-9 miles	8.7
3 sites	11.1	25-49 acres .....	...	10-19 miles	30.4
4-5 sites	11.1	50-99 acres	8.3	20-29 miles	21.7
6-9 sites	2.8	100-199 acres	29.2	30-49 miles	17.3
10 or more sites	19.4	200 or more acres ..	33.4	50 or more miles	17.3
	100.0%		100.1%		99.7%
Mean	7	Mean	187	Mean	29
Median	2	Median	152	Median	20
Low	1	Low	5	Low	1
High	80	High	700	High	100
Number responding	36	Number responding ..	24	Number responding	23

RESIDENT FACILITIES

Number of sites		Approximate acreage		Miles from school district	
1 site	42.1%	Less than 50 acres ..	6.9%	Less than 10 miles	2.9%
2 sites	15.8	50-99 acres	6.9	10-19 miles	8.8
3 sites	13.2	100-199 acres	34.5	20-29 miles	11.8
4-5 sites	23.7	200-299 acres	6.9	30-49 miles	26.4
6-9 sites .....	...	300-499 acres	20.6	50-99 miles	32.3
10 or more sites	5.3	500 or more acres ..	24.1	100 or more miles	17.6
	100.1%		99.9%		99.8%
Mean	4	Mean	404	Mean	64
Median	2	Median	200	Median	48
Low	1	Low	10	Low	6
High	33	High	1,500	High	250
Number responding	38	Number responding ..	29	Number responding	34

TABLE 24.—NUMBER, SIZE, AND LOCATION OF SITES, MEDIUM-SIZE SYSTEMS

IMMEDIATE SCHOOL ENVIRONS			
Number of sites		Approximate acreage	
1 site	31.6%	Less than 5 acres	17.8%
2 sites	14.2	5-9 acres	14.6
3 sites	8.9	10-19 acres	20.4
4-5 sites	11.0	20-29 acres	10.2
6-9 sites	12.6	30-49 acres	8.9
10 or more sites	21.6	50 or more acres	28.0
	99.9%		99.9%
Mean	6	Mean	47
Median	3	Median	15
Low	1	Low	1
High	59	High	500
Number responding	190	Number responding	157

DAY USE ENVIRONMENTAL STUDY CENTER

Number of sites		Approximate acreage		Miles from school district	
1 site	54.7%	Less than 10 acres .	8.7%	Less than 5 miles	18.3%
2 sites	17.1	10-24 acres	19.0	5-9 miles	16.9
3 sites	10.0	25-49 acres	14.3	10-19 miles	31.0
4-5 sites	7.0	50-99 acres	20.6	20-29 miles	13.4
6-9 sites	3.5	100-199 acres	16.7	30-49 miles	12.6
10 or more sites	7.6	200 or more acres .	20.7	50 or more miles	7.7
	99.9%		100.0%		99.9%
Mean	3	Mean	136	Mean	19
Median	1	Median	60	Median	10
Low	1	Low	1	Low	1
High	20	High	998	High	225
Number responding	170	Number responding .	126	Number responding	142

RESIDENT FACILITIES

Number of sites		Approximate acreage		Miles from school district	
1 site	72.9%	Less than 50 acres .	15.0%	Less than 10 miles	4.8%
2 sites	15.8	50-99 acres	11.9	10-19 miles	12.0
3 sites	8.4	100-199 acres	16.4	20-29 miles	11.5
4-5 sites	1.5	200-299 acres	10.1	30-49 miles	18.3
6-9 sites	0.5	300-499 acres	18.9	50-99 miles	38.5
10 or more sites	1.0	500 or more acres .	27.7	100 or more miles	14.9
	100.1%		100.0%		100.0%
Mean	2	Mean	540	Mean	56
Median	1	Median	200	Median	50
Low	1	Low	2	Low	1
High	20	High	8,000	High	210
Number responding	203	Number responding .	159	Number responding	208

TABLE 25.—NUMBER, SIZE, AND LOCATION OF SITES, SMALL SYSTEM

IMMEDIATE SCHOOL ENVIRONS			
Number of sites		Approximate acreage	
1 site	46.7%	Less than 5 acres	11.6%
2 sites	16.4	5-9 acres	15.2
3 sites	13.9	10-19 acres	13.4
4-5 sites	11.5	20-29 acres	10.7
6-9 sites	4.1	30-49 acres	20.5
10 or more sites	7.4	50 or more acres	28.7
	100.0%		100.1%
Mean	3	Mean	51
Median	2	Median	27
Low	1	Low	1
High	75	High	600
Number responding	122	Number responding	112

DAY USE ENVIRONMENTAL STUDY CENTER

Number of sites		Approximate acreage		Miles from school district	
1 site	50.5%	Less than 10 acres .	4.7%	Less than 5 miles	18.5%
2 sites	17.2	10-24 acres	12.5	5-9 miles	19.6
3 sites	14.1	25-49 acres	15.6	10-19 miles	25.0
4-5 sites	8.1	50-99 acres	12.5	20-29 miles	14.1
6-9 sites	6.0	100-199 acres	28.1	30-49 miles	9.7
10 or more sites	4.0	200 or more acres .	26.6	50 or more miles	13.0
	99.9%		100.0%		99.9%
Mean	3	Mean	145	Mean	21
Median	1	Median	100	Median	12
Low	1	Low	1	Low	1
High	35	High	640	High	150
Number responding	99	Number responding .	64	Number responding	92

RESIDENT FACILITIES

Number of sites		Approximate acreage		Miles from school district	
1 site	81.6%	Less than 50 acres .	26.1%	Less than 10 miles	6.8%
2 sites	13.2	50-99 acres	17.3	10-19 miles	13.6
3 sites	1.8	100-199 acres	13.0	20-29 miles	13.6
4-5 sites	1.8	200-299 acres	8.7	30-49 miles	18.7
6-9 sites .....	...	300-499 acres	9.8	50-99 miles	32.3
10 or more sites	1.8	500 or more acres .	25.1	100 or more miles	15.3
	100.2%		100.0%		100.3%
Mean	2	Mean	456	Mean	58
Median	1	Median	123	Median	41
Low	1	Low	5	Low	1
High	50	High	5,000	High	310
Number responding	114	Number responding .	92	Number responding	118

FIGURE 5
FEATURES OF SITES NOT OWNED OR LEASED
(PERCENT OF ALL PROGRAMS)

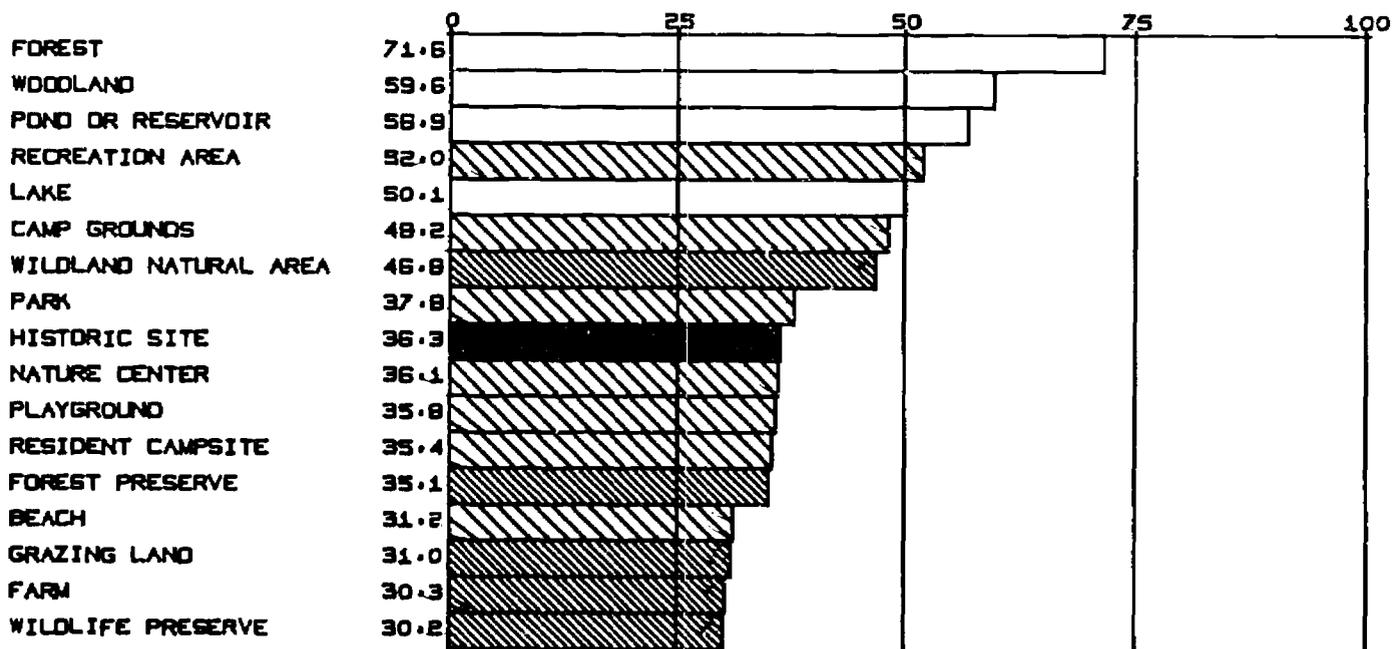


TABLE 26. ADMINISTRATIVE ARRANGEMENTS FOR USE OF SITES

Administrative arrangement	Immediate school environs	Day-use environmental study centers	Resident facilities
1	2	3	4
Used free of charge	41.0%	62.2%	11.1%
Leased from state government	3.3	9.0	22.2
Leased from federal government	0.5	4.8	8.0
Leased from private camps	2.4	4.8	22.0
Leased from church or religious organizations	1.6	3.3	17.3
Leased from private agency or organization (YMCA, Boy Scouts, etc.)	3.0	8.7	35.7
Leased from private individual	1.6	2.4	3.9
Owned by the school system	73.9	23.4	8.5
Owned jointly by more than one school system	1.6	4.5	2.8
Number responding	368	333	387

on the distance pupils might travel to sites not owned or leased by the school system. However, fewer than 3 systems in 10 have such restrictions. It might be thought that restrictions of this type would be more common in the case of young pupils, but analysis of responses by grade level of programs shows almost no difference in the proportion of systems restricting pupil travel among programs designed for elementary pupils, those for junior-senior high pupils, and those that include both groups. On the contrary, travel restrictions appear to be a matter of administrative convenience and are more commonly found in large than in medium-size or small school systems. However, even in large systems, fewer than 2 respondents in 5 reported school system restrictions on the distance pupils may travel to environmental study areas.

SCHOOL SYSTEMS RESTRICTING THE DISTANCE PUPILS TRAVEL TO SITES NOT OWNED OR LEASED BY SYSTEM

	Percent having restrictions	Number responding
TOTAL	29.2%	668
SYSTEM SIZE		
Large	32.3	59
Medium	29.3	362
Small	27.1	247
GRADE LEVEL RESTRICTION		
Elementary	30.6	245
Junior-senior high	29.5	105
Combined	28.3	307

Respondents reporting restrictions on pupil travel were asked to indicate the maximum distance allowed for each of the following types of trips: (a) short walking trip; (b) one-half day trip; (c) full day trip; and (d) overnight trip. No more than about half of those reporting the existence of restrictions responded to any part of this question. The highest response was for full-day and half-day trips. This suggests the possibility that travel restrictions may more often be imposed on these than on other types of trips.

Distance allowances tend to be generous for the type of trip. Short walking trips tend to be restricted to 1 or 2 miles, while nearly one-half of those responding indicated that their school systems permit 30 or more miles for a half-day trip and approximately 2 in 5 that 100 or more miles is allowed for a full-day or an overnight trip.

Facilities and Features of Sites

Resident Sites

Use of sites with resident facilities provides an opportunity to give pupils an extended experience in outdoor living and a more intense encounter with the phenomena of the natural world they are studying. Such sites, however, have special requirements for staff and facilities because they must provide for the daily needs of resident groups as well as offer educational and recreational opportunities. Because of the special importance and conditions

pertaining to resident sites, the survey instrument included several questions relating specifically to the features of such sites.

It has already been seen that a large number of environmental programs include on-site resident experience either separately or in combination with other types of experience. In accordance with this is the finding that 63 percent of the programs use resident sites. Use of resident sites varies with the grade level of programs. Since junior-senior high programs tend to have a more formal, academic approach, it is not surprising to find that a much smaller proportion of them than of elementary or combined programs use resident sites. A substantial majority of combined programs use resident sites, but the percentage of elementary programs using resident sites is higher. In this connection it should be recalled that a comparatively large proportion of elementary programs offer on-site resident experience only.

Differences in regard to the use of resident sites also appear on the basis of school system site and geographic region. A higher percentage of large and medium-size than of small school systems use resident sites, but the difference is not very great and may be in part a reflection of the difference due to grade level of program. More important are the differences among different geographic regions. The percentage of school systems using resident sites is higher in the Middle states and West than in the East, with the highest percentage occurring in the West. In this regard it is interesting to recall that the West is also high in the percentage of school systems reporting National Park Service areas in close proximity to the school district.

SCHOOL SYSTEMS USING RESIDENT SITES

	Percent using resident sites	Number responding
TOTAL	63.0%	694
SYSTEM SIZE		
Large	64.6	65
Medium	66.7	375
Small	57.1	254
GRADE LEVEL RESTRICTIONS		
Elementary	78.8	255
Junior-senior high	30.0	110
Combined	61.8	317
REGION		
Northeast	51.5	198
Southeast	56.0	50
Middle	61.2	240
West	74.3	206

Respondents who used resident sites were asked to report on the facilities available at these sites. This question took the form of a checklist, arranged like other long checklists in the questionnaire, with the items in alphabetical order. For clarity in reporting, the items have been classified into two groups depending on whether they refer to residence facilities or to educational and recreational facilities. From responses in the category of residence facilities, it appears that the sites used by a majority of school systems are equipped with sleeping accommodations in the form of cabins or bunkhouses, cooking and dining facilities, an infirmary, and administrative offices. Sites which offer sleeping accommodations in the form of tents or tent sites were mentioned by a much smaller number of respondents. In the area of educational and recreational facilities the most frequently mentioned items were indoor meeting rooms, classroom(s), display and exhibit center, swimming area, and crafts shop. Facilities designed for more

TABLE 27. OWNER OR BENEFACTOR OF SITES USED FREE OF CHARGE

Owner or benefactor	Immediate school environs	Day-use environmental study centers	Resident facilities
1	2	3	4
Local (city or county) government	76.8%	49.7%	30.0%
State government	11.6	40.1	30.0
Federal government	5.5	9.6	20.0
Private individual or organization	21.1	18.5	20.0
Number responding	95	157	30

TABLE 28. MAXIMUM DISTANCE ALLOWED FOR PUPIL TRAVEL BY SYSTEMS HAVING RESTRICTIONS

Distance allowed		Percent of systems		Distance allowed		Percent of systems	
1		2		1		2	
SHORT WALKING TRIP				ONE-HALF DAY TRIP			
1 mile		46.8%		Less than 20 miles		24.3%	
2 miles		31.9		20-29 miles		27.3	
3 or more miles		21.3		30-49 miles		21.2	
		100.0%		50 or more miles		27.5	
Mean		2 miles		Mean		31 miles	
Median		2 miles		Median		26 miles	
Low		1 mile		Low		2 miles	
High		20 miles		High		90 miles	
Number responding		47		Number responding		66	
Percent of those with restrictions		24.1%		Percent of those with restrictions		33.8%	
FULL-DAY TRIP				OVERNIGHT TRIP			
Less than 40 miles		15.7%		Less than 40 miles		3.1%	
40-59 miles		26.5		40-59 miles		34.4	
60-99 miles		20.6		60-99 miles		21.9	
100-199 miles		30.3		100-199 miles		25.1	
200 or more miles		6.9		200 or more miles		15.6	
		100.0%				100.1%	
Mean		83 miles		Mean		123 miles	
Median		73 miles		Median		74 miles	
Low		4 miles		Low		30 miles	
High		300 miles		High		500 miles	
Number responding		102		Number responding		32	
Percent of those with restrictions		52.3%		Percent of those with restrictions		16.4%	

specific educational purposes, such as a library, nature center, or science laboratory, were less often mentioned.

FACILITIES AVAILABLE AT RESIDENT SITE

RESIDENCE FACILITIES

Dining hall	86.3%
Kitchen	83.6
Cabins	63.7
Bunkhouses or dormitories	69.0
Infirmary	52.1
Administrative offices	50.5
Lodge	37.5
Tents or tent sites	20.1
Post store	15.0

EDUCATIONAL AND RECREATIONAL FACILITIES

Indoor meeting rooms	64.1%
Classroom(s)	43.3
Display and exhibit center	41.7
Swimming area	39.6
Crafts shop	37.7
Library	29.6
Nature center	29.2
Auditorium	28.0
Amphitheater	27.3
Museum	16.2
Science laboratory	16.2
Animal room	12.5
Farm buildings	12.0
Observatory	6.9
Planetarium	5.8
Zoo	4.2
Number responding	432

Large school systems use more extensively equipped resident sites than medium-size or small systems. For almost all the items on the list, percentages of large systems are higher than percentages of medium-size and small systems. Percentages of medium-size systems also usually exceed those

for small systems. This pattern occurs in the case of residence facilities but is more obvious in the area of educational and recreational facilities. In the area of residence facilities, only two differences are worthy of note: (a) a higher percentage of large than of medium-size or small systems use sites

TABLE 29.—NUMBER OF STAFF RESIDING PERMANENTLY ON PREMISES OF RESIDENT SITES

Number of staff	Type of staff					
	Admini- strative	Instruc- tional	Opera- tional	Admini- strative	Instruc- tional	Opera- tional
	2	3	4	5	6	7
	All systems			Large systems		
None	32.8%	47.3%	28.6%	32.0%	40.0%	24.0%
1	40.2	5.0	8.3	40.0	...	8.0
2	18.3	4.1	10.0	16.0	12.0	12.0
3	5.0	5.0	12.0	8.0	8.0	16.0
4	1.2	4.6	13.3	4.0	...	8.0
5-9	2.0	18.2	17.5	...	24.0	8.0
10 or more	0.4	15.8	10.4	...	16.0	24.0
	99.9%	100.0%	100.1%	100.0%	100.0%	100.0%
Mean	1	4	4	1	6	6
Median	1	1	3	1	2	3
Low	0	0	0	0	0	0
High	10	52	40	4	49	40
Number responding	141	241	241	25	25	25
	Medium-size systems			Small systems		
None	29.2%	45.8%	26.4%	40.3%	52.8%	34.7%
1	41.7	4.9	7.6	37.5	6.9	9.7
2	20.8	2.8	9.7	13.9	4.2	9.7
3	5.6	4.9	9.0	2.8	4.2	16.7
4	1.4	3.6	14.6	...	4.2	12.3
5-9	0.7	18.2	21.6	5.6	16.8	12.3
10 or more	0.7	18.1	11.1	...	11.1	4.2
	100.1%	100.3%	100.0%	100.1%	100.2%	100.0%
Mean	1	4	4	1	3	3
Median	1	1	3	1	0	2
Low	0	0	0	0	0	0
High	10	52	30	6	13	25
Number responding	144	144	144	72	72	72

TABLE 30.—TYPES OF SITES USED, BY REGION

Type of site	Northeast	Southeast	Middle	West
1	2	3	4	5
NATURAL SITES				
Forest	68.4%	72.7%	66.5%	79.7%
Woodland	73.5	68.2	55.8	50.0
Pond or reservoir	66.5	43.2	56.8	52.2
Lake	49.0	47.7	58.3	42.3
Beach	35.0	22.7	27.7	33.3
Mountain	31.6	38.6	0.5	35.5
Canyon	3.2	9.1	5.3	52.7
Seashore	25.8	18.2	0.5	28.6
Estuary	18.7	27.3	4.9	12.6
Desert	1.3	2.3	0.5	12.6
Number responding	155	44	206	182
SITES FOR THE STUDY OF URBAN ECOLOGY				
Dump	25.2%	13.6%	17.0%	14.8%
Industrial site	13.5	15.9	12.1	14.3
Inner city	5.8	9.1	7.8	6.0
Sewage plant	18.1	29.5	22.8	17.0
Number responding	155	44	206	182

equipped with cabins; and (b) an infirmary is available at a greater percentage of sites used by large and medium-size systems than in the case of small systems.

	System size		
	Large	Medium	Small
Cabins	76.2%	61.9%	62.9%
Infirmary	54.8	56.7	43.4
Number responding	42	247	143

In regard to educational and recreational facilities a considerably greater percentage of large than of medium-size or small systems use sites that have indoor meeting rooms, a swimming area, crafts shop, nature center, museum, farm buildings, or a zoo. For three of these items—indoor meeting rooms, crafts shop, and nature center—the percentage of medium-size systems is also strikingly greater than the percentage of small systems.

	System size		
	Large	Medium	Small
Indoor meeting rooms ..	83.3%	66.4%	54.5%
Swimming area	52.4	39.7	35.7
Crafts shop	57.1	41.9	25.9
Library	42.9	30.4	24.3
Nature center	47.6	32.4	18.2
Museum	33.3	16.6	10.3
Farm buildings	26.2	13.4	3.6
Zoo	14.3	3.6	2.1
Number responding	42	247	143

Facilities found at resident sites also vary in relation to the grade level of programs which school systems offer. School systems with programs restricted to the junior-senior high level differ considerably from systems with elementary or combined programs in the types of facilities at their resident sites. A much smaller proportion of systems with junior-senior high programs use sites that have dining halls, kitchens, infirmaries, or administrative offices. At the same time a larger percentage of systems with junior-senior high programs have resident sites equipped with tents or tent sites. However, school systems with junior-senior high programs use resident sites with cabins or bunkhouses to about the same extent as school systems with elementary or combined programs, and the percentage of systems with junior-senior high programs using sites with the latter two types of facilities is much greater than the percentage of systems with junior-senior high programs that use tents or tent sites. These factors indicate that a greater proportion of systems with junior-senior high programs use camp sites that provide a genuine experience in outdoor living, while systems with elementary or combined programs, by far the largest proportion of systems in the survey, use sites that provide more of the amenities of civilization. This possibility is corroborated by the fact that a much smaller proportion of the systems with junior-senior high programs than of the others use sites that have indoor meeting rooms.

	Grade level restriction		
	Elementary	Junior-senior high	Combined
Dining hall	96.0%	59.4%	80.7%
Kitchen	91.5	56.3	79.2
Cabins	64.7	59.4	62.5
Bunkhouses or dormitories	65.7	53.1	62.0
Infirmary	58.7	28.1	49.0
Administrative offices	55.7	34.4	47.4
Tents or tent sites	12.9	34.4	26.0
Indoor meeting rooms	70.1	50.0	59.9
Number responding	201	32	192

It may also be noted in the preceding table that responses for systems with combined programs tend to represent, as is frequently the case in such analyses, a middle ground between systems with elementary programs and those with junior-senior high programs but in general conform more closely to the responses from systems with elementary programs.

Certain other differences in facilities related to grade level reflect differing interests of younger and older pupils. A much smaller proportion of systems with junior-senior high programs use sites that have a display and exhibit center or a crafts shop than of systems with elementary or combined programs. On the other hand, a much greater percentage of systems with junior-senior high programs use a site that offers a swimming area. Again, although the difference is less and the percentage for all three types of programs smaller than in the case of the facilities just mentioned, a larger percentage of systems with junior-senior high or combined programs than of systems with elementary programs have a resident site equipped with a science laboratory.

	Grade level restriction		
	Elementary	Junior-senior high	Combined
Display and exhibit area ...	45.8%	15.6%	42.2%
Swimming area	35.8	53.1	41.7
Crafts shop	42.8	15.6	35.9
Science laboratory	10.9	18.8	20.8
Number responding	201	32	192

Respondents who used resident sites were also asked to state the number of administrative, instructional, and operational personnel who reside permanently on those sites. For each of these three categories of personnel, a majority of school systems responding indicated staff in permanent residence at sites they use. About two-thirds reported administrative personnel; slightly over one-half, instructional personnel; and almost three-fourths, operational personnel.

The largest proportion of respondents (40 percent) reported one administrative person residing on-site. In regard to instructional and operational personnel, a more varied situation exists, reflecting differences in the types of sites used. The number of operational personnel required at a site depends on the size and facilities of the site, and responses understandably show a considerable spread. The median number of operational personnel for all systems is three, but over a fourth of the respondents reported five or more, while another fourth reported three or four, and slightly less than a fifth reported one or two. In the case of instructional personnel, the need for staff in permanent residence will depend on whether a continuous program is in operation at the site. If so, probably a staff of several persons will be required rather than one or two individuals. Thus, fewer school systems reported that their resident sites have instructional staff in residence than is the case with administrative and operational personnel, but those that did report instructional personnel in residence mentioned a larger number of persons. Over one-third of the respondents reported five or more instructional staff in permanent residence at sites, while less than one-fifth reported fewer than five.

Small school systems differ from medium-size and large systems in that fewer of them use resident sites where staff reside permanently and the number of personnel in residence at the sites they use is smaller. Large and medium-size systems do not differ greatly except that a higher percentage of large systems reported a greater number of operational staff in residence at sites. This may perhaps be explained by the more extensive facilities characterizing sites used by large systems.

A final point to be noted in connection with the data above is that far fewer respondents answered this question than indicated they used resident sites. It may be that some of those not responding intended this to be interpreted as an indication that the sites they use do not have staff in permanent residence.

Features of Sites Not Owned or Leased

Sites which school systems do not own or lease represent the public parks, institutions, recreational areas, and other public facilities used in environmental education programs. It has already been seen that most of the sites not owned or leased by school systems are public rather than private property. To determine the types of public facilities that school

systems use in environmental education programs, the survey instrument presented respondents with a checklist of 39 features of sites and asked them to indicate which ones were found at sites utilized in their programs but not owned or leased by the school system.

The items in the checklist were presented in alphabetical order in the questionnaire but for convenience in reporting may be grouped into six categories. The two largest categories are (a) sites with natural features such as forest, lakes, or seashore, and (b) sites specifically designed for the appreciation of outdoors such as parks or camp grounds. A slightly smaller group is made up of institutions designed for the preservation and utilization of nature; these include institutions such as farms, fisheries, or wildlife preserves. Three other categories, each having only a few items, are scientific institutions, cultural sites, and sites that can be used for the study of urban ecological problems.

Figure 5 shows the most widely used types of sites ranked by the percentage of school systems using them and identified as to the category to which they belong. From this it can be seen that sites with natural features predominate at the top of the graph and have the widest usage, while sites designed for the appreciation of outdoors represent a middle group, followed by institutions for the preservation and utilization of nature. This graph shows all the types that are utilized in 30 percent or more of the responding programs. Scientific institutions, sites for the study of urban ecology, and, with one exception, cultural sites, do not appear on the graph since less than 30 percent of the respondents reported using them.

The following table shows all of the items on the checklist, grouped by category and ranked within categories, by percentage of response.

FEATURES OF SITES NOT OWNED OR LEASED BY SCHOOL SYSTEM

NATURAL SITES	
Forest	71.6%
Woodland	59.6
Pond or reservoir	36.9
Lake	50.1
Beach	51.2
Mountain	28.6
Canyon	19.8
Seashore	17.2
Estuary	12.6
Desert	4.6

SITES DESIGNED FOR THE APPRECIATION OF OUTDOORS

Recreation area	52.0%
Campgrounds	48.2
Park	57.8
Nature center	36.1
Playground	35.8
Resident campsite	35.4
Sports area	25.9
Day camp site	24.4
Vest pocket park	5.1
Mall	3.6

INSTITUTIONS FOR THE PRESERVATION AND UTILIZATION OF NATURE

Wildland natural area	46.8%
Forest preserve	35.1
Grazing land	31.0
Farm	30.3
Wildlife preserve	30.2
Fishery	20.8
Fairground	7.0

SITES FOR STUDY OF URBAN ECOLOGY

Sewage plant	20.3%
Dump	18.2
Industrial site	13.5
Inner city	6.8

SCIENTIFIC INSTITUTIONS

Arboretum	19.4%
Aquarium	14.0
Zoo	13.6
Botanical garden	10.6

CULTURAL SITES

Historic site	36.3%
Archeological site	15.3
Monument	9.2
Indian reservation	6.6
Number responding	587

The pattern of response found here appears to reflect the influence of several different factors. One is the over-all availability of sites. Sites of a type generally available throughout much of the country logically tend to be utilized by a greater number of school systems than sites found only in certain geographic regions or types of communities. Sites with forest or woodland, or ponds or lakes, thus have wider usage than those characterized by mountains, canyons, seashore, or other geographically limited features. By the same token, characteristically urban sites, including both those that are relevant to the study of urban ecological problems and urban types of outdoor areas, such as the vest pocket park and mall, are used by only a small proportion of school systems.

Another factor can be seen in the tendency for a larger number of school systems to utilize natural sites and outdoor recreation areas that can be used for a wider range of purposes than sites which lend themselves to specific types of programs or areas of

study. This is to be expected, but may also imply additional underlying causes. One possible cause is the cost and administrative complexity of pupil trips which may make it impractical for some school systems to provide visits to sites that contribute to only one aspect of their pupils' study. Another possible explanation is the rather general purposes to which most programs are directed. In this connection, a third factor is to be mentioned. The primary purpose of many programs is to stimulate the interest of pupils in, and provide them with opportunities to enjoy, the outdoors rather than to study the interrelation of man and his environment. This may help to explain why cultural sites and sites appropriate to the study of urban ecology are not widely used and also why some of the institutions for the preservation and utilization of nature are less widely used than natural sites or sites designed for the appreciation of outdoors.

One rather surprising finding, in view of the scientific emphasis of programs, is the limited extent to which scientific institutions are used. It seems strange, for example, that 76 percent of the programs include the study of botany but only 11 percent of the respondents reported that the sites they use include a botanical garden. It is not clear whether the limited use made of scientific institutions is caused by the unavailability of such institutions, administrative difficulties in connection with using them, or a failure on the part of school systems to take advantage of their opportunities.

Consideration of responses as a whole has already shown the influence of geographic factors on the types of sites utilized. Analysis of responses by geographic region confirms this, especially with regard to natural sites. While it hardly represents a discovery to report that mountains, seashores, and estuaries are not found in the middle section of the country, or that canyons and deserts rarely appear anywhere outside the West, differences of this type are of interest because they reveal the extent to which school systems are and are not utilizing the potential of the particular geographic regions where they are situated. School systems in the West in particular are making extensive use of the rich natural resources of the region for environmental study. Among programs in the West, 80 percent use sites with forest land; 56 percent, mountains; and 53 percent, canyons. The percentage of programs which include the desert among their sites is understandably much smaller, and it is perhaps surprising that as many as 13 percent of Western programs utilize sites with this feature. The Northeast particularly extensive use of woodland (74

percent) and ponds or reservoirs (67 percent), and the middle section of the country surpasses other regions in the percentage of programs whose sites are characterized by lakes (58 percent). On the other hand, despite the fact that the Eastern sections of the country include areas which offer the opportunity for using mountain sites, only about a third of the Eastern programs do so. Similarly, less than 30 percent of the programs in either the East or West utilize sites on the seashore.

In addition, geographic factors influence differences in the case of several other items. A higher percentage of programs in the Middle states and West use sites which feature grazing land. Again, although percentages are quite small for all regions, nearly twice as many programs in the West as in any other region use an Indian reservation as a site, and the higher percentage of programs in the Middle states than in Northeastern or Western sections using the fairground as a site probably reflects the more extensive study of agriculture in this part of the country. On the other hand, while it might be expected that the heavily urbanized Northeast would show a more extensive use of sites appropriate for the study of urban ecology, with one exception this is not the case.

Differences in features of sites as related to size of school system tend to reflect chiefly the urban location of large systems. Although, as in most cases of analysis by system size, percentages for

	System size		
	Large	Medium	Small
SITES FOR THE STUDY OF URBAN ECOLOGY			
Sewage plant	28.6%	19.0%	20.0%
Dump	16.1	18.0	19.1
Industrial site	25.0	14.2	9.3
Inner city	25.0	7.0	1.9
SCIENTIFIC INSTITUTIONS			
Arboretum	35.7%	18.7%	16.3%
Aquarium	26.8	13.6	11.2
Zoo	35.7	13.0	8.8
Botanical garden	25.0	8.9	9.3
CULTURAL SITES			
Historical site	57.1%	38.3%	27.9%
Monument	23.2	8.9	6.0
SITES DESIGNED FOR THE APPRECIATION OF OUTDOORS			
Park	60.7%	31.5%	36.3%
Nature center	57.1	36.1	50.7
Day camp site	46.4	23.7	19.5
Vest pocket park	12.5	4.7	3.7
Mall	12.5	3.5	1.4
Number responding	56	316	215

large systems are generally higher than for medium-size or small systems, the greatest differences occur in regard to features that are distinctively urban. This is observable not only with regard to most of the items in the category of sites for the study of urban ecology, but also for all of the scientific institutions listed, historic sites and monuments, and certain of the sites designed for the appreciation of outdoors, including park, nature center, and, to a lesser extent, day camp site. The vest pocket park and mall, also characteristically urban, are also used by a greater proportion of large systems, although percentages are smaller and differences less.

The grade level of programs also influences the types of sites used. Elementary programs tend to use sites that are adapted to the emphasis of their programs on the outdoors and nature in contrast to junior-senior high programs which make more extensive use of sites suited to their more academic purposes. Combined programs, being the most comprehensive, tend to resemble elementary programs in their use of sites relating to the outdoors and nature and to junior-senior high programs in their use of sites contributing to more sophisticated and specialized study of the environment.

Thus, in the category of sites designed for the appreciation of outdoors, higher percentages of elementary and combined than of junior-senior high programs utilize most of the sites listed. The greatest differences appear in regard to recreation

	<u>Grade level restriction</u>		
	<u>Ele- men- tary</u>	<u>Junior- senior high</u>	<u>Com- bined</u>
Recreation area	31.0%	37.8%	56.5%
Camp grounds	52.9	36.7	47.3
Park	29.6	45.6	41.7
Playground	35.0	25.6	39.9
Resident campsite	47.1	17.8	32.9
Sports area	28.6	47.8	26.5
Number responding	206	90	283

areas, camp grounds, and resident campsites. Playgrounds and sports areas show smaller, but still large differences of this type. A curious reversal of this pattern, however, occurs in the case of parks, which are much more widely utilized in junior-senior high than in elementary programs.

On the other hand, percentages of junior-senior high and combined programs exceed those for elementary programs using sites in the category of scientific institutions, sites for study of urban ecology, and certain items in the category of institutions for the preservation and utilization of nature.

	<u>Grade level restriction</u>		
	<u>Ele- men- tary</u>	<u>Junior- senior high</u>	<u>Com- bined</u>
SCIENTIFIC INSTITUTIONS			
Arboretum	16.0%	24.4%	20.8%
Aquarium	10.2	11.1	17.3
Zoo	7.3	15.6	18.0
Botanical garden	6.3	11.1	15.8
SITES FOR THE STUDY OF URBAN ECOLOGY			
Sewage plant	8.3%	31.1%	25.4%
Dump	9.7	34.4	19.1
Industrial site	6.8	15.6	18.0
Inner city	4.4	12.2	7.1
INSTITUTIONS FOR THE PRESERVATION AND UTILIZATION OF NATURE			
Farm	21.4%	34.4%	35.7%
Fishery	14.1	28.9	23.3
Fairground	2.9	14.4	7.8
Number responding	206	90	283

One item shows a noticeably higher percentage of combined than either elementary or junior-senior high programs. This is the historic site, for which percentages by grade level are as follows: elementary, 32.5 percent; junior-senior high, 27.8 percent; combined, 42.4 percent. This is in keeping with the fact that a higher percentage of combined programs include social studies among their areas of study and adds to the evidence for their more varied utilization of sites.

PROGRAM PERSONNEL

NO LESS THAN in the area of physical facilities and resources, environmental education programs have unique needs in the area of staffing. The breadth and diversity of experiences, activities, and areas of study that environmental programs may include predicate a comparable breadth and diversity of staff. Depending on the comprehensiveness of the program and its specific aims, personnel of widely differing types of expertise may be needed, not only as teachers, but also as resource persons, to plan curriculum, coordinate activities, prepare for the utilization of sites, and guide or assist activities at sites.

Data presented earlier have shown that a majority of programs use an instructional team to plan curriculum and bring together different disciplines and activities into a coordinated educational program. The assistance of resource persons from outside the school system may also be required. In the preceding section of this report, it has been seen that environmental programs use a number of different types of sites; effective development and utilization of these sites for educational purposes may call for the assistance of experts and technicians from local, state, or national park services or other agencies concerned with environmental questions. If the program includes, as most of them do, resident on-site experience for pupils, there will also be a need for supporting personnel to provide for the daily needs of pupils while in residence at the site. These and other factors influence the number and types of personnel who participate in environmental education programs.

Although it was not possible within the limits of this study to investigate matters pertaining to personnel utilized in environmental education programs with the same thoroughness as the utilization of sites, the survey instrument included a few questions relating to the number, types, qualifications, and training of personnel participating in programs. Results of these questions provide some general information about the staffing of environmental programs and their use of resource persons outside the school system.

Number and Types of Personnel

Types of Personnel Participating in Programs

Because environmental programs frequently utilize the services of persons outside the school system in addition to regular staff, a discussion of program personnel best begins with a consideration of the full range of types of personnel participating in programs. The survey instrument approached this question by means of a checklist of 31 items representing persons in different types of positions who might take part in environmental programs. An additional item provided respondents with an opportunity to add other types of personnel not on the list. About 5 percent did so.

In the questionnaire, items on the checklist were in alphabetical order. However, since they represent several distinct groups of personnel, they have been rearranged into these groups for reporting. In addition to regular school staff, composed of such persons as classroom teachers, the school system may have a special staff for its environmental program with a director of outdoor education, a camp director, camp teachers, or other similar types of personnel. Another distinct group is composed of resource persons, such as curriculum experts, technical experts, and the like, who may come either from within the educational system or from outside. A special group of resource personnel, however is represented by environmental specialists connected with government agencies, such as the National Park Service, the State Department of Conservation, or Forest Service. Finally, two other groups include persons providing supportive services, such as cooks, nurses, or librarians, and those serving as assistants, such as student teachers, teacher aides, or volunteers.

The following table reports responses by groups, ranking items within groups by percentage of response.

TYPES OF PERSONNEL PARTICIPATING
IN PROGRAMS

SPECIAL PROGRAM STAFF	
Camp director	36.9%
Director of outdoor education	36.2
Camp teacher	25.5
Physical educator	24.5
Planner	6.7
REGULAR EDUCATION STAFF	
Classroom teacher	93.8%
Principal	57.7
Supervisor	19.7
State Department of Education personnel	17.2
RESOURCE PERSONNEL	
Resource person	51.5%
Naturalist	29.4
Curriculum expert	27.7
College and university professor or instructor	20.3
Technical expert	8.0
ENVIRONMENTAL SPECIALISTS	
Forest service personnel	32.5%
State Department of Conservation personnel	25.5
Park personnel	24.0
National Park Service personnel	12.2
U. S. Government technician	8.0
SUPPORTING SERVICES	
Cook	42.1%
Nurse	39.3
Librarian	18.7
Guidance counselor	16.0
Physician	6.4
School psychologist	4.7
ASSISTANTS	
Student aides	34.4%
Student teacher	30.7
Teacher aides	29.3
Student counselor	22.7
Civic volunteer	18.4
PTA volunteer	16.9
Number responding	674

From this it can be seen that most programs rely on regular school staff with the assistance of some type of resource personnel. Ninety-four percent

of the respondents reported classroom teachers participating in programs; 58 percent, principals; and 52 percent, resource persons of an unspecified type. These three types of personnel are the only ones listed which more than one-half the respondents indicated as participating in their programs.

From about one-fourth to somewhat more than a third of the programs use special program staff and various specific types of resource persons. Over 36 percent of responding school systems have camp directors or directors of outdoor education. Somewhat smaller percentages of programs use other types of special staff (camp teachers and physical educators), certain types of resource personnel (naturalists and curriculum experts), and environmental specialists from the Forest Service or the State Department of Conservation, or Park Service. In regard to environmental specialists, a greater percentage of programs use the services of personnel including state and local persons than National Park Service personnel. This is in keeping with the greater proportion of programs utilizing state or local government-owned sites than National Park Service areas.

In the category of supporting services, about 2 programs in 5 reported using the services of cooks and nurses, approximately the same proportion as implies operation of a camp program by reporting a camp director. Other school systems may, of course, operate camp programs although they do not have a staff member specifically designated as camp director. Other types of assistants are less frequently used. Only about 1 program in 6 uses the services of volunteers.

Large school systems, as might be expected, show a higher percentage of programs using specialized types of personnel than medium-size or small systems. Although little difference on the

TABLE 31.—TYPES OF ENVIRONMENTAL SPECIALISTS, BY REGION

Environmental specialists	Northeast	Southeast	Middle	West
1	2	3	4	5
Forest Service personnel	20.5%	43.8%	25.1%	49.8%
State Department of Conservation personnel	22.6	41.7	34.3	13.9
Park personnel	23.7	31.3	25.1	21.4
National Park Service personnel	7.9	31.3	3.4	21.9
U.S. Government technician	6.8	12.5	7.7	8.5
Number responding	190	48	235	201

TABLE 32.- NUMBER OF FULL-TIME AND PART-TIME PERSONNEL ASSIGNED TO PROGRAMS, BY SIZE OF SYSTEM

Number of personnel	All programs		Large systems		Medium systems		Small systems	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
1	2	3	4	5	6	7	8	9
None	51.0%	22.5%	32.7%	28.8%	50.0%	21.2%	56.9%	22.7%
1	15.3	18.6	15.4	13.5	15.7	15.7	14.7	24.2
2	6.3	10.0	11.5	11.5	5.2	10.5	6.6	9.0
3-4	6.6	9.0	9.6	11.5	6.6	9.8	6.1	7.1
5-9	8.5	11.6	5.7	7.6	9.7	9.8	7.0	15.1
10-19	6.2	14.1	9.6	7.7	5.2	14.1	6.6	15.7
20 or more	6.2	14.2	15.4	19.2	7.5	19.0	1.9	6.2
Mean	4	12	8	26	5	13	3	6
Median	0	2	2	2	1	3	0	2
Low	0	0	0	0	0	0	0	0
High	150	500	91	500	150	450	84	70
Number responding	569		52		306		211	

basis of system size appears in the percentages of programs involving the participation of classroom teachers or principals, a much higher percentage of large than of medium-size or small systems reported camp directors and camp teachers, and a much higher percentage of large and of medium-size systems than of small systems has a director of outdoor education. Certain other differences appear to reflect the tendency to centralized administration of programs in large systems. It will be remembered that a greater proportion of large systems administer their programs on a centralized basis and that curriculum is determined by the school system in a greater proportion of programs in large systems. Consequently, it is not surprising to find a much higher percentage of large than of medium-size or small systems reporting that their programs involve the participation of a planner or of a school system supervisor.

Similarly, large systems are more inclined to use the services of persons in the category of resource personnel than are medium-size or small systems. A much higher percentage of large and medium-size than of small systems use resource persons of unspecified type, while the percentage of large systems using the services of naturalists, curriculum experts, or college and university personnel greatly exceeds percentages for either medium-size or small systems.

	System size		
	Large	Medium	Small
SPECIAL PROGRAM STAFF			
Camp director	56.5%	38.3%	29.9%
Director of outdoor education	46.8	43.2	23.0
Camp teacher	46.8	26.4	18.9
Physical educator	33.9	26.6	18.9
Planner	22.6	5.7	4.1
REGULAR EDUCATION STAFF			
Classroom teacher	95.2%	93.2%	94.3%
Principal	58.1	60.1	54.1
Supervisor	48.4	20.7	11.1
State Department of Education personnel	19.4	19.3	13.5
Number responding	62	368	244

With regard to supporting services, differences related to system size appear to reflect primarily the larger percentage of large systems that operate and staff camp programs. Over half the large systems reported camp directors, and nearly one-half, camp teacher; similarly, slightly over a half of the large systems reported that their programs involve the participation of a cook or a nurse. Percentages for these two items are noticeably greater for large than for medium-size or small systems. The percentage of medium-size systems that reported the participation of a nurse in programs is also much greater than the percentage of small systems. In

TABLE 33.—NUMBER OF FULL-TIME AND PART-TIME PERSONNEL ASSIGNED TO PROGRAMS, BY GRADE LEVEL RESTRICTION

Number of personnel	Elementary		Junior senior high		Combined		
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
	1	2	3	4	5	6	7
None	53.3%	21.0%	50.0%	29.0%	48.8%	21.2%	
1	7.1	11.0	22.0	36.0	19.6	18.4	
2	4.8	10.0	9.0	11.0	6.8	9.6	
3-4	7.1	9.1	9.0	7.0	5.6	10.0	
5-9	11.4	11.9	5.0	9.0	7.2	11.6	
10-19	6.6	18.6	3.0	7.0	7.2	12.8	
20 or more	9.5	18.6	2.0	1.0	4.8	16.4	
Mean	6	13	2	3	4	15	
Median	0	4	1	1	1	3	
Low	0	0	0	0	0	0	
High	150	305	21	40	91	500	
Number responding		210		100		250	

this connection it may be recalled that among school systems using resident sites, a much smaller percentage of small than of medium-size or large systems reported an infirmary at their sites. Among the other supporting services listed, the most notable difference is in regard to physicians, who participate in nearly one-fourth of the programs in large systems.

Assistants of all types, predictably, are used in a larger percentage of programs in large systems than in medium-size or small systems. Differences between medium-size and small systems are less great, except in the case of student teachers who are employed in a much greater percentage of programs in medium-size than in small systems.

	System size		
	Large	Medium	Small
RESOURCE PERSONNEL			
Resource person	59.7%	57.1%	41.0%
Naturalist	46.8	30.7	23.0
Curriculum expert	45.2	30.7	18.9
College and university professor or instructor	33.9	19.6	18.0
Technical expert	11.3	8.2	7.0
Number responding	62	368	244

The grade level of programs naturally influences the types of personnel that participate in them. Here the academic, classroom-centered character

	System size		
	Large	Medium	Small
SUPPORTING SERVICES			
Cook	54.8%	44.0%	36.1%
Nurse	53.2	43.5	29.5
Librarian	22.6	20.4	15.2
Guidance counselor	25.8	16.6	12.7
Physician	24.2	7.1	0.8
School psychologist	8.1	4.9	3.7
Number responding	62	368	244

of programs restricted to the junior-senior high level manifests itself very clearly. Ninety-four percent of junior-senior high programs use classroom teachers, but no more than about a third of them use any of the other types of personnel listed. The differences between junior-senior high programs on the one hand and elementary and combined programs on the other are so consistent and so great as not to require reporting in detail. A few points of particular interest may be mentioned. First, although a large proportion of elementary and combined programs involved the participation of school principals (68 percent of elementary programs and 60 percent of combined programs), very few junior-senior high programs do (24 percent). This lack of administrative involvement in programs restricted to the junior-senior high level suggests that these programs may not, strictly speaking, be programs at all but rather represent an extension of courses in science or applied science by the classroom

teacher to include environmental topics and selected on-site experiences. Another point of interest is that approximately one-third of junior-senior high programs use a resource person of unspecified type, as compared with slightly over a half of elementary and of combined programs, while no more than at most 1 junior-high program in 6 makes use of any of the other types of personnel listed in the categories of resource personnel, special program staff, supporting services, or assistants.

In general, responses of elementary and combined programs do not differ greatly. At a few points, however, elementary programs differ from combined programs in their personnel, because a greater proportion of the former type are confined to on-site resident experience and operate what in effect are camp programs. Thus, a considerably larger percentage of elementary than of combined programs employ camp directors, cooks, and nurses, and a somewhat larger percentage camp teachers.

	System size		
	Large	Medium	Small
ASSISTANTS			
Student aides	48.4%	35.1%	29.9%
Student teacher	46.8	34.5	20.9
Teacher aides	38.7	21.2	22.5
Student counselor	37.1	23.6	17.6
Civic volunteer	24.2	18.5	16.8
PTA volunteer	30.6	17.7	12.3
Number responding	62	368	244

On the other hand, a larger percentage of combined than of elementary programs, 36 percent as compared with 25, make use of a curriculum expert. This is in keeping with greater comprehensiveness of content noted in combined programs.

	Grade level restriction	
	Elementary	Combined

Camp director	51.2%	34.4%
Camp teacher	32.9	26.0
Cook	57.9	37.7
Nurse	55.6	34.7
Number responding	252	308

Environmental specialists connected with governmental agencies deserve special attention, because response patterns observed previously in system-size and grade-level analyses do not prevail to the same extent here. Both differences related to system size and those related to grade level tend to be smaller. The percentage of small systems utilizing the types of personnel in this category often exceeds the percentage of medium-size systems and sometimes approaches or even exceeds the percentages of large systems. A similar phenomenon characterizes grade-level analysis. The extremely large differences which distinguish elementary and combined programs from junior-senior high programs in regard to the use of other types of personnel do not appear here, and in one instance the percentage of junior-senior high programs exceeds the percentage both of elementary and of combined programs. Although the differences are small, a higher percentage of junior-senior high than of elementary or combined programs, and a higher percentage of programs in small than in medium-size or large systems, make use of the services of State Department of Conservation personnel.

These differences may perhaps be explained by some factors mentioned earlier. Small systems are usually found in rural areas and tend to exhibit a

TABLE 34.—HIGHEST DEGREE HELD BY PERSON IN CHARGE OF PROGRAM, BY SYSTEM SIZE AND BY GRADE LEVEL RESTRICTION

Highest degree held	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
Less than bachelor's degree	0.4%	...	...	0.8%	0.4%	0.9%	...
Bachelor's degree	17.4	11.5%	13.8%	23.9	15.7	32.4	13.2%
Master's degree	66.1	47.5	68.5	67.2	67.4	60.2	68.2
Education specialist or professional diploma based on 6 years of college study	9.4	21.3	10.0	5.7	13.2	3.7	8.1
Doctor's degree	6.8	19.7	7.7	2.4	3.3	2.8	10.5
Number responding	657	61	349	247	242	108	296

TABLE 35.—MAJOR AREA OF COLLEGE STUDY OF PERSON IN CHARGE OF PROGRAM, BY GRADE LEVEL RESTRICTION

Major area of college study	Total	Elementary	Junior-senior high	Combined
1	2	3	4	5
Outdoor, conservation, or environmental studies, forestry, ecology, or wildlife	7.0%	4.9%	6.7%	9.2%
Health, physical education, or recreation	9.5	14.7	6.7	6.3
Biology or geology	19.5	8.5	39.4	21.4
Other sciences, including chemistry, physics and mathematics	19.7	17.4	19.2	21.4
Social studies or geography	4.9	4.0	5.8	5.2
Education	22.8	33.9	6.7	19.9
Administration	11.0	14.3	2.9	10.7
Other	5.6	2.2	12.5	5.9
	100.0%	99.9%	99.9%	100.0%
Number responding	610	224	104	271

comparatively greater degree of interest in the aspects of environmental study that have practical relevance for rural life. Similarly, junior-senior high programs are more inclined to emphasize technical study of conservation and related subjects. A reinforcing factor is the somewhat greater concentration of junior-senior high programs in small systems. Two exceptions seem to confirm rather than confute these conjectures: Park personnel in general and National Park Service personnel in particular participate in a considerably greater percentage of programs in large than in medium-size or small systems.

Regional differences are also of interest in connection with the utilization of environmental specialists. A much larger proportion of programs in the West than in the Middle states or Northeast involve the participation of Forest Service personnel and National Park Service personnel. In connection with the former it should be recalled that the West was distinguished by the high proportion of its programs utilizing sites characterized by forest land. In connection with the latter, a large proportion of systems in the West reported a National Park Service area in close proximity to the school district, and the West also showed a tendency to make greater use of curriculum resources available from the National Park Service. On the other hand, a greater percentage of programs in the middle section of the country than in the West or Northeast use the services of personnel from the State Department of Conservation. This may reflect the pre-

dominantly rural character of the area and the factors discussed in connection with system-size and grade-level analysis.

	System size		
	Large	Medium	Small
ENVIRONMENTAL SPECIALISTS			
Forest Service personnel	38.7%	30.7%	33.6%
State Department of Conservation personnel	22.6	25.5	26.2
Park personnel	37.1	23.6	21.3
National Park Service personnel	22.6	10.9	11.5
U. S. Government technician .	12.9	6.8	8.6
Number responding	62	368	244
	Grade level restriction		
	Elementary	Junior-senior high	Combined
Forest Service personnel	36.1%	28.2%	31.2%
State Department of Conservation personnel	24.2	30.1	26.0
Park personnel	20.6	20.4	27.6
National Park Service personnel	13.1	6.8	13.3
U. S. Government technician .	7.1	6.8	9.1
Number responding	252	103	308

Number of School System Personnel Assigned to Programs

The preceding data refer to all types of personnel who may participate in environmental programs regardless of whether or not they are school system personnel. Another question concerns the

number of school system personnel assigned to programs. Number of staff was a criterion for inclusion in the survey, and, therefore, by definition all programs have at least the equivalent of one-half time person assigned to them. More precise information about the number of staff assigned to programs was sought by a question which asked respondents to state separately the total number both of full-time and of part-time personnel assigned to their programs.

Responses show that part-time staff are more widely used than full-time staff. Slightly less than one-half the respondents reported one or more full-time staff, but over three-fourths reported one or more part-time staff. Of those that reported full-time staff, the largest proportion reported one person assigned to the program full time. Responses relating to numbers of part-time staff show greater variation. Although over one-fourth of the total responding reported one or two part-time persons, nearly as many reported 10 or more persons in the part-time category.

The number of program personnel naturally is related to the size of school system. Large school systems have more full-time program personnel than smaller ones, while smaller systems rely more heavily on part-time than full-time personnel. Two-thirds of large systems use full-time personnel and

slightly less than three-fourths, part-time personnel. Medium-size systems, on the other hand, are evenly divided between those that have full-time personnel and those that do not, while nearly 4 in 5 of them have part-time personnel. In contrast, less than half the small systems responding have full-time program personnel, while more than three-fourths have part-time personnel. Again, the median number of program personnel in large systems is two full-time and two part-time persons; in medium-size systems, one full-time and three part-time persons; while the majority of small systems do not have any full-time personnel, and the median number of part-time personnel is two.

Differences also appear when the number of program staff is related to the grade levels of programs. Combined programs, as would be expected from their broader scope and more comprehensive content, tend to have larger staff than programs restricted to the elementary or junior-senior high level. Slightly more than half the combined programs have full-time staff and nearly 4 in 5, part-time staff; the median number of personnel assigned to combined programs is one full-time person and three part-time persons. Junior-senior high programs are evenly divided between those that have full-time staff and those that do not, while about 7 in 10 have part-time staff. Programs at this level have a median of one full-time person and one part-time

TABLE 36.—TYPES OF INSERVICE TRAINING PROVIDED TO PROGRAM PERSONNEL, BY GRADE LEVEL RESTRICTION

Types of inservice training	Total	Elementary	Junior-senior high	Combined
1	2	3	4	5
Workshops, institutes, conferences	64.3%	63.0%	53.8%	69.8%
Staff meetings	58.6	66.7	31.7	62.0
Inservice training courses	51.4	52.3	26.0	59.7
Field trips	50.5	45.7	38.5	58.7
Reference/library materials	46.8	42.4	42.3	52.1
Staff exchanges	25.5	27.6	9.6	29.5
Research and demonstration projects ...	17.3	14.4	11.5	21.6
Time off and reimbursement for higher education	12.5	7.4	14.4	15.7
Time off for higher education, no reimbursement	4.7	3.3	4.8	5.9
Correspondence courses	1.8	3.3	2.9	0.3
Other	3.9	4.1	3.8	3.6
Number responding	664	243	104	305

person assigned to them. On the other hand, elementary programs show greater diversity in staffing. Slightly more than half of the elementary programs have no full-time staff, while nearly 4 in 5 have part-time staff with a median of four part-time persons. Yet in spite of the fact that a majority of elementary programs do not have any full-time staff, over a fourth of them have five or more full-time personnel. This divergence in the staffing of elementary programs may relate to the existence of that subgroup of elementary programs that are camp programs and would logically require a full-time staff, while the majority of elementary programs reflect the more restricted scope of the group as a whole in comparison with junior-senior high and combined programs.

Qualifications and Training of Personnel

Turning from quantitative to qualitative aspects of staffing leads to questions about the academic qualifications, preservice preparation, and inservice training of personnel assigned to environmental education programs.

Qualifications of Persons in Charge of Programs

Two questions in the survey instrument concerned the academic background of persons in charge of environmental education programs. One of these asked respondents to indicate the highest degree held by the person in charge of the program. The other was an open-ended question, asking, "What was the major area of college study of the person in charge of the program?"

From responses to the first question, it appears that about two-thirds of the persons in charge of environmental education programs hold master's degrees, while the remaining third is divided about evenly between those who hold a bachelor's degree or less and those who hold an education specialist or professional diploma or a doctor's degree.

Large school systems show a greater proportion of persons with advanced degrees in charge of programs. The percentage of persons holding master's degrees is smaller in large than in medium-size or small systems, while higher percentages in large than in medium-size or small systems hold specialist or professional diplomas or doctor's degrees. About one-fifth of the persons in charge of programs in large systems fall into each of the latter two categories. Small systems show the highest proportion of persons with bachelor's degrees or less (about one-fourth).

highest proportion of persons with bachelor's degrees or less (about one-fourth).

When responses are related to grade level of program, relatively little difference appears among elementary, junior-senior high, and combined programs in the proportion of persons in charge who hold master's degrees. However, a much larger proportion of the persons in charge of junior-senior high programs (one-third) than of those in charge of elementary or combined programs hold a bachelor's degree or less. Education specialist or professional diplomas are held by a slightly higher percentage of persons in charge of elementary than of junior-senior high or combined programs, while doctor's degrees are held by a somewhat greater percentage of those in charge of combined than of junior-senior high or elementary programs. One person in 10 among those in charge of combined programs holds a doctor's degree.

Classifying responses to the open-ended question into groups of related subjects shows that few of the persons in charge of environmental programs (7 percent) have specialized in areas of environmental study. On the other hand, about one-third majored in education or administration, while about one-fifth specialized in biology or geology, and another fifth in other sciences, including chemistry, physics, and mathematics.

The background of persons in charge of programs in different size school systems does not vary greatly, but grade-level analysis of responses reveals some noteworthy differences. The largest proportion of junior-senior high programs, about 2 in 5, are headed by a person who majored in biology or geology, while 1 in 5 is headed by someone who specialized in another area of scientific study. In contrast, the largest proportion of elementary programs, about one-third, are headed by a person whose major area of college study was education. A much smaller percentage of those in charge of elementary programs as compared with junior-senior high programs majored in biology or geology (9 percent as compared with 39 percent), while the percentage of those majoring in health, physical education, or recreation is about twice as great among those in charge of elementary programs as among those in charge of junior-senior high programs (15 percent as compared with 7 percent). Taken together nearly one-half of all persons in charge of elementary programs majored either in education or in health, physical education, or recreation. This difference in the prior training of persons responsible for elementary and for junior-

senior high programs accords with the basic difference in emphasis between the two types of programs. The background of persons in charge of combined programs, however, does not conform to either of these patterns but is more evenly distributed among biology or geology, other sciences, and education; approximately one-fifth of the persons responsible for combined programs majored in each of these areas.

Combining the results of these two questions shows that while the majority of persons in charge of environmental education programs are academically well qualified as educators, few of them have had preservice training specifically in environmental studies. Although the background of persons in charge of elementary and junior-senior high programs is appropriate for the types of programs currently being offered at these levels and a substantial proportion of persons in charge of combined programs have had training in the sciences, a majority of programs of all three types lack the leadership of a person with preservice training as an environmental specialist. For this reason, the question of inservice training for program personnel is of particular importance.

Inservice Training

The survey instrument approached the subject of inservice training by way of the following question, accompanied by a checklist:

Does your school system provide or support any of the following types of educational opportunities for development and inservice training of personnel involved in this program?

Nearly 9 respondents in 10 indicated that their school systems made available some type of opportunity for inservice training of program personnel. The percentage of respondents reporting inservice training available was somewhat greater in large than in medium-size or small systems, while a considerably higher percentage of systems with elementary or combined programs than of systems with junior-senior high programs provide opportunities for inservice training.

	Percent providing inservice training	Number responding
Total	88.0%	664
System size		
Large	95.1	61
Medium	87.0	362
Small	87.6	241
Grade level restriction		
Elementary	89.7	243
Junior-senior high	74.0	104
Combined	92.1	305

The types of inservice training most frequently reported were workshops, institutes, conferences; staff meetings; inservice training courses; and field trips. All of these types were mentioned by more than one-half of the respondents. Reference and library materials represent a resource for inservice training which slightly less than half the respondents reported is provided by their school systems.

From the table it can also be seen that over half the systems with combined programs provide inservice training through workshops, institutes, conferences; staff meetings; inservice training courses; field trips; and reference or library materials. The first three of these types of inservice training are also provided by a majority of school systems with elementary programs. However, the three most frequently mentioned types of inservice training provided by systems with junior-senior high programs are, in order, workshops, institutes, conferences; reference or library materials; and field trips. Of these, only the first was reported by a majority of respondents in junior-senior high programs.

Large school systems, as might be expected, show a higher percentage providing various types of inservice training than medium-size or small systems. The greatest differences occur in regard to staff meetings, inservice training courses, and reference or library materials which are provided by a considerably greater percentage of large than of medium-size or small systems.

Thus, it appears that program staff in large school systems and systems with combined programs have the best opportunities for inservice training. At the same time systems with combined or elementary programs tend to provide inservice training opportunities in the form of various group learning experiences, while systems with junior-senior high programs rely to a comparatively greater degree on providing resources for individual learning.

Finally, in considering these findings, it should be remembered that they refer only to general types of educational opportunities for school personnel which the system provides or supports. They do not indicate the extent to which such opportunities are being utilized or what specific measures are being taken to provide necessary inservice training for the staff of environmental programs. Therefore, they more properly represent an indication of the types of opportunities that exist for the further training of personnel assigned to environmental programs than a report on the present status of inservice training in environmental education.

FINANCING ENVIRONMENTAL EDUCATION PROGRAMS

THIS GENERAL STUDY of environmental education programs would not be complete without some consideration of the financial basis on which they rest and which ultimately determine what they can accomplish. Because of the other aspects of environmental programs which required coverage in this survey, it was not possible to treat the subject of finance in any but the most cursory fashion. Information was sought only on two basic points: the annual budget of programs and the principal sources of funds. Even on these two points reliable data proved difficult to collect because the varying methods of incorporating environmental study in the school curriculum result in varying methods of financing, sometimes obscuring funds for environmental education within other budget areas, and also because, as responses indicated, in many cases the persons responding did not have the information. What is presented here, then, is a limited picture of the financial background of environmental education based on the best information obtainable in this survey.

Annual Program Budget

Respondents were asked to give the amount of budget for their programs for the school year 1969-70, recording separately the amounts for capital outlay and for current operating expenditures.

Only 99 respondents recorded a figure for capital outlay. Based on these figures the median amount of capital outlay budget for all responding programs is \$3,000. A greater number of respondents (419) recorded an amount for current operating expenditures; the median for all reporting systems is \$7,000.

Large school systems show a median of \$75,025 for capital outlay and \$49,500 for current expenditures. For medium-size systems, medians are \$2,500 for capital outlay and \$10,000 for current operating expenditures. For small systems, medians are \$2,500 for capital outlay and \$2,600 for current operating expenditures.

Elementary and combined programs have larger budgets than junior-senior high programs both for capital outlay and for current operating expenditures. Although data for capital outlay are dubious, representing only a small number of the programs surveyed, the over-all budgetary picture related to the grade level of programs is not inconsistent with what has been established about these groups of programs previously. For current operating expenditures, combined programs have a median budget of \$11,000; elementary programs, \$7,000; and junior-senior high programs, \$5,000.

TABLE 37.—CAPITAL OUTLAY BUDGET FOR PROGRAMS FOR THE SCHOOL YEAR, 1969-70

Item	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
Mean	\$ 59,932	\$ 206,360	\$ 51,035	\$ 14,071	\$ 75,179	\$ 4,594	\$ 72,783
Median	3,000	75,025	2,500	2,500	5,000	1,500	3,000
Low	100	1,000	300	100	150	200	100
High	1,500,000	1,500,000	1,000,000	151,000	1,000,000	37,000	1,500,000
Number responding	99	14	50	35	24	19	55

TABLE 38.—CURRENT OPERATING EXPENDITURES FOR PROGRAMS FOR THE SCHOOL YEAR, 1969-70

Item	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
Mean	\$ 43,017	\$102,994	\$ 29,158	\$ 47,078	\$ 35,226	\$ 12,297	\$ 61,392
Median	7,000	49,500	10,000	2,600	7,000	5,000	11,000
Low	100	150	100	100	100	100	150
High	2,500,000	890,000	1,000,000	2,500,000	1,539,562	184,000	2,500,000
Number responding	419	42	226	151	154	64	191

Source of Program Funds

To determine the sources from which funds for programs were obtained, the survey instrument presented respondents with a checklist of possible sources, which was composed of four parts, designated "local sources," "state sources," "federal sources," and "other sources." In each part several items were listed, plus a blank for respondents to write in additional sources appropriate to that part. The part labeled "other sources" included such sources as business and industry and foundation grants.

Responses to different parts of the question show that just over one-half of the programs receive funds from local sources only. About 1 program in 6 receives funds from a combination of local and federal sources, and about 1 in 10 from a combination of local and state sources.

LEVELS OF SOURCES FROM WHICH PROGRAM FUNDS HAVE BEEN OBTAINED

Local only	50.4%
Local and other	3.9
Local and state	9.6
Local, state, and other	1.8
Local and federal	17.4
Local, federal, and other	3.1
Local, state, and federal	5.4
Local, state, federal, and other	3.0
State only	0.4
Federal only	3.9
Federal and other	0.4
State and federal	0.6
	<u>99.9%</u>
Number responding	668

Altogether 631 respondents, 94 percent of the total responding to the question, indicated that their programs receive funds from local sources. The vast majority of these (85 percent) named the board of education as a source. None of the other local sources listed is mentioned by anywhere near so large a percentage. The most frequently mentioned among the other local sources are, in order, tuition and fees (38 percent), parent-teacher associations (24 percent), and student fund-raising projects (21 percent). All three of these represent efforts from within the school system itself to raise funds for its program rather than indicating outside sources from which funds might be received.

Fewer respondents, 139, or 21 percent of the total responding to the question, indicated the receipt of funds from state sources. The state department of conversation or natural resources and the state department of education are each mentioned by approximately half of these.

Federal sources, however, contribute to more programs than state sources; 224, or 34 percent of respondents to the question, indicated that their programs receive funds from such sources. The principal federal source is the Elementary and Secondary Education Act, which was mentioned by 81 percent of those receiving federal funds.

The smallest proportion of respondents, 83, or 12 percent, reported receiving funds from other sources. Of these, 52 percent reported funds received from business and industry; and 40 percent, grants from private foundations.

The table below reports responses to this question in greater detail.

**SOURCES FROM WHICH PROGRAM FUNDS
HAVE BEEN OBTAINED**

Local Sources

Board of education	84.6%
County government	7.3
Municipal government	4.0
Public agencies and organizations	14.4
Private agencies and organizations	15.5
Private individuals	15.1
Parent-teacher associations	24.2
Student fund-raising projects	21.2
Tuition and fees	38.2
Other	2.4

Number responding 631

State Sources

Departments of conservation/natural resources	47.5%
Departments of education	51.1
Other	13.7

Number responding 139

Federal Sources

ESEA	81.3%
NDEA	21.0
EDPA	2.7
Higher Education Act, Title I	9.4
Other	6.7

Number responding 224

Other Sources

Business and industry	51.8%
Grants from private foundations	39.8
National organizations	8.4
Other	18.1

Number responding 83

Analysis of responses shows some variation regarding the receipt of funds from federal sources. A considerably higher percentage of large than of

medium-size or small systems, and a considerably higher percentage of combined than of elementary or junior-high programs indicated receiving funds from federal sources.

Differences also appear in regard to the federal acts under which program funds have been obtained. Although by far the largest proportion of school systems in all three size groups reported receiving funds for environmental programs under the Elementary and Secondary Education Act, a greater percentage of medium-size and small systems than of large systems indicated funds received under the National Defense Education Act, while a higher percentage of large than of medium-size or small systems have obtained funds under Title I of the Higher Education Act.

Even greater differences appear when responses are related to the grade level of programs. A much smaller percentage of junior-senior high than of elementary or combined programs have obtained funds under ESEA, while the percentage of junior-senior high programs that have received funds under NDEA is much greater than the percentage of either elementary or combined programs. The percentage of junior-senior high programs reporting funds received under Title I of the Higher Education Act is also greater than percentages for the other two types of programs.

These data on the sources of funds do not permit detailed conclusions about the funding of environmental education programs, for they do not show the extent to which programs rely on each type of source. However, they clearly indicate that local sources are of prime importance in financing environmental education programs in general and that chief among these sources is the local board of education.

TABLE 39.—LEVEL OF SOURCE FROM WHICH PROGRAM FUNDS HAVE BEEN OBTAINED

Level of source	System size			Grade level restriction		
	Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7
Local	85.7%	95.9%	94.7%	95.6%	96.0%	92.8%
State	19.0	21.0	21.0	15.1	26.3	23.5
Federal	46.0	34.5	28.8	25.1	24.2	44.0
Other	17.5	14.1	8.6	8.0	18.2	13.7
Number responding	63	362	243	251	99	307

TABLE 40.—FEDERAL SOURCES FROM WHICH PROGRAM FUNDS HAVE BEEN OBTAINED

Federal source	System size			Grade level restriction		
	Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7
ESEA	93.1%	82.4%	74.3%	82.5%	45.8%	86.7%
NDEA	10.3	22.4	22.9	12.7	45.8	20.7
EDPA .....	...	4.0	1.4	...	8.3	3.0
Higher Education, Title I	20.7	8.0	7.1	9.5	20.8	7.4
Other	10.3	4.8	8.6	6.3	16.7	5.2
Number responding	29	125	70	63	24	135

NEED FOR FUTURE DEVELOPMENT

LOOKING TOWARD the future, the survey asked respondents to indicate what types of assistance were needed to develop or further develop their programs. An accompanying checklist identified 10 possible types of assistance that might be needed.

Not surprisingly, in view of the data presented in the preceding section of this report, the need mentioned by the greatest number of respondents is financial aid from outside the school system. Financial aid from the school system ranks second among needs. However, over half the respondents also indicated a need for assistance with instruc-

tional materials and with inservice training guidelines.

Combined programs, which have been seen to be the most comprehensive and ambitious, and large school systems, in which a majority of the programs are combined programs, show the greatest awareness of need for assistance with future development. Percentages of large systems responding to items on the checklist are generally greater than percentages of medium-size or small systems. Similarly, percentages for combined programs tend to be larger than those for elementary or junior-senior high programs.

TABLE 41.—TYPES OF ASSISTANCE NEEDED TO DEVELOP OR FURTHER DEVELOP PROGRAMS

Type of assistance	Total	System size			Grade level restriction		
		Large	Medium	Small	Elementary	Junior-senior high	Combined
1	2	3	4	5	6	7	8
Financial aid from outside the school system	62.4%	76.2%	61.8%	55.1%	56.3%	56.4%	61.3
Financial aid from the school system	54.5	68.3	54.2	51.3	49.7	45.5	57.0
Instructional materials	52.1	60.3	50.8	51.7	50.8	46.5	51.3
Inservice training guidelines ..	51.4	50.8	59.9	47.9	51.2	39.6	51.3
Curriculum plans	47.2	49.2	48.3	44.9	45.4	37.6	51.3
Community involvement/assistance	45.8	57.1	45.5	43.2	39.9	43.6	51.0
Research and evaluation help	43.4	52.4	45.5	38.1	42.4	32.7	47.7
Identification and planning of resources for environmental study uses	39.3	34.0	40.2	33.9	37.0	36.6	42.2
Public relations advice	20.3	17.5	19.8	22.3	19.3	23.8	20.5
Manpower resources through vocational training programs	12.9	14.3	13.7	11.4	10.1	7.9	15.9
Other	4.7	7.9	4.7	3.8	3.0	6.9	3.9
Number responding	657	63	358	236	238	101	308

A few points are particularly noteworthy. Over half the large systems indicated a need for assistance with the identification and planning of resources for environmental study uses and for research and evaluation help. Again, more than half the combined programs, and nearly one-half the programs in large systems indicated a need for assistance with curriculum plans. The relatively large percentage of large systems, and to a lesser extent, of combined programs, which indicated need for community involvement and assistance is prob-

ably a reflection of the urban location of large school systems and the different types of school-community relationships which prevail there.

Taken together, responses to this question show, in addition to a basic need for financial assistance, fairly extensive need for assistance in developing various aspects of curriculum and instruction, especially on the part of those school systems attempting to offer comprehensive programs in environmental education.