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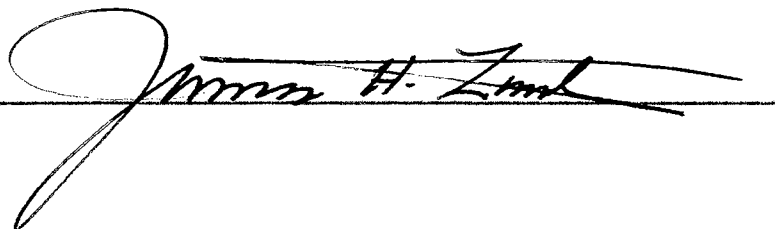
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Scope of Study: This study was conducted through correspondence with State Game and Fish Commissions and State Departments of Education. Approximately one-hundred seventy-five responses were received from these agencies which provided the data contained in this study. Two forms of correspondence were employed - the letter and the questionnaire. Forty-eight states responded to the questionnaire and at least one letter was received from each state. Teaching guides, handbooks and outlines were received from twenty-one states which were surveyed in order to determine principles considered basic to the teaching of wildlife conservation.

Findings and Conclusions: Data received revealed that conservation, including wildlife conservation, is taught as a separate course of study in a relatively small number of schools in ten states. Most of the conservation instruction is affected by integration with other subject matter areas. The subject receives the most attention in biology, general science, and the social studies areas of history, geography and civics.

The majority of the conservation educators responding to the letters advocated the integration approach to the separate course for the teaching of conservation. Teaching guides and handbooks revealed that conservation educators are in good general agreement as to the principles that are considered basic to the teaching of wildlife conservation. The five most frequently stated principles were found in over seventy-five per cent of the literature surveys. The questionnaire revealed that wildlife conservation principles are realized by the use of teacher training programs, school programs presented by conservation personnel, wildlife conservation literature, essay contests and a variety of outdoor conservation experiences.

ADVISER'S APPROVAL



James H. Lamb

AN INQUIRY INTO THE STATUS
OF WILDLIFE CONSERVATION
IN THE CURRICULUM OF
THE PUBLIC SCHOOLS

By

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Bachelor of Science

Middle Tennessee State College

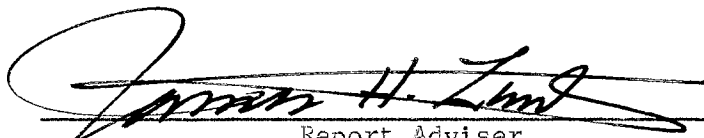
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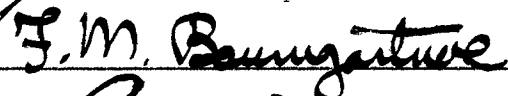
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Submitted to the faculty of the Graduate School of
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for the degree of
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AN INQUIRY INTO THE STATUS
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IN THE CURRICULUM OF
THE PUBLIC SCHOOLS

Report Approved:


Report Adviser


F.M. Baumgartner


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PREFACE

This study was made in an effort to determine some idea of the extent that wildlife conservation is included in the curriculum of public schools. In the majority of schools, there is no clear-cut place for conservation education in the curriculum. It is usually fitted in as part of a course or subject field which is already in existence. The writer presents in this report the results of a survey to determine the treatment of conservation, which includes wildlife conservation, in the schools across our nation. The data presented was received from personnel of the State Game and Fish Division of the Conservation Departments and the State Departments of Public Education. Although a report was received from some agency in every state, the questionnaire response represented data from forty-eight of the states.

Indebtedness is acknowledged to Doctors F.M. Baumgartner and James H. Zant for their valuable guidance and assistance in the preparation of this report. Indebtedness is also acknowledged to the personnel of State Game and Fish Divisions and State Departments of Public Education for their responses to letters and questionnaires.

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CHAPTER I

THE PROBLEM

Statement of the Problem. The purpose of this study was to (1) survey the extent that wildlife conservation is included in the curriculum of public schools throughout the country; (2) determine the principles that are being emphasized and (3) determine the methods employed to put across these principles.

Importance of the Study. For half a century the declining population of game and furbearing mammals has been a matter of real concern to people interested in the problems of conservation. The roots of this problem extend back to the settlement of the Atlantic Coast by the early colonist. The game and furbearing mammals were among the first natural resources to be used by the settlers and furnished them with a substantial portion of their food and clothing. As the frontier moved westward, hunters and trappers preceded the agricultural and industrial workers and the fur crop was their principal source of income.

With the advent of foreign trade, fur became even more important. Like other natural resources, wildlife was thought to be inexhaustible, and abundance hastened exploitation. Also with the clearing of the forest and increased production of crops, some of the mammals came into conflict with the interests of man and were drastically reduced in number. By the middle of the nineteenth century, it was apparent to many far-sighted Americans that a number of species were on the road to extinc-

tion. Soon after the turn of the century, legislatures passed laws that provided protection for most wildlife species. Fortunately, wildlife is a renewable resource which responds to management and much has been accomplished to preserve and restore many species of wildlife. The public schools provide an excellent opportunity for instilling in American youth an awareness of conservation.

Clarification of Terms Used. The following terms are defined relative to their use in this report.

Aesthetic value - Worth which can be measured by a sense of interest and appreciation but which cannot be measured in economic terms.

Carrying Capacity - The maximum number of wild birds, animals, or fish a given area of land or water is capable of sustaining at a given time.

Cover - The plant growth (trees, shrubs, vines, grasses, etc.) which is used by wildlife as protection from weather and natural enemies.

Curriculum - All of the educational experiences associated with the school.

Environment - The sum of all the factors that have an effect on the organism.

Refuge - An area of land closed to hunting or fishing in which game or fish can seek shelter and protection.

Wildlife - The wild birds, mammals, fish, reptiles, and amphibians.

Wildlife Conservation - The "wise-use" of the wild animal resources.

Wildlife Management - The art of making land produce annual crops of wild birds, animals, fish, etc. for recreational use.

Methods and Procedure. The most feasible approach to collecting data on the status of wildlife conservation in the curriculum of public

schools across the nation was determined to be through correspondence with the Game and Fish Divisions of State Conservation Departments, State Departments of Education, and individuals who are concerned with conservation education.

At least three letters were written to each state - two to the Director of Game and Fish and the other to the Curriculum Director of the State Department of Education. The quantity of materials sent in response to the letters was quite overwhelming. The writer received not only letters but pamphlets, brochures, annual and financial reports, teaching guides, textbooks, bird and fish pictures and an array of other materials. A number of these items appear to be excellent teaching aids.

The first letter to the directors of game and fish requested information concerning the extent that wildlife conservation is included in the curriculum of public schools, the principles which were considered basic, and the methods which are employed to put across these principles. Responses ranged from thorough explanations and outlines of programs to brief remarks irrelevant to the information desired. It was then deemed that a brief, but well-planned questionnaire would be sent to each director listing the desired information in a convenient check list outline (see appendix). In this manner a more uniform response was obtained giving answers to specific questions. Forty-eight states responded to the questionnaire and at least one reply was received from each state in response to the letters.

CHAPTER II

WILDLIFE CONSERVATION IN THE CURRICULUM OF PUBLIC SCHOOLS

At best, the data received through correspondence gives only a cursory account of the extent that wildlife conservation is being included in the curriculum of public schools. The programs in each state were described in most responses by game and fish division personnel, the director of curriculum, or the supervisor of conservation in those states in which a Conservation Education Department is established.

There was found to be a wide variation from one state to another in the amount of wildlife conservation that is included in the curriculum. This variation exists also within the school districts of a given state and even within the schools that comprise the districts.

Ten states reported that school systems within their boundaries offered conservation, which includes wildlife conservation, as a separate course of study. These include Arkansas, California, Colorado, Kansas, Michigan, North Carolina, Oregon, Pennsylvania, South Dakota, and Wisconsin. The number of schools offering a separate course was not reported in each case but reports received give an idea of the extent of the programs.

Mrs. June Brown, lecturer at the University of Michigan's School of Natural Resources, reports that there are sixty-five high schools in that state that offer conservation courses and at least two of these

schools offer two years of instruction in the subject.¹ Robert O. Ellingson of the Wisconsin Conservation Department reported that approximately forty schools offer a separate conservation course in Wisconsin.² California reports eight high schools offer such a course.³

Conservation was also reported as a separate course of study in junior high schools. Richard M. Fawley, Consultant of Conservation Education for Colorado, reports that some school districts have a separate course at the junior high level in that state.⁴ David C. Coleman of the Kansas Game and Fish Department reported that a separate course is presented in at least one junior high and one senior high school in Kansas.⁵

The integration of wildlife conservation with other subject matter in the curriculum is almost unanously acknowledged in the reports the writer received. Forty-eight states reported that the subject was integrated with subject matter either on the elementary, junior high, or high school level. Table I was compiled from the data received from the questionnaires and letters from Conservation Departments. The "Education Level Reported" column was limited to high schools only in the questionnaire and junior high and elementary levels were acknowledged by additional correspondence.

The subject matter areas and the frequency of integration will be

¹June Brown, Letter to writer, March 1, 1961.

²Robert O. Ellingson, Letter to writer, March 7, 1961.

³"Status of Conservation in California Schools." State Department of Natural Resources, Sacramento, California, June 1955, p. 18.

⁴Richard M. Fawley, Letter to writer, March 10, 1961.

⁵David C. Coleman, Letter to writer, March 1, 1961.

reported on each educational level.

Elementary Level. Most of the twenty six states acknowledging integrated conservation in the elementary courses report that elementary science is the area in which most attention is given to the subject. Social studies was the second most frequently named area with language arts, arithmetic, art, music and physical education frequently mentioned.

Junior High Level. The seventh and eighth grades only are referred to as junior high in reporting the responses. Units in junior high science were found to account for most of the conservation that is being taught. Essentially all of the states that acknowledged integrated conservation in the elementary grades extend this program into junior high school. A. R. Nestoss, Deputy Superintendent, Department of Public Instruction for North Dakota reported that conservation was especially emphasized in the seventh grade in that state by utilizing a publication prepared by their department entitled "Conservation, Soil and Water."⁶

The Conservation Education Foundation of Maine chose the junior high level for their "outdoor laboratory experience" for the teaching of conservation principles. This program will be summarized in Chapter IV in the discussion of methods for realizing conservation principles.

Senior High School Level. With the exception of Rhode Island and Hawaii, all states acknowledged integration of conservation within various subject areas of the high school curriculum. Biology was most frequently named as the area in which conservation received attention. Thirty-four states reported integrated conservation in this area. The

6A. R. Nestoss, Letter to writer, March 2, 1961.

writer agrees that this is an ideal area for integration because conservation is inseparable from the study of life and teachers of biology are generally better prepared to teach conservation.

General science was the second most often named area of integrated conservation with twenty-six states reporting that the subject receives attention in this area. The social studies areas also were frequently named. Table I reveals the frequency with which geography, history and civics were reported as areas of integration.

The integration of conservation with other subjects is believed by some authorities to be the best approach for including the subject in the curriculum. Robert R. Finlay, Supervisor of Conservation and Outdoor Education in Ohio states: ". . .we make every effort to have conservation integrated with other subjects and not to have it taught as a separate subject."⁷

Robert O. Ellingson, Education Consultant for the Wisconsin Conservation Department makes this statement: ". . .the integrated conservation unit we feel is better than a special unit."⁸

Donald L. Clauson, Director of Elementary and Secondary Schools, Minnesota Department of Education also advocates this approach: "We prefer teaching conservation as a part of other subject matter in as much as we believe that conservation is more than a subject or course."⁹

Austin F. Hamer of the Oregon Game and Fish Department shares this opinion and stated in his letter: "There are many teachers who

⁷Robert R. Finlay, Letter to writer, February 23, 1961.

⁸Robert O. Ellingson, Letter to writer, March 7, 1961.

⁹Donald L. Clauson, Letter to writer, February 28, 1961.

integrate conservation with other areas of the curriculum, and this is the way we believe it should be handled."¹⁰

The questionnaire response revealed that eight states have laws requiring that conservation be taught in the public schools. Although this might appear to be a possible solution, legislation of this nature is not advocated by many conservation authorities with whom the writer corresponded. The ineffectiveness of this approach may be in part due to the lack of a means of enforcement for such legislation or even the manner in which the law is stated. Tom L. Smith of the Montana Game and Fish, reports that a Montana state law requires that conservation be taught in the public schools but that the law neither defines conservation nor does it specify the extent or the methods that shall be employed.¹¹

The following excerpts from correspondence received reflect the opinion of some authorities on the use of legislation to include conservation in the curriculum of public schools: ". . .we do not believe this is the way to get the job done."¹²

. . .there is nothing in Oregon school law which requires that conservation be taught in Oregon schools. This is probably a good thing since relatively few teachers have any preparation which would enable them to do the job."¹³

Dr. Richard Weaver reports in his study of leadership in conservation education in state agencies a more positive point of view regarding

¹⁰Austin F. Hamer, Letter to writer, March 6, 1961.

¹¹Tom L. Smith, Letter to writer, February 20, 1961.

¹²F. Olin Capps, Letter to writer, February 28, 1961.

¹³Austin F. Hamer, Letter to writer, March 6, 1961.

the use of legislation:

In the several states where legislative requirements have influenced the state programs significantly such as Wisconsin, Montana, Indiana, Florida, Tennessee and North Dakota, positive results can be found to justify the enactments. In some other states where such enactments have not been made, equally strong programs exist. Therefore, one could say such regulations probably do not do any appreciable harm and that they may not be necessary to achieve a successful program.¹⁴

¹⁴Richard L. Weaver, *The Nature and Extent of Leadership in Conservation Education in State Agencies*, The University of Michigan, Ann Arbor, Michigan, 1958. p. 48.

TABLE I

INTEGRATION OF CONSERVATION AT VARIOUS EDUCATIONAL LEVELS

<u>State</u>	<u>State Law</u>	<u>Education Level Reported</u>	<u>Areas of Integration</u>
Alaska	0	hs	1, 2
Alabama	0	hs, jh	1,2,3
Arizona	0	hs	1,5
Arkansas	X	hs	2,3,5
California	0	hs	1,2,3,5
Colorado	0	hs, jh, ele	1,2,3,5
Connecticut	0	hs, jh, ele	Varied
Delaware	0	hs, ele	1,2,3,4,5, ele sci.
Florida	X	hs, jh, ele	2
Georgia	0	hs	2,3
Hawaii	0	reported "none"	
Idaho	0	hs, jh	1,2,3
Illinois	0	hs, jh, ele	1,2,3,4,5, ag
Indiana	0	hs, jh, ele	1,2,3,4,5, ag
Iowa	0	hs, jh	Varied
Kansas	0	hs, jh	2,3
Kentucky	X	jh, ele	jh sci
Louisiana	0	hs, jh, ele	2, varied in jh
Maine	0	jh, hs	1,2,3
Maryland	0	jh, ele	jh sci, 5th & 6th

TABLE I (Continued)

<u>State</u>	<u>State Law</u>	<u>Education Level Reported</u>	<u>Areas of Integration</u>
Massachusetts	0	hs	1,2,3
Michigan	0	hs, jh, ele	1,2,3
Minnesota	0	hs, jh, ele	not identified
Mississippi	0	hs, ele	3,4
Missouri	0	hs, ele	1,2,3,4,5
Montana	X	hs, ele	1,2,3,4,5
Nebraska	0	hs, jh, ele	2
Nevada	0	hs	2,3
New Hampshire	0	hs, ele	1,2,3
New Jersey	0	hs, jh, ele	not identified
New Mexico	0	hs	2,3
New York	0	hs	Varied
North Carolina	0	hs, jh, ele	1,2,3,4,5
North Dakota	X	hs, jh, ele	1,2,3,4,5
Ohio	X	hs, jh	Varied
Oklahoma		hs	2,5
Oregon	0	hs, jh, ele	1,2,3,4,5
Pennsylvania	0	hs, jh, ele	1,2
Rhode Island	0	reported "none"	
South Carolina	0	hs	1,2
South Dakota	0	hs, ele	2,3
Tennessee	X	hs, jh, ele	2,3
Texas	0	hs, ele	1,2,3,4,5
Utah	0	hs, jh	Varied

TABLE I (Continued)

<u>State</u>	<u>State Law</u>	<u>Education Level Reported</u>	<u>Areas of Integration</u>
Vermont	0	hs	1,2,3
Virginia	0	hs, jh	1,2,3,4,5
Washington	0	hs, jh, ele	1,2,3,4,5
West Virginia	0	hs, jh, ele	Not reported
Wisconsin	X	hs, jh, ele	1,2,3,4,5

Legend: 1 - History

2 - Biology

3 - General Science

4 - Civics

5 - Geography

CHAPTER III

WILDLIFE CONSERVATION PRINCIPLES

In order to determine the wildlife conservation principles that are being emphasized, the writer asked his correspondants to list the principles that they felt were most significant of Game and Fish Divisions. Four respondents replied with letters listing principles that they considered basic to the teaching of wildlife conservation while twenty-one states forwarded teaching guides, handbooks and materials for analysis. Some respondents avoided the issue in their replies with amazing finesse. The writer decided that the best procedure for presenting the findings was to survey the material received and report the principles that appeared most frequently in the literature and state the frequency of occurrence. These are listed as follows:

1. Society needs laws which protect and preserve its wildlife resources for the common good. (18)

2. The number of wildlife depends on the food, cover, and water available. (15)

3. Man must learn to manage, control, and replace the wildlife resources which contribute to his abundance and enjoyment of living. (16)

4. Success in managing land to produce useful wildlife lies in improving the amount, quality and distribution of food, cover and water (habitat improvement). (20)

5. Wildlife is valuable
 - A. Recreational value. (12)
 - B. Aesthetic value. (10)
 - C. Food value. (6)
 - D. Fur value. (6)
 - E. Seed dispersal and pollination of plant species. (5)
6. The carrying capacity of the environment for a particular species of wildlife is limited. (11)
7. The surplus must be removed naturally or by man if the environment is to be maintained and the species is to survive (Harvest is necessary). (10)
8. A suitable habitat is necessary. (10)
9. Wildlife is a living, and thus a renewable natural resource. (9)
10. Wildlife in this country is public property, but public ownership does not confer the right to hunt or fish on private lands. (9)
11. Wildlife conservation is inseparably linked with the conservation of soil, water, and plants. (12)
12. Man disturbs the balance of nature. (10)
13. National, state and private wildlife refuges and other reserves are important in protecting the wildlife population. (8)
14. Birds are an important factor in reducing the number of plant and animal pests. (8)
15. Some species of wildlife under certain conditions become harmful to man. (7)

The preceding constitutes the most frequently named principles appearing in the literature received by the writer. This represents

merely a sample of concepts and a survey of a larger amount of material could easily present a different picture particularly in regard to the frequency with which the principles appear in teaching guides and handbooks. Often the same principles was found many times within one teaching guide and stated in a different manner each time. The writer counted the principles only once regardless of how many times they were stated in a single source.

The following principles were found in at least five sources and are deemed worthy of inclusion in this report:

1. A great deal of skill and understanding of habits of animals is necessary to become better acquainted with wildlife.
2. Certain wildlife resources can be restored; many cannot be.
3. Winter feeding is important in many areas where the food is scarce.
4. Wildlife is susceptible to disease and parasites.
5. Some wildlife species can, within limits, adapt themselves to a changing environment; others cannot.
6. The understanding of food chains is basic to the management of wildlife.
7. Spring and fall burning of nesting grounds by man is a common destructive practice.
8. Wildlife is not a crop which can be saved and stockpiled over a period of years with the expectation of a "bumper crop" at the end of the period.
9. All species of wildlife are directly or indirectly dependent upon water and plant life.

10. Some species of wildlife are cyclic and some are migratory.

The writer has listed the principles as they appeared in the guides and handbooks surveyed. Most of these publications covered several areas of conservation with a section devoted to wildlife. The above principles represent a summary of the opinions of only half of the states; however, it is believed that the non reporting states probably emphasized the same principles. Although some teaching materials were received from practically every state, it was not possible to determine principles from a considerable amount of the materials because of the nature of the materials. In many cases the literature surveyed implied various principles of wildlife conservation but implications are not reported herein.

This data is significant in that many of the principles are agreed upon by a majority of sources. The five most frequently stated principles appeared in seventy-five per cent of the literature surveyed. Of the fifteen most frequently stated principles, ten of these were found in fifty per cent of the publications surveyed. This is an indication of the agreement upon principles that are considered basic to the teaching of wildlife conservation. The writer will make no attempt to evaluate or elaborate upon these principles. To endeavor such an undertaking is far beyond the experience of the writer. He did, however, consult several textbooks on wildlife management to determine whether these principles were expressed by the authors. Although most were readily found throughout the content, a listing of principles, as such, was not found in any of the texts that were consulted.

CHAPTER IV

METHODS BY WHICH WILDLIFE CONSERVATION PRINCIPLES ARE REALIZED

Teacher Training Programs. The use of teacher training programs was unanimously advocated as one of the main approaches to the realization of conservation principles. The questionnaire response revealed that forty-five states conducted summer workshops or in-service training programs in conservation for teachers. Some of these are conducted by Game and Fish commissions but the majority are conducted in the state universities and colleges by personnel of those institutions. Dr. Richard Weaver confirms the teacher training approach in his report:

State leadership should be channeled into helping teachers and administrators design suitable instructional programs and execute them with the personnel of the school system. Therefore in states such as Missouri, Wisconsin, Illinois, Michigan, California, New Hampshire, Florida, Tennessee, and Ohio, where the emphasis has been on teacher training and consultant help for adults, stronger programs are likely to result and be maintained.¹⁵

Most of the summer workshops described in letters received enable teachers and prospective teachers to earn graduate or undergraduate credits. One such program was described by John H. Behrens, Supervisor of Conservation Education for Illinois Department of Education:

¹⁵Richard L. Weaver, The Nature and Extent of Leadership in Conservation Education in State Agencies, The University of Michigan, Ann Arbor, Michigan, 1958. p. 48.

Courses for in-service training for Illinois school teachers are given by various state universities for credit. All the state universities have participated in this program. Last year thirteen courses were held at the various attendance centers. Enrollments varied from fifteen to forty. We will have ten or twelve courses this year. They range from two to four weeks in length and carrying varying degrees of credit hours. Some are given for graduate credit.¹⁶

Two states, New Mexico and Wisconsin, reported that statutes require that their teachers be instructed in the conservation of natural resources prior to the issuing of a teaching certificate. There are possibly other states unknown to the writer with legislation such as this. Such statutes will insure that conservation course work will be included in the curriculum of all the teacher training institutions within that state. Robert R. Bowers of the West Virginia Conservation Commission reported that West Virginia University also requires conservation course work for students planning to teach.¹⁷

Programs Presented in Schools by Conservation Personnel. All of the forty-eight respondents to the questionnaire reported that conservation personnel presented programs in the schools. The extent of this type of participation varies widely from state to state and depends largely on the personnel available for this service.

The types of programs presented in the school are variable. They may be in the form of lectures, exhibits, or films and often a combination of these methods. Some are presented as assembly programs for the entire school while others are designed for specific classes. Programs are also presented to school connected organizations such as the Future

¹⁶John H. Behren, Letter to writer, March 2, 1961.

¹⁷Robert R. Bowers, Letter to writer, February 24, 1961.

Farmers of America, 4-H Clubs, Science Clubs and many other organizations.

Although this approach to teaching the principles of conservation undoubtedly has its merits, its effectiveness is questioned by some authorities. Frank Calkins, Educational Representative of Utah Game and Fish reports:

For many years Utah has presented wildlife programs in the schools throughout the state. We began by making annual visits and showing wildlife films on our visits. With the terrific increase in population, showing films has proven to be inefficient as we believe all we are doing is entertaining the children once a year.¹⁸

Dr. Weaver also questions too much emphasis on this approach in his report:

This does not mean that there is not real merit and value in such programs of school visitation and lectures as currently are conducted in such states as Oregon, Washington, Idaho, Montana, Georgia, Arkansas and Virginia, but an equal amount of effort and time spent with teachers would multiply the results geometrically and astronomically.¹⁹

Special Programs. Another approach to the development of conservation principles for school children is the special program sponsored by state agencies as well as local, state and national conservation organizations. Several such programs were described in letters which the writer received from state agencies and a summary of the more impressive one will be presented.

Franklin A. Downie, Director of Conservation Education for Maine describes a successful outdoor laboratory experience for youngsters in that state:

During the spring of 1960, an eighth grade class from Winthrop,

¹⁸Frank Calkins, Letter to writer, February 21, 1961.

¹⁹Weaver, p. 9.

and a seventh grade group from Waterville, were taken from their regular school environment, and transported to Maine's Conservation School, at Bryant Pond, Maine. Here, they went to school, but books, desks, recess, and bells were missing. These young people had the outdoors as their classroom. The curriculum offered was also of a different nature. In the place of English, arithmetic, science, social studies, etc., Conservation of our Natural Resources was the subject matter. Instead of one teacher, they had ten. There was no homework, as we normally think of it. The school day was from 8:30-11:45 a.m., 1:30-4:30 p.m., and from 7:00-9:00 p.m., and there were no complaints, as this was something new and different.

Instruction for these young people came from State Resource Agencies, who sent some of their top specialists to the campus to do the teaching. The youngsters received instruction in Forestry, Fish, Game, Agriculture, and Soil Conservation. They were most attentive, eager to learn, and filled with questions. Their enthusiasm was matched by their school administrators to such an extent that we are of the opinion that this type of outdoor experience will be a continuing thing here in Maine, with school classes from different communities being afforded a similar experience in the years to come.²⁰

Russell W. Hupe, Special Services Representative for the Washington Department of Game also states success with this type of program:

A number of schools are now taking their youngsters into the out-of-doors for week long conservation camps. Some 16,000 youngsters participated in conservation field days in this state last year. Both of the programs are building and each year more youngsters are included.²¹

Another similar program was described by Austin F. Hamer of Oregon State Game Commission:

In several counties, conservation tours are becoming popular. The sixth grade participates in a field trip to a selected area where about six or seven stations have been set up to demonstrate a specific aspect of conservation.²²

Essay contests have proven a successful method for the realization of conservation principles in some states. Joseph J. Shomon, Chief of

²⁰Franklin A. Downie, Letter to writer, February 17, 1961.

²¹Russell W. Hupe, Letter to the writer, March 24, 1961.

²²Austin F. Hamer, Letter to the writer, March 6, 1961.

Education for Virginia Commission of Game and Inland Fisheries, reports values of this approach:

Our Commission has an eminently successful conservation education essay contest sponsored jointly by the Virginia Division of the Izaak Walton League of America and our agency, wherein the State Department of Education actively cooperates. The contest is open to all schools in Virginia, grades five through twelve, and during the past fourteen years of the contest some 200,000 boys and girls have been indoctrinated in conservation principles as a result of their participation in the contest.²³

E. Kliess Brown Chief of Information and Education for the Idaho Fish and Game Commission, reports similar success with this approach:

The essay contest that has been going on for several years still receives a lot of attention throughout the various schools of the state both in junior high and high school levels. To assist in the essay contests, conservation education material is distributed to the various schools for the use of the essay writers and teachers.²⁴

The use of programs such as the outdoor laboratory experience and the essay contests are no doubt having a profound impact in creating an awareness of and an appreciation for conservation in our schools. The writer believes our nation needs more programs such as these.

Conservation Department Publications. The questionnaire response revealed that all forty eight of the states reporting provided conservation literature upon request for the teaching of conservation in the public schools. Some Conservation Departments are very prolific in responding to requests for such materials. This was well illustrated by the volume of materials received by the writer in the preparation of this paper.

Most conservation departments publish a monthly or bimonthly magazine which is forwarded to the school libraries throughout the state.

²³Joseph J. Shoman, Letter to the writer, February 17, 1961.

²⁴E. Kliess Brown, Letter to the writer, February 20, 1961.

This publication often contains excellent conservation teaching materials and is used as a reference by teachers who wish to integrate conservation with other subject matter.

Some Game and Fish Divisions also prepare or assist in the preparation of outline and guides for the teaching of wildlife conservation. These are usually written in conjunction with the Department of Education and are made available upon request by teachers. Doctor Weaver reported that the states of West Virginia, New Hampshire, New York, California, North Dakota, South Dakota, Oregon, Virginia and Nebraska have published noteworthy recent guides.²⁵

Bulletins and leaflets on individuals species were received by the writer from a number of states. If properly utilized, some of these make excellent teaching aids and are made available to school teachers simply by request.

Up to this point, the writer has painted a pretty picture in regards to the availability of conservation literature. It was also reported in correspondence received that budget limitations restrict the number of publications that can be made available for distribution. Some departments do not supply literature on a free basis to out-of-state requests.

The literature made available by game and fish divisions undoubtedly has real merit and value in the realization of conservation principles. Doctor Weaver advocated this approach in his report in these lines:

All states desirous of directly influencing the school programs eventually need an adequate set of bulletins which will give information about the resources of the state, help teachers identify and use

²⁵Weaver, p. 49.

the most efficient methods of teaching about resources and help new leaders find ways of influencing others to undertake action programs.²⁶

This chapter has presented some of the methods employed for the achievement of wildlife conservation goals. It is beyond the scope of this report and the experience of the writer to determine the most effective methods or the methods that give the greatest conservation returns for the investment. All of the programs have their merits and limitations. The population "boom" of the present time necessitates that methods be employed which will influence the largest number of people. Teacher training probably offers the most practical method of conservation indoctrination prescribed for handling the vast number of children in our public schools today.

²⁶Weaver, p. 48.

CHAPTER V

SUMMARY AND CONCLUSIONS

Approximately one-hundred and seventy-five responses were received in preparation for this report. Letters and questionnaires account for the largest number of replies. The questionnaire was completed and returned by the directors of game and fish departments in forty-eight states. Teaching guides, handbooks, and outlines were surveyed from twenty-one states and at least one letter was received from each state.

The data revealed that conservation, including wildlife conservation is taught as a separate course of study in a relatively small number of schools in ten states. Most of the conservation instruction is effected by integration with other subject matter. Wildlife conservation was reported to receive the most attention in high school biology, general science and the social studies areas of history, geography and civics.

The majority of the conservation educators responding to the letters advocated the integration approach rather than a separate course for the teaching of conservation. The writer was somewhat surprised at this point of view, having assumed that the establishment of a separate course of study would be the ultimate aim of the conservation educator.

A survey of the teaching guides and handbooks was made in order to determine the principles that wildlife conservation educators consider basic to the teaching of wildlife conservation. There is wide-

spread agreement that the following principles are of sufficient importance that they warrant emphasis in any program of instruction in the field of wildlife conservation:

1. Society needs laws which protect and preserve its wildlife resources for the common good.

2. The number of wildlife depends on the food, cover, and water available.

3. Man must learn to manage control and replace the wildlife resources which contribute to his abundance and enjoyment of living.

4. Success in managing land to produce useful wildlife lies in improving the amount, quality, and distribution of food, cover and water (habitat improvement).

5. Wildlife is valuable.

6. The carrying capacity of the environment for a particular species of wildlife is limited.

7. Wildlife is a living, and thus a renewable natural resource.

8. The surplus must be removed naturally or by man if the environment is to be maintained and the species is to survive (harvest is necessary).

9. Wildlife conservation is inseparably linked with the conservation of soil, water, and plants.

10. Man disturbs the balance of nature.

The five most frequently stated principles appeared in seventy-five per cent of the literature surveyed. The ten most frequently stated principles contained in the above list, appeared in half of the teaching guides and handbooks that were surveyed.

Successful methods for introducing wildlife conservation principles into the public schools have included:

1. Outdoor workshops in conservation for both teachers and pupils.
2. The integration of conservation materials into high school and junior high school courses, particularly biology, general science and social studies.
3. Essay contests conservation problems.
4. Presentation of films, talks, and demonstrations by representatives of conservation agencies.
5. A variety of special outdoor laboratory experiences that demonstrate specific aspects of conservation.
6. The use of free teaching aids and materials published by the conservation agencies.

805 Eskridge Street
Stillwater, Oklahoma
March 8, 1961

Director of Game and Fish
Department of Conservation
Albany, New York

Dear Sir:

Many thanks for your reply to my inquiry concerning Wildlife Conservation in the curriculum of public schools.

The following statements are to be compiled into a chart as a part of my report. Please check the items and return to me.

- _____ There is a State Law requiring the teaching of Conservation in your State.
- _____ Consultant services are available to schools and colleges.
- _____ Conservation literature is provided upon request.
- _____ Summer Workshops in Conservation are provided for teachers.
- _____ Conservation personnel present programs in the public schools.

Underline the study areas in which Wildlife Conservation is taught:

1. History 2. Biology 3. General Science 4. Civics
5. Geography 6. Other

Your assistance will be greatly appreciated in this report.

Sincerely,

Seth E. Brown

VITA

Seth Edsel Brown

Candidate for the Degree of

Master of Science

Report: AN INQUIRY INTO THE STATUS OF WILDLIFE CONSERVATION IN THE
PUBLIC SCHOOLS

Major Field: Natural Science

Biographical:

Personal Data: Born in Mount Pleasant, Tennessee, December 22,
1929, the son of Seth R. and Annie Pollock Brown.

Education: Attended grade school in Mount Pleasant, Tennessee;
graduated from Hay Long High School in 1948; received the
Bachelor of Science degree from Middle Tennessee State
College, with a major in Biology in August, 1955; completed
requirements for the Master of Science degree in May, 1961.

Professional experience: Entered the United States Navy in 1948,
and is now a Chief Petty Officer in the Active Naval Re-
serve; taught high school Science and Industrial Arts in
the Nashville City Schools from September, 1955 through
May, 1960.