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A SURVEY OF EXTENSION WORK IN WILDLIFE MANAGEMENT AND THE
DEVELOPMENT OF A GUIDE TO WILDLIFE EXTENSION WORK IN UTAH

by

Edwin V. Rawley

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

WILDLIFE MANAGEMENT

UTAH STATE AGRICULTURAL COLLEGE
Logan, Utah

1952

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INTRODUCTION

The most efficient wildlife research programs and the most satisfactory methods of applying their results are greatly enhanced if the information is presented in such an interesting and understandable manner that it becomes of practical value to the people. Extension education has the function of translating the results of research into usable form and presenting it to the people.

The development of a wildlife extension program is based on the needs of the people, and the various phases of the program are designed to meet and solve wildlife problems confronting the people.

PURPOSES OF STUDY

The purposes of this study are:

1. To determine the possible need for a wildlife extension program in Utah.
2. To determine the extent of national need for wildlife extension work.
3. To summarize the extension programs in states now having a wildlife extension service.
4. To develop a guide to wildlife extension work in Utah.

SCOPE OF STUDY

The personal interview survey of wildlife problems existing in Utah was conducted in Cache County, Utah.

Cache County has most of the forms of wildlife found in the state and is well represented with organizations concerned with wildlife management.

Forms of wildlife found in Cache County include:

1. big game; 2. upland game; 3. waterfowl; 4. predators;
5. fur bearers; 6. small game; 7. rodents; and 8. pond, stream, and lake fishes.

Some of the organizations interested in wildlife and represented in Cache County are: 1. locker plant associations; 2. farm groups; 3. fur dealers' associations; 4. fur breeders' associations; 5. commercial fish hatcheries; 6. by-products associations; 7. youth groups; 8. sportsmen's groups; and 9. livestock interests.

To obtain an overall picture of wildlife problems existing in the state and to determine the possible need for a wildlife extension specialist, questionnaires were sent to the 28 county agents of the Utah Extension Service staff. For the same purposes, questionnaires were also sent to representatives of state sportsmen's organizations, state livestock organizations, the regional office of the United States Forest Service, the Utah Fish and Game Department, and the State Farm Federation.

To determine the extent of a national need for wildlife extension work, questionnaires were sent to the directors of the 48 state extension services and to representatives of national organizations concerned with the conservation of wildlife.

A summary of wildlife extension programs in other states was made through a survey of literature and through correspondence with wildlife extension specialists in those states having wildlife extension services. This same information was used in the development of a guide to wildlife extension work in Utah.

ECONOMIC IMPORTANCE OF WILDLIFE

A knowledge of the economic values of wildlife is desirable to justify a study of the possible need for wildlife extension specialists.

Many attempts have been made to exploit America's natural resources for personal profit. The most dangerous periods for such attempts to be successful have been during wartime when it became necessary to utilize natural resources in the defense of the nation.

Conservationists and sportsmen are continually fighting to conserve America's natural resources to prevent destructive exploitation of its natural wealth that eventually would result in a disrupted national economy.

Outdoorsmen are often referred to as sentimentalists and dreamers, with the implication being that their spending is of no economic importance. However, sportsmen spent nearly \$4,000,000,000 on hunting and fishing in 1947. According to United States Department of Commerce records for 1947, this amount exceeded the income of all retail drug stores, was equal to 4 times the income of all jewelry stores, and was more than double retail

liquor sales. The amount spent by sportsmen was double the value of all hogs on farms and 8 times the reported value of all sheep in the nation in 1947.

According to a survey sponsored jointly by the Wildlife Management Institute and the Izaak Walton League, the amount spent for hunting and fishing in 1949 approached \$10,000,000,000.

The volume of sportsman business during 1949 was equal to that of all filling stations, liquor, and jewelry businesses combined.

United States Department of Agriculture records for 1949 showed that the income from hogs and cattle was \$8,558,000,000, or about 85 percent as large as the sportsman business.

The above statistics were taken from an article by Carhart (1951). Table 1 shows further comparisons between sportsman spending and amounts spent for other commodities.

The products of wildlife such as meat, hides, fats, bones, furs, perfumes, and fertilizers are worth billions of dollars each year. The value of commercial food fishes was set at approximately \$50,000,000 annually by Reese (1942). Income from the raw fur trade is about \$97,000,000 each year.

Many wildlife forms have great aesthetic value, and the activities of other forms help to improve soil and to control injurious plant and animal life. It was stated by Graham (1947) that the annual value of wildlife averages

18 cents per acre merely for destruction of insects and other agricultural pests. It is impossible to measure the aesthetic value of wildlife in dollar terms.

It is evident from the foregoing information that wildlife as a natural resource is a vital part of the national economy.

Table 1. Comparisons between sportsman spending and amounts spent for other commodities, 1949*

Commodity	Amount
Sportsman Business	\$10,000,000,000
Filling Stations	6,363,000,000
Building Materials	6,020,000,000
Cattle and Calves	4,814,000,000
Women's Apparel and Accessories	4,193,000,000
Dairy Products	3,781,000,000
Furniture and Home Furnishings	3,744,000,000
Drug Stores	3,605,000,000
Hogs	3,226,000,000
Poultry and Eggs	3,038,000,000
Household Appliances and Radios	2,793,000,000
Food Grains	2,346,000,000
Men's Clothing and Furnishings	2,223,000,000
Feed Grains and Hay	2,198,000,000
Hardware	2,088,000,000
Vegetables	1,817,000,000
Liquor	1,760,000,000
Automobile Parts and Accessories	1,643,000,000
Dry Goods and Other General Merchandise	1,509,000,000
Shoes	1,478,000,000
Farm Implements	1,401,000,000
Fruits and Tree Nuts	1,123,000,000
Jewelry	1,100,000,000
Sheep and Lambs	355,000,000
Wool	107,000,000

*Source: Statistical Abstracts of the United States, 1951

REVIEW OF LITERATURE

Gabrielson (1951) stated that an informed and interested rural population is vital to the success of wildlife management programs, and that wildlife extension education is badly needed if conservation material is to reach a large and important segment of the rural population. Gabrielson also stated that if a sound wildlife extension program

" . . . could be outlined and instituted on the major agricultural and grazing regions, the results would be spectacular. The fact that, in the light of present knowledge, a perfect program cannot be drafted is no valid argument against drafting and starting the soundest possible program now."

He further stated that the most efficient wildlife research programs and the most satisfactory methods of applying their results are greatly enhanced if the information is presented to the landowner in such an interesting and understandable manner that he applies it to his land.

The importance of getting the results of wildlife research to land managers was again expressed by Gabrielson (1944) when he stated that:

"In addition to a sound and continuous program of research, we need something which is not now available in the wildlife field, and that is a method of getting the results of research in the hands of private individuals and organizations that are managing lands. In other words, we need an extension service"

With regard to the size of operation of a wildlife extension service, Gabrielson (1945) had the following to say:

" . . . I do not visualize a great extension machine comparable to the Extension Service in the Department of Agriculture Rather I have visualized a small corps of specialists, organized cooperatively by the Fish and Wildlife Service and the State conservation groups, which will be sufficiently well trained to translate into local terms the general information and research results that are now available."

Gabrielson (1941a) stressed the importance of farm people to wildlife management when he addressed the Fifth North American Wildlife Conference in 1940. He stated:

"We have no way of disseminating information about improvements in wildlife management to make sure that it will reach those who should have it and who are the only ones who can put it into practice -- the farmers.

"The farmer can be the most important individual in the whole field of wildlife conservation. He owns the land on which the game grows and he has the means of providing suitable natural conditions. He is interested in wildlife and would like to know what he can do to produce it in conjunction with the regular farming operations. His chief difficulty is in finding out what he may do at a reasonable cost and we, as wildlife technicians and administrators, have no adequate way of getting this information to him.

"My suggestion is that we secure congressional authority and adequate funds to provide Wildlife Extension Specialists, if we may call them that, to work with the Extension Service, the Soil Conservation Service, the state conservation commissions, the 4-H Clubs, the Future Farmers of America, the sportsmen, and any and all other groups who have the facilities to spread sound information to the landowners. In that way the needs of wildlife may be considered in every land-use program and the results of the studies made by our research and technical workers may be available to all who can or will use them."

Gabrielson (1941b) again expressed the need for congressional consideration of wildlife extension work when he stated that:

"There should be legislation and appropriations to give wildlife agencies the same advantages in the way of extension and educational services as are now available in agriculture and forestry. It has been proved conclusively that actual demonstration through personal contact between extension agencies and the people on the land is the most effective way of translating the results of agricultural research into action on the farms of the country. Until we have some sort of medium for making our information fully available to those who are in position to use it, progress in carrying out our programs will be slow."

Bode (1937) stated that as far as the individual states are concerned there is

" . . . a need for centering leadership and responsibility for carrying on wildlife conservation and restoration. Demand for the work is growing in every state, and no doubt the ultimate solution for the assignment of such responsibility will be the establishment of a full time extension specialist in this field in each state."

Warburton (1939) stated that a large part of the solution of wildlife conservation problems rested with the private landowners and operators and that it needed now to be crystallized in policies and activities. He stated that:

"With these things in mind, a beginning has been made in the appointment of wildlife extension specialists in Texas, Iowa and Michigan.

Hochbaum (1941) expressed the need for wildlife specialists to localize national programs when he stated:

"The extension agent translates the national and state programs into terms of local significance and helps to apply them to local situations. This need of education is one great problem that will ever be with us in the field of wildlife conservation."

The need for wildlife extension specialists to work in cooperation with federal and state wildlife agencies was stressed by Cottam (1951). He said:

"We need an extension service for wildlife in connection with and as a part of the Agricultural Extension Service but with technical guidance and the closest possible cooperation with the federal and state wildlife agencies."

In speaking about wildlife extension specialists, Smith (1937) said:

"The organization needed to utilize most effectively part of the time of these extension agents in promoting the restoration and conservation of wildlife would seem to be two or three agents in the Federal Extension Service, cooperating with the Bureau of Biological Survey and the Forest Service, and employed to give their whole time in promoting this work through the State and county extension services.

"There should also be one or more persons in every State Extension Service to help State extension forces understand the significance of the work in every county, and assist in its organization and development, and to work through the State and county extension organization in the most effective way."

Black (1949) stated that the task of locating and servicing farmers naturally sympathetic to wildlife is staggering. Yet farmland use is one of the most important factors determining or limiting wildlife production. The formidable obstacle of reaching those unconcerned with wildlife or actually hostile to it and getting them to appreciate and understand wildlife conservation objectives may seem almost insurmountable according to Black. He expressed the opinion that the challenge to wildlife people today lies in rural conservation education.

Weaver (1949) said:

"We need wildlife extension specialists to work with rural people and to help them with their problems, many of which are not centered on wildlife but which would improve our wildlife populations indirectly."

Roszman (1949) stated that many states have no agency to coordinate or put into the hands of landowners the information obtained by wildlife research. He said:

"Those in authority in Ohio realized this weakness in the conservation education program and created a new section known as the Wildlife Conservation Extension Service."

Bennett (1949) voiced support of a wildlife extension program by the Fish and Wildlife Service when he stated:

"The Fish and Wildlife Service stands ready to aid in sponsoring rural conservation education, particularly through the National and State Extension Services. At present there are about seven states that have wildlife specialists on their extension staffs. There is need for an extension specialist at the national level. All states can have this service if the 48 State Extension Services get together and request it. . . . there is machinery provided in a formal Memorandum of Understanding between the two Services for wildlife extension work. The demand for such a program, however, must come from a unified desire on the part of the states if such a program is to materialize."

Campbell (1949) expressed the opinion that the wildlife conservation education approach should be through the Agricultural Extension Service.

McCullough (1945) emphasized the importance of carrying wildlife conservation education through the Extension Service when he said:

"Ten years of experience working with and through the Extension Service . . . have definitely convinced me of the need for an additional specialist to be attached to that force If such a specialist is well trained in game management and has a thorough understanding of agricultural practices and problems, much would be accomplished through a broad correlated program which would be beneficial to both the land and wildlife.

"It has been suggested . . . the state department of game and fish might . . . control and direct the activities of the proposed wildlife extension specialist. . . . with all due credit, and without prejudice, no agency has the prestige with the rural people equal to that of the Extension Service."

Orton (1949) also expressed the importance of working through the Extension Service when he stated that:

"The Agricultural Extension Service with its far-flung empire in almost every county in the United States, is the best organized educational agency to reach the rural population. Its influence is tremendous when it underwrites any program. Furthermore, it deals almost wholly with landowners who are the largest single group directly concerned with terrestrial wildlife. The Extension Service has been sympathetic to parts of the program (of wildlife conservation) in some states, but it has not yet felt that it could divert its funds and influence to wildlife programs not based on proved grounds. Here . . . progress is thwarted by a lack of factual information which research can supply."

Macleod (1946) stated that there is the need for education through the Extension Service on proper methods of trapping and handling furs for the raw fur market by farmers and farm boys.

Hamilton (1946) also expressed this need when he said:

"If . . . Extension Services . . . would give more publicity . . . and proper advice to

the young trapper of the country, considerable additional money would be taken in by the farm trapper."

The importance of wildlife education to the youth of the nation through the schools, 4-H clubs, Future Farmers of America and Boy Scouts of America was further emphasized by Gabrielson (1945), Flicek (1937), and McCullough (1945).

Year after year more individuals and agencies recognize the need for wildlife extension work through the agricultural extension services.

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HISTORY OF WILDLIFE EXTENSION WORK

A summary of conservation activity for 1935 made by the U. S. Extension Service showed that 18 states were carrying on some phase of extension activity in wildlife conservation.

The limited work undertaken in the wildlife field by extension forces prior to 1936 was largely through 4-H clubs and chiefly in the 11 states of Illinois, Iowa, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, West Virginia, and Wisconsin.

The first full time extension specialist in wildlife conservation was appointed in 1936 by the Texas Extension Service. In that same year a wildlife extension specialist was added to the Iowa Extension Service staff.

Early in 1937 the Extension Service of the United States Department of Agriculture established a subject matter group in wildlife restoration. This called for the appointment of a specialist to assist state extension services and various workers in planning and carrying out wildlife conservation projects. This wildlife specialist cooperated with the Biological Survey (later the Fish and Wildlife Service) in making available to the states information on wildlife developed by the survey. The position was held by I. T. Bode and lasted through 1937 and 1938.

In 1937 the position of extension specialist in game management was created in Michigan under a cooperative

agreement between Michigan State College's Cooperative Extension Service and the Game Division of the Michigan Conservation Department. Under the agreement the Michigan Conservation Department provided for the project leader's salary and Michigan State College paid for travel, stenographic help and office supplies. This position still existed in 1952.

A fish and wildlife specialist was added to the staff of the Alabama Extension Service of the Alabama Polytechnic Institute at Auburn, Alabama, in 1937.

On September 2, 1937, Congress approved the Pittman-Robertson Act, known as the Federal Aid in Wildlife Restoration Act, which provided funds for furthering wildlife conservation and restoration. When the bill was in its embryonic stages, an unsuccessful attempt was made to add an amendment that would have provided for a wildlife extension specialist for each land-grant college staff.

Through the efforts of Dr. Ira N. Gabrielson and others, bill S. 1060 was introduced in the Congress by Senator Clark of Missouri in 1944. This bill was not passed by the Congress. It would have authorized the use by the Fish and Wildlife Service of the unexpended and unobligated balances of the Federal Aid in Wildlife Restoration fund for setting up a wildlife extension service for getting the results of research into the hands of private individuals and organizations. It

would have provided that the amount expended by the Federal Government would be 75 percent of the cost of the program and that the balance would be defrayed by state agencies.

Similar bills were introduced on several occasions and passed one or the other House of Congress but never succeeded in getting through both houses in any one session.

West Virginia University added a part-time extension specialist in wildlife management to its Extension Service staff in 1941.

On March 7, 1946, a cooperative agreement between the Fish and Wildlife Service of the U. S. Department of the Interior and the Extension Service of the U. S. Department of Agriculture was signed by the director of the Fish and Wildlife Service and the director of extension work.

The agreement was approved by the acting Secretary of the Interior and the Secretary of Agriculture. It provided for the establishment of a cooperative extension program in wildlife and fisheries between the two services to develop a better understanding and appreciation of fish and wildlife resources as a permanent part of agriculture and to stress the importance of fish and wildlife resources in land management policies in both state and federal activities. It became a standing agreement that would provide for a federal wildlife specialist to work

with state specialists, if funds were made available.

In July, 1947, Pennsylvania State College added a wildlife specialist to its Extension Service staff.

The Georgia Extension Service employed a wildlife specialist in 1947 and 1948. After 1948 the wildlife extension problems in Georgia were handled by the 4-H leader and the extension forester.

The position of extension specialist in wildlife was established at Cornell University in New York State in June, 1949. Prior to that time two members of the resident teaching staff had been handling requests for information and doing some field extension work.

On July 16, 1951, a wildlife specialist was employed by the state of Ohio. The project of extension education in wildlife management and conservation was based on a memorandum of understanding between the Ohio Agricultural Extension Service and the Ohio Division of Wildlife, Department of Natural Resources.

In Oklahoma the office of extension wildlife specialist was created January 1, 1952, as a result of a cooperative project between the Oklahoma Extension Service and the Oklahoma Game and Fish Department with each agency providing half of the funds to cover costs of the project.

In February, 1952, there were 9 states having wildlife extension specialists. They were Texas, Iowa, Alabama, Michigan, West Virginia, Pennsylvania, New York, Oklahoma,

and Ohio.

In 1952 other states were carrying on wildlife education through the 4-H clubs. These states included Florida, Kentucky, Louisiana, and Nebraska.

Many other states were also carrying on some phase of wildlife extension work but to a lesser degree.

METHODS OF PROCEDURE

SURVEY OF UTAH'S NEED FOR A WILDLIFE SPECIALIST

The method of survey to determine the possible need for a wildlife extension specialist in the state of Utah was made through the use of the personal interview and the questionnaire.

Personal Interview

Farmers constituted the major basis for the personal interview survey because wildlife is considered as a crop of the land and the operators of the land are regarded as the producers. Another reason was that one of the main objectives of the Extension Service is to initiate rural programs that will contribute to the individual development and collective welfare of rural people, and that such programs are approached from the standpoint of problems of rural people.

A list of 85 farmers in 21 communities of Cache County was obtained from J. R. Quayle, Cache Valley Field Representative of The Borden Company. The list was selective to the extent that it included a cross section of the major types of farming in the county.

The communities in which farmers were interviewed were:

1. Clarkston
2. Cornish
3. Newton
4. Trenton

5. Lewiston
6. Cove
7. Richmond
8. Amalga
9. Smithfield
10. Benson
11. Hyde Park
12. North Logan
13. Logan
14. Mendon
15. College Ward
16. Wellsville
17. Providence
18. Millville
19. Hyrum
20. Paradise
21. Avon

In order to maintain continuity when making the farm interviews a form was designed so that the same questions would be asked of each landowner (exhibit 1). The interviews were conducted in a conversational manner. No attempt was made to fill out the form during the interview, however, a form was filled out immediately after each interview was completed.

The first 2 questions on the form were designed to find out how many of the farmers interviewed were familiar with the Extension Service and to what extent they utilized

Exhibit 1. Form used for farmer interview survey in
Cache County, Utah

FARM SURVEY -- INTERVIEW

1. Have you ever received aid from the extension service?

Yes _____ No _____

2. If "yes", direct _____ or indirect _____?

3. Do you have problems that a wildlife extension specialist could assist you with?

Yes _____ No _____

4. If "yes", what problems in particular?

- Deer damage
 Rabbit damage
 Rodent damage
 Gophers
 Rats
 Muskrats
 Field mice
 Other (_____)
 Beaver damage
 Bird damage
 Pheasants
 Hawks and owls
 Sparrows
 Ducks and geese
 Other (_____)
 Skunk damage
 Aid with fish pond development
 Aid with marsh development
 Other (_____)

its facilities. The interviews were started with a discussion of the Extension Service and its activities to gain the confidence of the farmers through the prestige that the Extension Service has acquired among rural people.

In addition to the 85 farmer interviews, 23 interviews were made which included 5 sportsmen; 2 fur dealers; 3 youth leaders; and operators of 3 fur farms, 3 nurseries, 2 fish hatcheries, and 5 locker plants. Because of the diversified interests of this second group, no survey form was used in the interviewing. However, the pattern of the interviews was similar to that of the farmer interviews. The interviews were initiated with a discussion of the Extension Service and led to the question of problems that a wildlife extension specialist could assist them with.

Questionnaires

County Agents:

County agents of the Utah Agricultural Extension Service formed the major basis for the questionnaire survey of the possible need for a wildlife extension specialist in Utah because they represented a group that is closer to the rural population and rural problems than any other group in the state.

A list of the 28 county agents in Utah's 29 counties was obtained from the Utah Agricultural Extension Service at the Utah State Agricultural College in Logan, Utah. One county, Daggett County, did not have a county agent in 1951-52. The counties included on the list were:

- | | | |
|--------------|---------------|----------------|
| 1. Beaver | 11. Juab | 20. Sevier |
| 2. Box Elder | 12. Kane | 21. Summit |
| 3. Cache | 13. Millard | 22. Tooele |
| 4. Carbon | 14. Morgan | 23. Uintah |
| 5. Davis | 15. Piute | 24. Utah |
| 6. Duchesne | 16. Rich | 25. Wasatch |
| 7. Emery | 17. Salt Lake | 26. Washington |
| 8. Garfield | 18. San Juan | 27. Wayne |
| 9. Grand | 19. Sanpete | 28. Weber |
| 10. Iron | | |

The questionnaires used in this portion of the survey were designed to obtain purely voluntary replies from county agents on wildlife problems existing in their counties (exhibit 2).

State Organizations:

Questionnaires were sent to 7 persons representing organizations in Utah concerned with wildlife conservation. These persons included: 1. the President of the Utah Wildlife Federation, 2. the Western Representative of the Wildlife Management Institute, 3. the Intermountain Region Wildlife Biologist of the U. S. Forest Service, 4. the Director of the Utah Fish and Game Department, 5. the President of the Utah Cattle and Horse Growers Association, 6. the President of the Utah Wool Growers Association, and 7. the President of the Utah State Farm Federation. (Exhibit 3).

Exhibit 2. Form letter sent to Utah county agents

Dear Sir:

"Is a wildlife extension specialist needed on the extension service staff?" This is the subject of my thesis toward an advanced degree in wildlife management.

To determine the possible need for a wildlife specialist, it is my desire to obtain from you the following information:

1. Have you ever been asked to solve problems of such a nature that the assistance of a wildlife specialist would have been to your advantage?
Yes _____ No _____

2. If "yes", what are some of the more frequent problems that arise?

3. Have you ever received requests for materials (bulletins, etc.) that could be supplied by a wildlife specialist?
Yes _____ No _____

4. If "yes", what types of materials have been requested?

I will be greatly indebted to you for the above information and any other that you feel will be helpful to me.

Sincerely,

(Signed) Edwin V. Rawley

Exhibit 3. Letter sent to persons representing organizations concerned with wildlife conservation.

Dear Sir:

"Is a wildlife extension specialist needed on the state extension service staff?" This is the subject of my thesis toward an advanced degree in wildlife management.

To determine the possible need for wildlife specialists, it is my desire to obtain from you the following information:

1. Do you feel that there is a need for wildlife specialists on state extension service staffs?
Yes _____ No _____
2. If "yes", what phases of the wildlife field do you feel could be adequately handled by a wildlife specialist?

Other remarks: _____

I will be greatly indebted to you for the above information and any other that you feel will be helpful to me.

Sincerely,

(Signed) Edwin V. Rawley

SURVEY OF NATIONAL NEED FOR WILDLIFE SPECIALISTS

Extension Directors

Directors of the Cooperative Agricultural Extension Services of the 48 states of the United States formed the major basis for the questionnaire survey of the possible national need for state wildlife extension specialists. Extension directors were selected because they, through their county agents, were in the best position to express the desires and needs of the rural population in their respective states.

The names and addresses of the directors of the Cooperative Agricultural Extension Services in the 48 states were obtained from the 1951 Agricultural Handbook of the U. S. Department of Agriculture (Jackson, 1951).

A form letter was sent to each extension Director (exhibit 4).

National Organizations

Questionnaires were sent to 9 persons representing organizations in the United States concerned with wildlife conservation. These persons included: 1. the Director of the Fish and Wildlife Service of the U. S. Department of the Interior, 2. the Chief of the Division of Wildlife Management of the Forest Service in the U. S. Department of Agriculture, 3. the President of the Izaak Walton League of America, Inc., 4. the Director of Public Information of the National Audubon Society, 5. the President of the National Wildlife Federation, 6. the Secretary

Exhibit 4. Form letter sent to state extension directors

Dear Sir:

"Is a wildlife extension specialist needed on the extension service staff?" This is the subject of my thesis toward an advanced degree in wildlife management.

To determine the possible need for wildlife specialists, it is my desire to obtain from you the following information:

1. Have you ever received requests to add a wildlife specialist to your staff?
Yes _____ No _____
2. Has your service ever been asked to solve problems that could be handled by a wildlife specialist?
Yes _____ No _____
3. If "yes", who on your staff handles such problems?

4. If "yes", to what degree have you been asked to solve such problems?
Frequently _____ Occasionally _____ Rarely _____
5. Has your service ever been asked to supply materials (bulletins, etc.) that could be handled by a wildlife specialist?
Yes _____ No _____
6. If "yes", who on your staff supplies such materials?

7. If "yes", to what degree have you been asked to supply such materials?
Frequently _____ Occasionally _____ Rarely _____

I will be greatly indebted to you for the above information and any other that you feel will be helpful to me.

Sincerely,

(Signed) Edwin V. Rawley

of the Outdoor Writer's Association of America, 7. the President of the Wildlife Management Institute, 8. the Director of the Missouri Conservation Commission who was the former Extension Conservationist for the U. S. Extension Service, and 9. the president of the International Association of Game, Fish and Conservation Commissioners.

The same questionnaire was mailed to these individuals as the one sent to persons representing organizations in Utah concerned with wildlife conservation (exhibit 3).

A letter was also sent to the Director of Extension Work of the U. S. Department of Agriculture requesting his evaluation of and opinion of the need for wildlife extension specialists (exhibit 5).

SURVEY OF ACTIVITIES OF WILDLIFE SPECIALISTS

The summary of wildlife extension work was based on information received from the 9 wildlife extension specialists employed in the United States as of January, 1952.

A list of the wildlife extension specialists was obtained from the 1951 Agricultural Handbook (Jackson, 1951) and supplemented by a list obtained from the Director of Extension Work of the U. S. Department of Agriculture.

The form letter mailed to these specialists was designed to obtain information on wildlife extension work for three purposes: 1. summarization, 2. history, and 3. the development of a guide (exhibit 6).

Exhibit 5. Letter to the Director of Extension Work of
the U. S. Department of Agriculture

Dear Sir:

"Is a wildlife extension specialist needed on the state extension service staff?" This is the subject of my thesis toward an advanced degree in wildlife management.

To determine the possible need for wildlife specialists, it is my desire to obtain from you an evaluation of the work of wildlife specialists that are now in New York, Pennsylvania, Alabama, Texas, and West Virginia.

Do you feel there is a need for wildlife specialists in other states?

How are wildlife extension problems now handled in those states not having wildlife specialists?

I will be greatly indebted to you for the above information and any other that you feel will be helpful to me.

Sincerely,

(Signed) Edwin V. Rawley

Exhibit 6. Form letter mailed to wildlife extension specialists

Dear Sir:

It is my desire to enlist your aid in compiling information for my thesis toward an advanced degree in wildlife management.

My thesis problem has to do with determining the need for a wildlife extension specialist in the state of Utah and the development of a guide to wildlife extension work adapted to Utah's needs.

To help with determining the possible need for a wildlife specialist on the Utah Extension Service staff, it is my desire to obtain from you information on the history of a wildlife specialist in your state -- for example:

Why was a wildlife specialist added to the staff in your state?

What groups have you given service to (farmers, sportsmen, etc.)?

What problems have you been asked to solve by the above mentioned groups?

Any information that will help in the development of a guide such as types of demonstrations employed, types of bulletins issued, etc. will be greatly appreciated.

As a last request, I would like copies of bulletins, pamphlets, and other publications put out by you as a wildlife specialist.

I realize that my requests will require a substantial amount of your time, but the field is very limited and, therefore, sources of information are likewise limited. I will be greatly indebted to you for the above information and any other that you feel will be helpful to me.

Sincerely,

(Signed) Edwin V. Rawley

RESULTS OF SURVEYS

SURVEY OF UTAH'S NEED FOR A WILDLIFE SPECIALIST

Farmer Interviews

Of the 85 farmers interviewed 61 or 72 percent have had contacts, either directly or indirectly, with the Utah Extension Service. This conforms generally with an earlier study of the attitudes of Utah farm people toward the Cooperative Extension Service. According to Brower and Roskelley (n. d.) 79 percent of farm people in Utah had had contacts with the Extension Service.

Of the 85 farmers interviewed 74 or 87 percent had one or more wildlife problems. Twenty-two or 33.8 percent recognized only one problem. Twenty-eight or 37.8 percent presented 2 problems, 10 or 13.5 percent named 3 problems, 5 or 6.7 percent listed 4 problems, 4 or 5.5 percent had 5 problems, and 2 or 2.7 percent recognized 6 problems (table 2).

Of the 61 farmers who had contacts with the Utah Extension Service 54 or 88.5 percent had wildlife problems. Of the 24 farmers who had no contacts with the Utah Extension Service 20 or 83.3 percent had wildlife problems.

Other Interviews

Of the 23 persons other than farmers included in the interview survey 22 or 95.6 percent felt that they had problems of such a nature that a wildlife extension specialist would be of assistance to them. The reports of

Table 2. Wildlife problems voiced by farmers in interviews

<u>Problem</u>	<u>Frequency</u>	<u>Explanation</u>
<u>Birds</u>		
Pheasants	24	Dig and eat newly planted corn; eat mature corn, grain and potatoes; get into corn cribs and on straw stacks in winter.
Black Birds	8	Strip corn from mature ears in the field.
Magpies	7	Kill baby chicks; pick grubs from cattle and cause bleeding; pick cattle when dehorned; control needed for pheasant management.
Robins	3	Eat ripe cherries and strawberries.
Hawks	2	Kill young chickens.
Sparrows	1	Get into grain in barn.
Ducks	1	Take clover in flooded fields in spring of year.
<u>Large Mammals</u>		
Deer	16	Eat bark and buds of fruit trees; eat ornamental shrubs; eat stacked hay; trample fields; compete with cattle in spring of year.
Elk	3	Eat hay; trample fields; compete with cattle.
<u>Small Mammals</u>		
Field Mice	21	Eat roots of alfalfa plants; eat bark of fruit trees.
Gophers	20	Eat roots of alfalfa plants; dig up fields and lawns.
Rats	18	Eat stored grains and corn; kill baby chicks.
Beaver	4	Cause flooding of fields and raising of water table; eat barley in the field.
Rabbits	4	Nip buds from young fruit trees; eat bark of pear trees.
Muskrats	2	Cause banks to fall away by burrowing.
Badgers	2	Dig up fields.
Weasels	1	Kill baby chicks (killed 500 in Richmond).
House Mice	1	Get into food and stored goods.
<u>Other Problems</u>		
Hunters	16	Damage fences, signs & irrigation gates; leave gates open; shoot at houses, cars, cattle and chickens.
Fish Ponds	3	Need aid with management.
Marshes	4	Need aid with muskrat management.

each group are as follows:

Sportsmen:

A former wildlife federation president felt that one of the major services a wildlife extension specialist could render would be to assist in bettering the relations between sportsmen and landowners.

The sportsmen interviewed felt there was a need for education and information to prevent damage to landowner's property by both hunters and wildlife.

Fur Dealers:

The fur dealers interviewed felt that small trapping operators, who generally included the farm trapper, need to be educated on the better handling of raw furs.

One fur dealer, who handles 3000 to 4000 deer hides each year, stated that sportsmen need to be educated on the proper care of big game hides.

Youth Leaders

A scout executive representing 144 troops of the Boy Scouts of America felt that they, more than any other group, would be interested in a wildlife extension specialist. He said that such a specialist could help with scout merit badge programs, supply technical knowledge about wildlife at summer camps, give illustrated lectures at regular meetings, and assist with troop conservation projects.

The 4-H leaders included in the interviews felt that a wildlife extension specialist would be valuable at 4-H camps and in setting up 4-H projects that would make boys

and girls conscious of conservation and its importance to their futures.

Fur Farm Operators:

The fur farmers interviewed would like more information on controlling diseases of mink. They would also like to see some research done on nutrition and genetics.

Nursery Operators:

Two of the 3 nursery men interviewed had the problem of deer damaging ornamental shrubs and fruit trees.

Fish Hatchery Operators:

Fish hatchery men had problems with disease, feeding diets, and predatory birds. Magpies and robins were included as fish predators.

One hatchery operator stated that his taxes have been higher than most farmers' taxes. He felt, therefore, that he was entitled to just as much useful information from the extension service as farmers receive.

Locker Plant Operators:

All 5 of the locker plant operators expressed a need for education in the handling of wild meats. One operator stated that less than 25 percent of the deer and elk brought to his plant were properly cared for.

County Agents

Of the 28 county agents in Utah to whom questionnaires were sent 28 or 100 percent answered the questions and returned the questionnaires to the writer.

Seventeen or 60.7 percent answered "yes" to question

1: "Have you ever been asked to solve problems of such a nature that the assistance of a wildlife specialist would have been to your advantage?" Eleven or 39.3 percent answered "no."

Question 2 asked for some of the more frequent problems that arise. Ten county agents named deer damage as a major problem. Rodent damage was named by 9, and predator damage by 4. The rodents named included: gophers, rabbits, squirrels, rock chucks, mice, porcupines, prairie dogs, and rats. The only predators named were the coyote and the bobcat. Extension agents in 4 counties named elk damage as a major problem, and two named beaver. In 2 counties pheasant damage was important. Two had trouble with crows, 2 with sparrows, and 1 with magpies. In 1 county ducks and geese were named as problems in grain fields and pastures. Clovers were completely destroyed by ducks and geese if covered by water in spring where the birds could congregate.

Three county agents felt a need for assistance in farm fish pond development and management. Others could use help in advising landowners about muskrat production; raising pheasants; commercial fisheries; and woodlots, windbreaks, and wildlife refuge places.

Question 3 asked, "Have you ever received requests for materials (bulletins, etc.) that could be supplied by a wildlife specialist?" Fifteen or 53.6 percent answered "yes", and 13 or 46.4 percent answered "no."

Question 4 asked what types of materials had been requested. Seven county agents have had requests for material on rodent control and habits of rodents. Three have had requests for information on the habits and control of deer. In 5 counties there is a demand for material on game birds including pheasants, quail and waterfowl. Two others had requests for information on game bird propagation. Three have been asked for material on non-game birds including sparrows and magpies.

Material on fur bearer production and information on muskrats were requested in 2 counties. Two other counties wanted material on farm fish pond development and management. Other requests included educational material for school children and other youth groups, trees and shrubbery suitable for wildlife refuge, and fish culture.

Of the 28 county agents in Utah's 29 counties, 20 or 71.4 percent had either wildlife problems or requests for wildlife materials that would call for the aid of a wildlife extension specialist (figure 1). These counties represent 70.3 percent of Utah's land area and 79.4 percent of Utah's population.

In addition to answering the 4 questions of the questionnaire, 7 county agents included other remarks. Three county agents said that they felt other specialists were needed more than a wildlife specialist.

One county agent wrote:

"In . . . County we conduct an extensive

rabbit baiting program each year where the county provides part of the supplies, I publicize and arrange the time and place for bait mixing, the Predator and Rodent Control Branch of the Fish and Wildlife Service supplies the Strychnine and an agent of the Fish and Wildlife Service applies the poison to the bait.

"The Fish and Wildlife Service cooperates with our local livestockmen in other phases of predator and rodent control such as control of Bob Cats. They also make antelope counts in the county.

"At the present time an Extension Wildlife Specialist would tend to be a duplication of the program carried on by the Fish and Wildlife Service in the County."

Other county agents showed a lack of understanding of wildlife matters as indicated by the following remarks:

"Here in the county we try to help people solve their problems. The management of wildlife is not the individuals since he does not own or control it."

"From my view point if these things build up more in numbers we need an exterminator more than anything else."

"We have mostly discussions of whether there should be more or less on the range."

Lack of understanding is indicated in the first remark by the fact that the writer fails to recognize that wildlife is a product of the land and its management cannot be separated from the land. Landowners more than any other group can directly influence the wildlife on their land by the land management practices they employ.

Not one of the 28 county agents mentioned wildlife work with 4-H clubs, although some of the clubs in Utah have expressed an interest in wildlife projects.

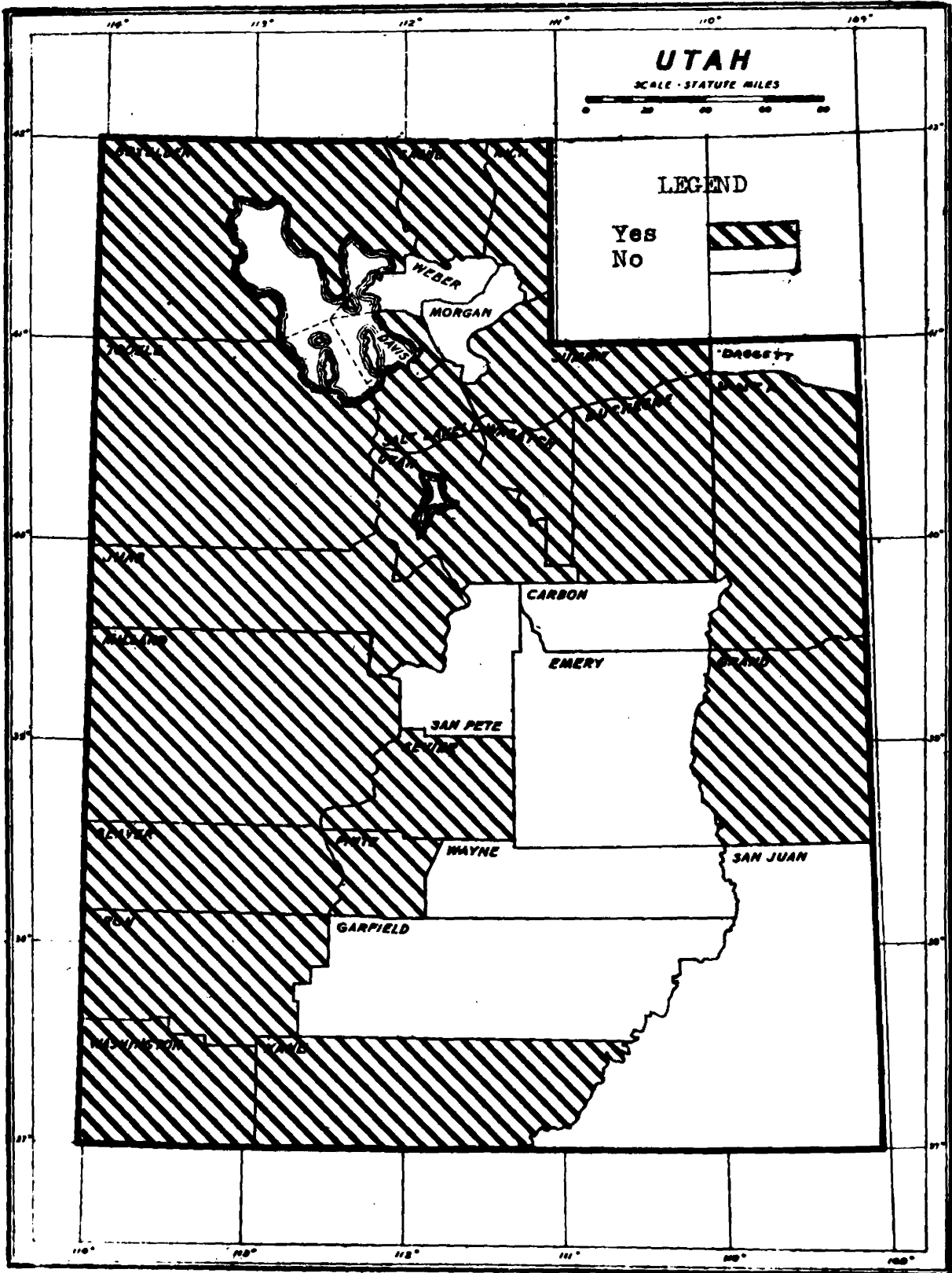


Figure 1. Counties with wildlife problems or requests for materials

State Organizations

Of the 7 persons representing organizations in Utah concerned with wildlife conservation to whom questionnaires were sent, 4 or 57 percent answered the questions and returned the questionnaires.

Three or 75 percent answered "yes" to question 1 which asked, "Do you feel that there is a need for wildlife specialists on state extension service staffs?"

The answers to question 2, which asked what phases of the wildlife field they felt could be adequately handled by a wildlife extension specialist, are given in Table 3.

In addition to answering the 2 questions of the questionnaire, 2 of the 4 persons representing organizations concerned with wildlife conservation sent additional information on their feelings toward wildlife extension work.

One representative wrote:

"Extension personnel of the U.S.A.C. have given service to wildlife conservation and management in Utah. Paul M. Dunn and J. Whitney Floyd, as extension foresters, for example, actively participated in the past in wildlife programs with 4-H groups both through specific projects and in general wildlife conservation education.

"In general, however, it is my personal impression that at times, county agents have shown lack of understanding of problems of wildlife management. Examples are cases where individual county agents, although careful to determine the scientific background and basis for what they say regarding agricultural problems, jump at conclusions and let their personal prejudices influence what they say regarding wildlife problems.

These have included cases where the individual agents have not attempted to appraise wildlife damage problems objectively, but rather have made a blanket conclusion on seriousness of pheasant and deer damage and even empirically determined dollars and cents value of such damage. Some are known to have attributed rabbit and porcupine damage to deer. Others, as individuals, have criticized the necessary deer management programs.

"Any program of land management either on cultivated or wild lands can and does influence its production. The general objective of land management should logically include production of wildlife crops consistent with and in balance with other land uses. Such programs require technical information, broad understanding, and active participation of the landowners or land managers to maintain production, avoid conflict and insure proper utilization. Landowners generally are lacking in information regarding this subject and as the trained extension personnel provide assistance and guidance in other subjects it appears both reasonable and desirable to aid them in this field."

Another representative of a state organization had an opposite point of view. He stated:

"If such a specialist would work with the livestock interests to control the increase in deer, it would be a good thing. If, on the other hand, he lined up with the Forest Service and sportsmen, where the big sentiment lays, it would be a bad thing. It seems to me every time we get another specialist on such boards, we merely make it harder for the livestock men to get along.

"In all, I cannot see that the tax payers should winter our big game herds and pheasants on their private lands as they do at the present time, and then be harnessed with the tax problem of hiring another specialist to pay for."

Those organizations that did not return the questionnaires were: The Utah Wool Growers Association, the Utah State Farm Federation, and the Utah Wildlife Federation.

Table 3. Results of questionnaire survey on the need for wildlife extension specialists -- organizations in Utah concerned with wildlife conservation

Organization	Question Number*	
	1	2
Wildlife Management Institute	yes	By working on the staff of the extension service, an entree to farmers could be gained which is often lacking in strictly wildlife conservation organizations.
Utah Fish and Game	yes	Information collected, summarized, published and circularized on: relation & preventive measures of rodent and game species on agricultural depredations, acceptance of certain hazards by virtue of occupancy and interference with laws of nature, and extent of damages by browsing of agricultural crops during different seasons of the year.
U. S. Forest	yes	Wildlife specialist should have three major responsibilities: 1. Provide technical help regarding subject of wildlife management and conservation to county agents, 2. Participate in youth training and informational programs in the subjects of general wildlife management and conservation, and 3. Act in liaison capacity in matters concerning wildlife as Extension representative with the Fish and Game Department, Federal land management agencies, organized landowner groups, and others.
Utah Cattle & Horse Growers Association	no	--

*1. Do you feel that there is a need for wildlife specialists on state extension service staffs? 2. If "yes", what phases of the wildlife field do you feel could be adequately handled by a wildlife specialist?

SURVEY OF NATIONAL NEED FOR WILDLIFE SPECIALISTS

Extension Directors

Of the 48 extension directors in the United States to whom questionnaires were sent 43 or 89.6 percent answered the questions and returned the questionnaires.

Forty-two of the 43 answered question 1 which asked, "Have you ever received requests to add a wildlife specialist to your staff?" Twenty-eight or 66.6 percent answered "yes" and 14 or 33.3 percent answered "no."

Question 2 inquired, "Has your service ever been asked to solve problems that could be handled by a wildlife specialist?" Forty-two or 97.7 percent of the 43 extension directors answered "yes" and 1 or 2.3 percent answered "no."

In 9 of the 40 states that answered question 3, wildlife specialists handled the existing wildlife problems. These problems are handled by extension foresters in 7 of the states. In 6 states wildlife problems are handled by the wildlife research unit on the campus of the state college. Wildlife extension problems are turned over to the state game commission in 4 of the 40 states that answered question 3. The extension entomologist handles these problems in 3 of the states (Table 4).

Extension services have frequent requests to solve wildlife problems in 15 or 37.5 percent of the states. Seventeen or 42.5 percent of the states have had occasional requests to solve wildlife problems. Requests

have been rare in 8 or 20 percent of the states.

Extension directors of 42 states answered question 5 which was, "Has your service ever been asked to supply materials (bulletins, etc.) that could be handled by a wildlife specialist?" Directors of 39 or 92.9 percent of the states answered "yes" and 3 or 7.1 percent answered "no."

As the data in Table 4 indicate, the answers to questions 6 and 7, which asked who handled requests for materials and how often, were generally the same as the answers to questions 3 and 4.

In addition to answering the 7 questions of the questionnaire sent to them by the writer, 5 extension directors gave further information on their feeling toward wildlife extension work.

The director of extension for the state of North Dakota wrote:

"I do not think your questions fully cover the situation, however, because although we get quite a number of inquiries now for information on wildlife work, we would have a lot more if it was known that we had a wildlife specialist.

"We have been working with our State Game and Fish Commissioner which has an excellent program planned and is very cooperative. For a time we thought we might be able to get some funds from that division to put on a full-time wildlife specialist. However, the federal funds they received did not permit such an arrangement and we do not have sufficient funds in our budget to provide for one.

"Personally, I feel there is a great need for work of this kind, particularly with 4-H clubs. It would not be difficult to create a lot of interest with 4-H clubs so that they would develop an excellent program throughout

the state. As a matter of fact, work was done in one of our counties which indicated that good cooperation could be received from both the 4-H club and wildlife organizations. However, it is not possible to put on a special program for 4-H clubs without a full-time specialist. This field has so many possibilities that it would be of real value to the state to have a wildlife conservationist on the Extension staff."

The importance of wildlife extension work was further emphasized by the assistant director of extension work in Wyoming. He stated:

"Due to the importance, I believe we need to give more attention to this field. The working out of better understanding between wildlife enthusiasts and stockmen is of paramount importance"

The priority of the need for other specialists was expressed by the associate director of extension for the state of Kentucky when he said:

"Naturally we get some questions now and then relating directly or indirectly to wildlife. If we had some other needed personnel, we would enjoy having the services of a wildlife specialist but there are several other fields where we still have pressing demands.

"In our 4-H club work, we have some activities related to game and fish and some members of our staff are rather clever in such matters, just as a side issue, so we deal with such topics and borrow from our State Department of Game and Fish."

A similar attitude toward wildlife specialists was expressed by Tennessee's associate director of extension. He wrote:

"We have a very satisfactory arrangement with the State Game and Fish Commission through which their specialists take care of most of the needs in this field. We could develop

sufficient jobs to keep a specialist busy in many fields but in the light of greater need in fields of more economic importance to farm families, we have not considered that we would be justified in carrying a wildlife specialist on our force."

An indication of what some of the states without a wildlife specialist are doing in this field was supplied by the director of the Rhode Island Extension Service.

He stated:

" . . . for a good many years Rhode Island conducted a three-weeks summer workshop on conservation. In this workshop all areas of conservation of natural resources have been covered. Qualified individuals in the state, many times private individuals, have lent their assistance for instruction purposes."

National Organizations

Of the 9 persons representing organizations in the United States concerned with wildlife conservation to whom questionnaires were sent, 9 or 100 percent answered the questions and returned the questionnaires to the writer.

Eight or 89 percent answered "yes" to question 1 which asked, "Do you feel that there is a need for wildlife specialists on state extension service staffs?" One of the 9 did not feel sufficiently well informed to give a direct answer to the question.

The answers to question 2, that asked what phases of the wildlife field they felt could be adequately handled by a wildlife specialist, are given in Table 5.

In addition to answering the 2 questions of the questionnaire, 3 of the 9 persons representing organizations

Table 4. Results of questionnaire survey of extension directors

State	Question Number*						
	1	2	3	4	5	6	7
Arizona	yes	yes	Animal Husbandman	occas.	yes	Wildlife Unit Leader	occas.
Alabama	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	--
Arkansas	no	yes	Extension Forester	occas.	yes	Same as 3	occas.
California	no	no	--	--	--	--	--
Colorado	no	yes	Extension Forester	occas.	no	--	--
Connecticut	no	yes	Resident Instructors & Ext. Forester	occas.	yes	Same as 3	occas.
Florida	yes	yes	Rodent Specialist	freq.	yes	Same as 3	freq.
Georgia	yes	yes	--	freq.	yes	Ext. For. & 4-H Leader	freq.
Idaho	yes	yes	Wildlife Research Unit	occas.	yes	Same as 3	occas.
Illinois	yes	yes	Department of Conservation	occas.	yes	Same as 3	occas.
Indiana	no	yes	Teaching and Research staff	occas.	yes	Same as 3	occas.
Iowa	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Kansas	yes	yes	County Agents and Research Staff	freq.	yes	Research Staff	freq.
Kentucky	no	yes	Horticulturist and Agronomist	rare.	yes	U.S.D.A.	rare.
Louisiana	yes	yes	Extension Forester	occas.	yes	Biology Instructors	occas.
Maine	yes	yes	Research and Resident Staff	occas.	yes	Same as 3	occas.
Maryland	no	yes	Extension Forester	occas.	yes	Ext. & State Foresters	occas.
Massachusetts	no	yes	U. S. Fish & Wildlife Ser. on Campus	--	no	--	--
Michigan	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Mississippi	--	yes	Research Staff and Game Commission	--	yes	Ext. Entomologist	--
Missouri	no	yes	Field Crop Spec. and Conserv. Comm.	rare.	yes	Wildlife Dept. of U.	occas.
Montana	yes	yes	Experiment Station Staff	rare.	yes	Range Spec. & Exp. Sta.	occas.
Nebraska	no	yes	Extension Entomologist	occas.	yes	Same as 3	occas.
Nevada	yes	yes	Animal Husbandry Specialist	occas.	yes	Extension Editor	occas.
North Carolina	yes	yes	Extension Entomologist	rare.	yes	Game Comm. & Exp. Sta.	rare.
North Dakota	yes	yes	Fish and Wildlife Service	freq.	yes	Same as 3	freq.
New Hampshire	no	yes	Research and Teaching Staff	rare.	yes	Use Federal Publications	rare.
New Mexico	no	yes	Conservationist	occas.	yes	U.S.D.A.	occas.
New York	yes	yes	Wildlife specialist	freq.	yes	Same as 3	freq.
Ohio	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Oklahoma	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Oregon	yes	yes	Wildlife Teaching Staff	freq.	yes	Same as 3	freq.
Pennsylvania	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Rhode Island	no	yes	--	rare.	yes	--	rare.
South Dakota	yes	yes	Extension Entomol. and Game Comm.	occas.	yes	Ext. Ento. & Instructors	occas.
Tennessee	yes	yes	4-H Specialist and Ext. Personnel	rare.	yes	State Game Commission	rare.
Texas	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Utah	yes	yes	Wildlife Research Unit	occas.	yes	Same as 3	occas.
Vermont	yes	yes	Fruit and Forest Specialists	occas.	no	--	--
Virginia	yes	yes	Forest Specialist	freq.	yes	Same as 3	freq.
West Virginia	yes	yes	Wildlife Specialist	freq.	yes	Same as 3	freq.
Wisconsin	no	yes	Wildlife Teaching Staff	rare.	yes	State Cons. Department	rare.
Wyoming	yes	yes	Livestock Specialist	occas.	yes	Livestock & 4-H Spec.	occas.

*1. Have you ever received requests to add a wildlife specialist to your staff? 2. Has your service ever been asked to solve problems that could be handled by a wildlife specialist? 3. If "yes", who on your staff handles such problems? 4. If "yes", to what degree? 5. Has your service ever been asked to supply materials that could be handled by a wildlife specialist? 6. If "yes", who on your staff handles such materials? 7. If "yes", to what degree?

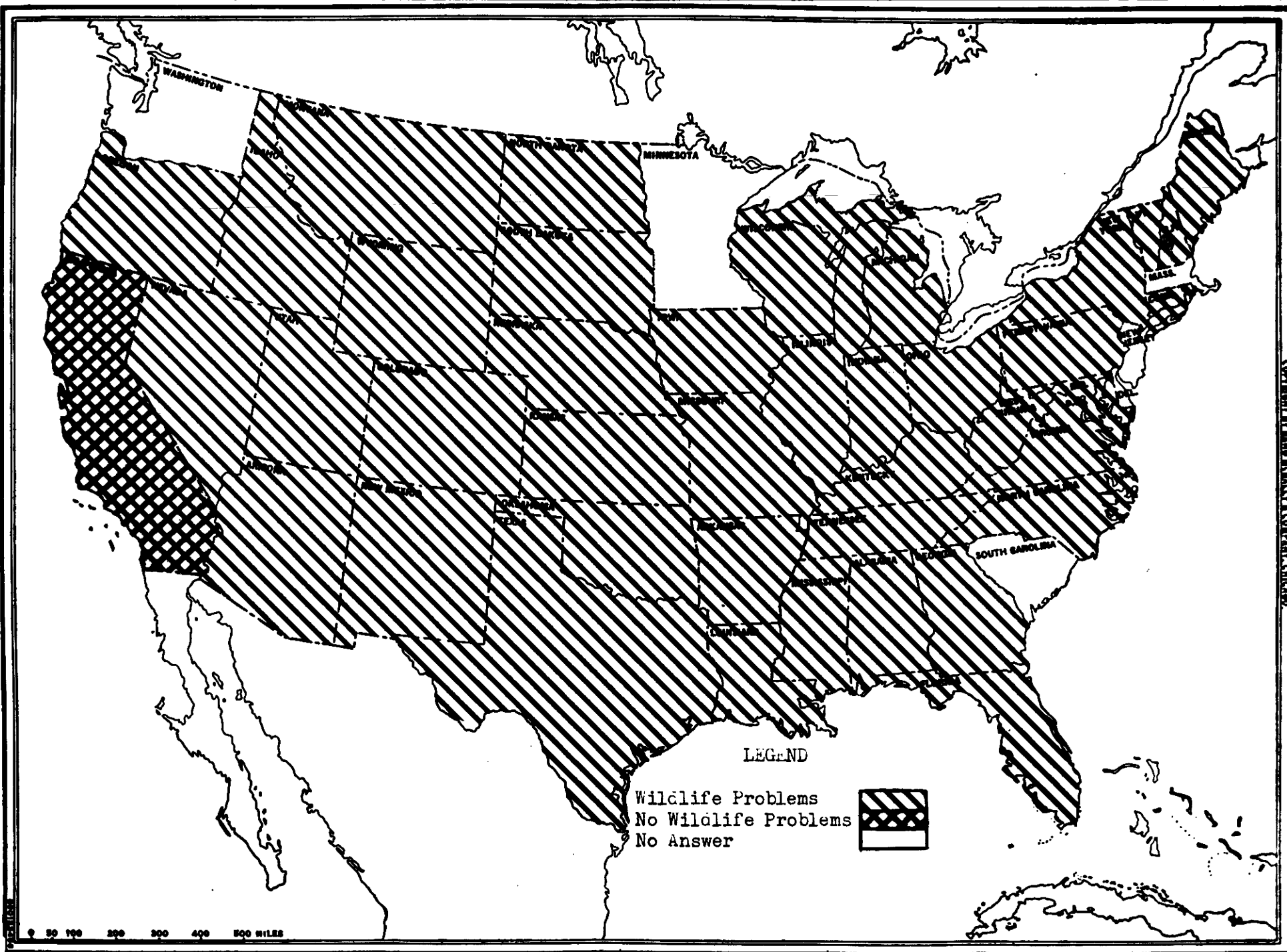


Figure 2. States that have wildlife problems that could be handled by a wildlife specialist

concerned with wildlife conservation sent additional information on wildlife extension specialists.

The director of the Missouri Conservation Commission, who was formerly the wildlife specialist for the U. S. Extension Service, wrote:

"At the time I was working as Extension Conservationist for the United States Extension Service it was in the early days of such a movement Since that time there has been considerable progress even though I believe no full-time wildlife extension specialist has been appointed.

"It does not take long to give you my opinion with regard to the value of this type of work. With the close association that is being recognized everywhere between the land, land practice and wildlife I consider it as essential as any other phase of agricultural work. I suppose, however, like many other things it takes a long time for some of these things to materialize and while there is a growing appreciation in the minds of all agriculturists with regard to the place of wildlife in agriculture work there are not many places where they have seen fit to set it up as a separate unit."

The need for wildlife extension specialists was further emphasized by the president of the Wildlife Management Institute when he stated:

"I have long believed that there should be wildlife extension specialists on the staffs of at least the more important agricultural states and that as a leader there should be a man stationed in Washington that would work between the Fish and Wildlife Service and the Extension Service in providing leadership and material outlines for use in the states.

"It is also my belief that the wildlife extension specialist, to be effective, must be tied closely to the state conservation department, and I have long believed and advocated the development of a program similar to that now in existence in forestry extension matters in which the Federal Government pays a part of the salary of the leader and some state agency

the balance. I believe in the case of the wildlife extension specialist the contributing agency might well be a state conservation department and that they would also furnish much of the material that went into the extension program.

"The material that they normally would use should be practical and useful, developed from the researches and experience of the conservation department and other interested agencies but worked out to apply directly to farm problems in the state in which it is carried out."

The director of the U. S. Fish and Wildlife Service said in his letter:

"In recognition of this need, several States have added wildlife technicians to the extension service staff. Others have integrated this aspect of the extension service program with activities of the Fish and Game Department as specialists in the latter group were able to provide the required direction and assistance. Of course, most game departments are so organized as to provide considerable extension service particularly in connection with management of lands in private ownership."

Director of the U. S. Extension Service:

The Director of Extension Work of the U. S. Department of Agriculture had the following to say about wildlife extension work:

"Enclosed is a copy of a cooperative agreement, which, if funds were made available, would have arranged for a cooperative project with the Fish and Wildlife Service and provided for a Federal specialist working with State specialists. The answer, then, to one of your questions is we feel there is a need for an extension wildlife specialist in most states.

"State extension foresters in quite a number of those States lacking wildlife specialists, have been looking after problems that have arisen."

The cooperative agreement mentioned above is given as Appendix Exhibit 1.

Table 5. Results of questionnaire survey on the need for wildlife extension specialists -- organizations in the United States concerned with wildlife conservation

Organization	Question Number*	
	1	2
U. S. Fish and Wildlife Service	yes	General aspects of resource conservation as related to management of private holdings.
Division Wildlife Management, U. S. Forest Service	no opinion	Does not feel sufficiently well informed to give direct replies to questions.
Internat'l Assoc. Game, Fish & Cons. Commissioners	yes	Sell the needs of better land and water use and conservation.
Izaak Walton League of America, Inc.	yes	Local problems of sportsmen clubs & conservation groups.
Missouri Conservation Commission	yes	Close association of land, land practice and wildlife in agricultural work.
National Audubon Society	yes	Habitat improvement, public relations and management.
National Wildlife Federation	yes	Help put intelligent wildlife management in actual practice.
Outdoor Writer's Assoc. of America	yes	Habitat improvement in conjunction with soil conservation, landowner-sportsmen relationships.
Wildlife Management Institute	yes	Presentation of useable material to adults and youths living on the land.

*1. Do you feel that there is a need for wildlife specialists on state extension service staffs? 2. If "yes", what phases of the wildlife field do you feel could be adequately handled by a wildlife specialist?

SURVEY OF ACTIVITIES OF STATE WILDLIFE SPECIALISTS

In February, 1952, there were 9 states employing wildlife specialists on their Extension Service staffs. The 9 states were Michigan, Pennsylvania, Texas, New York, Alabama, Iowa, Ohio, West Virginia and Oklahoma.

A summary of their recent activities is given below.

Michigan

The position of Extension Specialist in Game Management has been in existence since 1937. The major function of the project leader has been an educational program involving cooperation with farmers, 4-H club agents, soil conservation personnel, sportsmen's groups, members of the Michigan Conservation Department, and other persons and organizations interested in good land use.

Because the major portion of Michigan's small game and fur harvest occurred on approximately 137,000 southern Michigan farms, involving about 13,000,000 acres, and because the farmers were in a position to influence wildlife populations beneficially or otherwise, the project leader's activities were limited mainly to the southern half of the Lower Peninsula.

Approximately 2,000 southern Michigan farms, embodying nearly 180,000 acres, have been improved for wildlife since 1948. More than 3,800,000 trees and shrubs have been provided to farmers for habitat improvement.

A portion of the extension specialist's time was devoted to publicizing cooperative hunting clubs at meetings

and through newspaper, radio and magazine releases. Under the cooperative hunting club program, hunter trespass problems were reduced for the farmer because hunting was limited by a guest ticket system. The program also permitted a systematic harvest of the game crop.

In 1951 the Michigan wildlife extension specialist spent 111 days in the field and 130 days in his office. He attended a total of 172 meetings at which 7991 persons were in attendance. His office mailed out 1069 letters, circulars and bulletins.

Pennsylvania

In 1949 Pennsylvania wildlife extension specialist assisted the county agents in educational and informational programs at 206 meetings of all types where 15,548 persons were in attendance.

Educational programs involving wildlife and its management were presented to 44 senior extension and 4-H clubs. The same types of programs were presented before many Boy and Girl Scout organizations and other youth groups in counties throughout the state.

Adult agricultural groups in Grange and cooperative meetings, committee meetings and in other capacities were worked with in an attempt to bring about a better appreciation of wildlife and a fuller understanding of wildlife's place and value in land use.

Requests from schools for assembly programs were filled by the extension specialist through lecture and

motion picture programs having to do with phases of wild-life related and supplementary to nature study courses in the schools visited. Service, flower, civic, garden and women's clubs were likewise furnished appropriate educational and conservation programs.

One hundred and two fish ponds were visited during 1949 and county agents, where problems arose, were assisted in solving such problems through furnishing of information on stocking, fertilization, control of weeds and predators and on legal and technical affairs. Demonstrations and meetings were held with groups of pond owners when requested.

Sportsmen's organizations throughout the state were given talks on game management, conservation and safety practices. The talks were supplemented with colored motion pictures.

The extension specialist assisted the camp staffs at sixteen 4-H club and adult camps. Fifty nature hikes, nature study sessions and trapping demonstrations were conducted.

A general 4-H program of year round activities on a month to month basis was prepared in cooperation with the Extension 4-H Club office. The project work called for food and cover improvement, bird work, control of predators and conservation.

County agents throughout the state were assisted with radio programs where the attention of the listening public was called to such seasonal problems as hunting

safety, forest fires, winter feeding, planting, and farm pond management. Assistance and material for press releases along similar lines were given through extension publicity channels.

Correspondence by mail and printed material requested by county agents and citizens reached into all 67 counties of the state. Information requested and provided embraced questions and problems having to do with game management, food and cover plants and planting, game birds and mammals, predators, song and insectivorous birds, fish and fish ponds, laws, and insects and parasites.

In 1949 the specialist spent 143½ days in county work, 94 days in his office, and 46½ days in general activities.

Texas

The position of Wildlife Conservation Extension Specialist in the state of Texas has been in existence since 1936. The major method employed has been the cooperative land unit game management demonstration. More than 14,000 individuals entered into cooperative pooling agreements during 1950. Fourteen million acres came under the plan in 210 of the 254 counties during 1949.

During 1950 the specialist visited 116 counties and conferred with 236 county agents. He attended 160 meetings, 9 district 4-H camps, and 9 4-H conservation camps. Total attendance at 4-H camps was 2,644, and 18,387 were present at other meetings attended.

The wildlife specialist assisted 9,761 farmers with specific improvements for wildlife in 1950. Three hundred and two community cooperative game management associations were given aid. Assistance was given in the improvement of 2,533 farm ponds and the construction of 18,407 new farm ponds. 3,146,000 fish were introduced in 6,233 ponds.

During 1950 4-H club members participating in wildlife activities numbered 11,034. Club members trapped 6,594 predators and raised 28,657 domestic rabbits under the guidance of the wildlife specialist. Marksmanship training was given to 3,800 4-H club members.

Radio, motion picture films, bulletins and periodical wildlife news letters were used as teaching aids by the wildlife specialist.

The specialist spent 156½ days in the office and 133½ days in the field during 1950.

New York

The extension specialist in wildlife has been active in New York since June, 1949. Wildlife problems have been attacked through adult education and youth education.

The specialist has cooperated with the Farm Bureau Federation by helping with information on legislative action and assisting with fox rabies control programs.

Service has been given to farm people in orchard-mouse and other rodent control programs, farm fish pond development, and educational land-use tours. A major portion of the specialists time has been spent on supplying

information on fish and wildlife matters to farm people in the form of bulletins, news releases, radio talks, correspondence, and talks and demonstrations before local farm groups.

Work with young people has been carried on mainly through the 4-H Club organization. The 4-H activities have included a pheasant management project in which 6,073 club members have reared 146,978 pheasants; a shrub border planting project in which 120 members have planted 30,000 shrubs; a fur management project including muskrat marsh management, trapping, pelt preparation, and marketing of furs; a project of fox trapping in which 1813 club members trapped 2958 red and gray foxes; 4-H conservation tours; county 4-H camps and conservation training camps; and the preparation of project bulletins.

Some work has been done with the New York State Conservation Council which is the state organization representing sportsmen. This work has consisted of conducting field trips and conservation workshops.

The wildlife specialist has cooperated with the State Department of Education and the Department of Conservation in the development of an annual teacher's conservation workshop.

Alabama

Alabama has had an extension fish and wildlife specialist since 1937. He has shown landowners how to build and manage farm ponds and how to manage their farms for

optimum game and fur production. Since 1937 the specialist has helped farmers build 7,500 ponds and has worked constantly with these landowners to keep the ponds in top fish production. When ponds have resulted in poor fishing the specialist has been called in to analyze the trouble and recommend corrective measures.

The wildlife specialist has aided in increasing the quail on farm acres through food and cover management, recommended farm practices that would increase the numbers of squirrels and wild turkeys, and demonstrated proper furbearer trapping methods.

Income projects have been initiated such as the sale of fishing permits, leases to hunt on farmland, pheasant production for the restaurant trade, the growing of bird food crops, and the sale of fish bait. The sale of fish bait in Alabama in 1950 amounted to \$291,000.

The wildlife program has included the control of animals that cause crop damage and the supervision of fox rabies campaigns as part of the predator control program.

The wildlife specialist has utilized many means of successfully disseminating information to farm people and others including radio, newspapers, and circular letters. Visits by the specialist to counties, however, have not been made unless specifically requested by county agents who, in turn, have been contacted by farmers with wildlife problems.

Throughout each year the wildlife specialist has

conducted fish pond management schools, trapping demonstrations, and has given lectures and demonstrations to 4-H clubs and interested sportsmen's and civic clubs.

Oklahoma

The position of wildlife extension specialist has existed in Oklahoma since January 1, 1952. During the short period since January, the specialist has worked very closely with the extension forester in developing wildlife habitat borders around post lots and shelter belts.

The extension wildlife specialist has also worked closely with the 4-H club department and county extension personnel in providing wildlife projects and in including an educational phase on wildlife conservation in 4-H club activities.

Ohio

The position of extension specialist of wildlife management and conservation in Ohio had only been in existence since July, 1951. During the 6 months that followed, the specialist accomplished the first phase of his plan of work. This phase consisted of a period of study and observation to determine the extension service and farmer attitudes toward wildlife management. Observations served as a background for launching a wildlife extension program.

The specialist spent 70 days in the field, 40 days in the office and 11 days on military or sick leave.

He made 49 farm visits and conversed with at least 142 different farmers. He attended 15 farmer meetings and 3 county 4-H camps. The specialist cooperated with 5 Soil Conservation Service farm planners and 2 Ohio Department of Forestry farm foresters. He attended extension service field meetings at which there were at least 75 different extension agents.

A total of 5000 persons were in attendance at the farm meetings attended by the specialist. 4-H youths totaled 14,300 at the camps attended.

The specialist aided in the wildlife habitat improvement on 108 farms. This included the improvement of 583.5 acres of woodlots, the planting of 940 miles of multiflora rose fence, the development of 166.75 acres of odd areas, and the planting of 15,650 pines.

West Virginia

A part-time wildlife extension specialist has been employed in West Virginia since 1941. The specialist spends 1/3 of his time on extension work and the remainder on teaching and research.

The work of the West Virginia wildlife extension specialist has consisted of contacts with individual farmers advising them on wildlife management practices and securing from them information on game kills and hunting pressure on their land.

The major emphasis in wildlife extension work in West Virginia has been with youth organizations,

particularly 4-H clubs. The wildlife specialist has been active in both state and county 4-H camping programs, teaching classes in wildlife conservation. Two 4-H projects have been set up by the specialist, one on wildlife conservation and the other on trapping.

Another phase of the wildlife extension specialist's work has been devoted to a farm fish pond program.

The remainder of the specialist's work has been varied in nature. It has included speaking engagements, field demonstrations, and conservation tours with such groups as farmer-sportsman cooperatives, youth organizations, farm groups, civic clubs, and other groups interested either primarily or secondarily in conservation.

During 1951 the specialist attended the State Conservation Camp where he taught wildlife management classes to approximately 200 boys and girls from 53 counties of West Virginia.

In 1951 the wildlife extension specialist spent 17 days in the office and 38½ days in the field.

Iowa

The early phases of wildlife extension work in Iowa was restricted to 4-H club projects and field trips for 4-H boys. Later the work was expanded to include illustrated lectures on quail management as correlated with soil conservation and better farm practices. These talks were presented chiefly to farm bureau and 4-H club groups. A campaign of artificial feeding for quail was initiated

and over 60,000 leaflets have been used to promote this feeding program.

In the more recent activities of the Iowa wildlife Extension Specialist emphasis has been placed on wildlife appreciation, wildlife cover, fur animals and farm fish ponds.

The wildlife appreciation phase has included talks on wildlife subjects to public school groups; special wildlife activity for 4-H boys for club, home, and community action; and an intensive nature program at summer camps for 4-H, Rural Young People and, to a certain extent, organizations outside of Extension Service sponsorship. Included is an annual series of spring training schools for camp leaders, and assistance with an annual Teacher's Conservation Camp.

Most of the specialist's wildlife cover work has been in training Soil Conservation District personnel and in aiding individual landowners develop wildlife plans for farm lands.

The fur animal phase of the wildlife extension specialist's work has included fur trapping schools and predatory animal trapping.

The farm fish pond work has consisted of teaching practical management of farm ponds for fish production, angling methods, and the recreational values of a fish pond on the farm.

In all phases of wildlife extension work in Iowa,

extensive use has been made of radio and newspaper facilities in the state. Series of pictures and articles have been run in 44 Iowa newspapers with a combined circulation of about 75,000.

The wildlife extension specialist's education work, largely with rural people, has been complemented by public relations personnel of the Iowa State Conservation Commission, who work largely with the public schools and with sportsmen's organizations.

DEVELOPMENT OF A GUIDE TO WILDLIFE EXTENSION WORK

PURPOSE

The purpose of this portion of the study was to develop a general guide that could be used by a wildlife extension specialist in the state of Utah to integrate wildlife conservation interests with other agricultural extension activities.

SOURCES OF INFORMATION

The information for the development of a guide to wildlife extension work in Utah was obtained chiefly from plans of work and annual reports of wildlife extension specialists.

A copy of the 1951 plan of work of the wildlife conservation specialist for the state of Texas was obtained on loan.

Copies of the 1951 annual report and the 1952 plan of work of the extension specialist in game management for the state of Michigan was obtained on loan.

Copies of the Pennsylvania Extension Service wildlife management annual report for 1949 and plan of work for 1950 were sent to the writer by the wildlife specialist of the Pennsylvania State Extension Service staff.

Information was also obtained from a letter written by the assistant extension professor of conservation at Cornell University in Ithaca, New York.

Information concerning extension methods was secured largely from Cooperative Extension Work (Kelsey and

Hearns, 1949).

ADAPTATION TO UTAH

The information for the development of a guide to wildlife extension work was adapted to Utah on the basis of the knowledge gained from the section of this study on Utah surveys.

The wildlife problems confronting landowners in Utah were expressed by Utah county agents in the questionnaires sent to them. Additional problems were expressed by landowners, locker plant operators, nursery operators, sportsmen, fur farmers, and commercial fish hatchery owners when interviewed by the writer.

Recommendations for 4-H club wildlife activities in Utah were obtained from the Supervisor of Extension Youth Programs of the Utah Agricultural Extension Service, and from the Director of Education of the Utah Fish and Game Department.

THE SITUATION

Utah has a variety of soils and ecological plant formations ranging from sagebrush flats in the Great Basin to subalpine forests in the mountains. It has a varied topography, the general elevation of Utah being 5,500 feet above sea level. The Uinta and Wasatch Mountains extend diagonally across the state from northeast to southwest, with crest lines mostly above 10,000 feet. The lowest area is the Virgin River Valley in the southwest corner of the state with an elevation varying between 2,500 and

3,500 feet.

Utah's total land area of 84,916 square miles comprises approximately 1/35 the area of the United States.

Average annual precipitation is about one-third of that realized in the eastern half of the United States. It varies from 4.45 inches at Lemay, Box Elder County, to 40.82 inches at Silver Lake, Salt Lake County. The average annual precipitation for the entire state is 12.63 inches, which falls mainly in winter and late spring in the state's leading agricultural areas, necessitating the practice of irrigation for growing farm crops.

Those who own and operate the land have a vital part in the production of game, furbearers, and fish, for as the land thrives, so thrives wildlife.

Wildlife is a crop of the land produced as a by-product by landowners. Yet, wildlife belongs to all the people. Therefore, not only the landowner, but the entire population, must be reached in wildlife extension work.

Wildlife conservation is a part of the broad program of conservation of Utah's natural resources including soils, waters, minerals, and forests.

The wildlife resources of Utah are greatly varied. Big game animals include: 1. elk, 2. mule deer, 3. pronghorn antelope, and 4. bison.

Fur animals include: 1. muskrat, 2. beaver, 3. mink, 4. weasel, 5. skunk, 6. otter, and 7. marten.

The game birds of Utah are: 1. ducks, 2. geese,

3. coots, 4. pheasants, 5. quails (California and Gambel's), 6. mourning doves, 7. grouse (sage, dusky, sharp-tail and ruffed), and 8. partridges (chukkar and Hungarian).

Game fishes in Utah include: 1. trout (native, brown, rainbow, brook, and lake), 2. largemouth bass, 3. yellow perch, 4. catfish, 5. bullheads, 6. sunfish, and 7. crappie.

Other forms of wildlife in Utah of economic importance are: 1. cougar, 2. coyote, 3. bears, 4. bobcat, 5. porcupine, 6. rabbits, 7. rodents, 8. hawks, 9. owls, and 10. song birds.

MAJOR PROBLEMS

The major wildlife extension problems as determined by this study are:

Landowners

1. A lack of proper respect for private property by those participating in the harvest of the wildlife crop.
2. Need for information for farm marsh development to increase muskrat numbers for supplementary farm income.
3. Need for information on farm fish pond development.
4. Damage to agricultural crops by wildlife.
5. Damage to livestock and poultry by predators.

Sportsmen

1. Need for creating interest and appreciation for wildlife by sportsmen and landowners.
2. Need for creating an incentive for landowners to improve their land for wildlife.

3. Overgrazing by livestock resulting in destruction of wildlife habitats through depletion of the range.

Youth Groups

1. Need for training and education in the use of firearms.
2. Need for youth education on wildlife matters through the development of conservation camps and by other means.

Other Groups

1. Need for information on disease control and nutrition at fur farms and fish hatcheries.
2. Need for training and education in the handling of wild meats.
3. Need for training and education in the handling of raw furs.

EXTENSION METHODS

Extension methods are teaching devices. Extension work requires that many methods and teaching tools be used to influence people to apply the satisfactory results of research. It consists of arranging situations in which the people may see, hear about, and do the things to be learned.

Extension teaching subject matter is based upon the findings of experiment stations of land-grant colleges, federal agencies and state agencies, adjusted to fit local conditions. The subject matter is made plain so

that the people can learn through extension methods. Success may depend upon the proper selection and use of the various extension methods available.

In selecting methods, consideration must be given to the sex, age, education, motives and other complex human characteristics and customs of the people to be reached.

Methods which reach large numbers of people are called mass media. Smaller numbers are reached by group activities. Basically the individual-contact method furnishes the most direct opportunities for influencing people. Methods of group and mass procedures are dilutions of this method. Methods which provide for personal contact furnish the confidence and information on which recommendations made through other methods are based.

The more ways through which people are exposed to extension information the larger will be their acceptance of the recommended practices.

News Releases

News releases through the press fall into the mass media category. Most extension services have an extension editor on their staff. One of his duties is to set up a service of news for the press on a state-wide basis.

The releases consist of announcements, informational news, human interest stories, mats with captions and feature stories.

Quite often material is directed through the county

extension office to certain papers selected because of special extension problems confronting the people in that area.

According to Kelsey and Hearne (1949) 107 Arkansas newspaper editors were questioned about their preferences regarding extension service news releases. It was found that they wanted stories of local individuals and group accomplishments and achievements by the people.

Success stories furnish a kind of news that shows the value of recommended practices.

Radio

Radio is a mass medium of oral communication, and is primarily valuable as a means of forming attitudes largely through appeals to the emotions. It is an informational tool. It can reach large numbers of people at any given time. Radio reaches people who do not go to meetings, who are not visited by extension agents, and who do not read newspapers.

Radio does not take the place of other methods, but it does provide a means of increasing the effectiveness of other media.

The kind of information and news, the treatment given to subjects, and the detail in which they are covered varies with the station on which the broadcast is made. Considerable detail is used on a 250-watt station. Consideration is given to the fact that a broadcast over a 5,000-watt station may be heard in

several counties. People in a much larger area will be listening to a broadcast from a 50,000-watt station.

With training, determination and imagination radio can be made to play an important part in extension work.

Circular Letters

Circular letters in extension work are an important mass medium. For reaching large numbers of people circular letters are the most personalized of the mass media. They also provide a quick, effective and inexpensive means of reaching special groups.

Well-planned circular letters can encourage the recipient to want what is being offered whether the objective of the letter be to get action, to increase knowledge, to develop good will, or to change an attitude.

Extension workers use circular letters most for announcements and for sending out subject-matter information. They are also used for organization and program planning because of their influence upon the participation of people in the entire extension program.

Nearly all activities and much of the subject matter can be presented effectively through well-planned circular letters.

Publications

The bulletin is a means of mass media that provides an opportunity to transform technical information into plain language. Other extension methods present general information and arouse interest. Brief, simple bulletins

supply the details and become ready references for the people on a great variety of subjects.

Visual Aids

Visual aids provide a means of supplementing words with visual impressions. State and federal motion pictures, film strips and slides are illustrative material used in extension work as group media. Also included in the list of visual aids are exhibits, displays, and posters.

Short introductory talks by qualified persons make motion pictures, film strips and slides more effective and help to eliminate their impersonal nature. In the presentation of film strips and slides, audience participation increases the amount of knowledge retained.

Slides can be used effectively to clearly establish objectives before going on field trips or before starting demonstrations.

To be most useful, exhibits should be readily portable. Animation in exhibits and displays helps to attract attention.

Demonstrations

The demonstration is a group teaching method that must be distinguished from an experiment. Demonstrated practices are based on adequate research.

Practical demonstrations offer an opportunity to use actual materials and equipment in teaching.

The method demonstration is used to show how to

carry out a practice. The practice is presented to the individual or group by telling, showing, illustrating, and questioning.

A result demonstration is a method of teaching designed to show by example the practical application of an established fact or group of facts. With this method the extension worker can utilize the results secured from adoption of a practice or combination of practices to prove by comparison the value of the new method. Result demonstrations furnish a check upon the basic soundness of recommendations and programs of work. They serve as visual evidence that a worthwhile extension program is in progress.

Field Trips

The field trip as a teaching aid provides a means of using actual material for study and actual equipment for teaching. The trip is planned to teach specific practices or to provide specific material for study.

An outline and map of the trip; with space for notes, major points to be stressed, and references to bulletins; is provided by the field-trip leader.

Camps

As a group method with special functions, camping is a valuable extension method. It is especially valuable for 4-H club work. It emphasizes cooperation, stimulates interest in group activities and offers special opportunities for training in conservation, health, safety,

wood crafts, and many other subjects.

Camps broaden the education of young people and teach them health and safety habits that are valuable to them throughout their lives.

Meetings

The meeting is a group method used in extension teaching. Organization and planning meetings are designed primarily to get business done and to take action. Training meetings, more than any other type, are designed for a specific group. This type of meeting comes nearer to simulating classroom instruction than any other type of extension meeting.

Meetings may be conducted as forums, round-table discussions, symposiums, or panel discussions. A forum is a meeting at which a number of people may express themselves on a given subject. Usually the subject is introduced by one or more formal speeches or brief presentations.

A round-table discussion is primarily an informal discussion by a small specific group. The panel discussion is used with groups too large for round-table discussions. The participants discuss a subject in a conversational manner followed by a general discussion which is shared by the audience.

A symposium refers to a conference at which the views of several persons are presented in the form of speeches. It seldom provides time for a discussion. A

symposium is adapted to presenting a number of aspects of a subject about which technical information is best presented by several persons.

Short Courses

The term "short course" applies to a special type of conference, usually a week or more in duration, with lectures, individual conferences and emphasis on small working groups. The work sessions are under the guidance of qualified consultants.

Personal Contact

The personal contact extension method affords the most direct means of suggesting, introducing ideas, influencing attitudes, and stimulating thinking. The personal influence aids in developing a cooperative service devoted to the welfare of a community, to enlist leadership, and to employ local resources.

This influence combined with sound information is basic to successful extension education. Personal contacts lay the foundation for the confidence necessary in group action.

APPLICATION OF EXTENSION METHODS TO WILDLIFE PROBLEMS

All of the extension methods mentioned in the preceding section have been used effectively by wildlife extension specialists.

News releases, radio talks, displays, exhibits, posters, and demonstrations have been used by wildlife specialists to call attention to wildlife matters.

After gaining attention, meetings of various types, visual aids, news items, radio programs, bulletins, tours, and circular letters have been used for arousing interest.

Developing both confidence in and the desire to utilize recommended wildlife practices have been accomplished by wildlife extension specialists by making such practices economical, practical, and readily adaptable.

Confidence in recommended practices has been accomplished mainly by demonstrating their values. The demonstration method in wildlife extension work has been used in farm fish pond, muskrat marsh, and wildlife habitat development, and in pointing out to landowners the benefits derived from such developments. The demonstration has also been used for teaching effective methods of trapping furbearers, preparing pelts for market, controlling rodents and other nuisance wildlife, setting out food and cover plants for wildlife, and setting up winter feed stations for wildlife.

The publication of bulletins has been used extensively in wildlife extension work to supply in detail the recommended practices proven by research. Bulletins have also been used to explain 4-H club wildlife conservation projects.

Camps and field trips have been especially useful in teaching wildlife conservation practices to youth groups.

Short courses and work shops have been utilized by wildlife extension specialists to acquaint landowners, sportsmen, and others with wildlife matters.

There are few, if any, extension methods that have not been used effectively in wildlife extension work.

PROGRAM OF WORK

A program of work for wildlife extension activities must necessarily encompass the wildlife problems confronting the people of both the rural and urban population in Utah. Therefore, the work of the wildlife specialist should be divided into three major categories: 1. adult programs, 2. youth programs, and 3. liaison programs.

Adult Programs

Service to Farm People

Rodent control

Aid in the prevention of damage to agricultural crops by wildlife species.

Aid in formulation of balanced land management programs including habitat improvement.

Aid in farm fish pond development and management.

Aid in farm marshland development to increase numbers of muskrats for added farm income.

Assist in organizing game management cooperative units. (Appendix Exhibit 3).

Conduct land use tours for farmers.

Assist in conducting conservation workshops or short courses for farmers.

Provide educational information and materials
on fish and wildlife matters:

- Bulletins
- News releases
- Radio talks
- Correspondence
- Talks to farm groups
- Demonstrations

Cooperation with Sportsmen

Conduct field trips to show sportsmen relationship of wildlife and other resources -- particularly agricultural resources.

Assist in conducting conservation workshops or short courses for sportsmen.

Provide educational information and materials on farmer-sportsman relationships and other wildlife matters:

- Bulletins
- News releases
- Radio talks
- Correspondence
- Talks to sportsmen's groups
- Demonstrations

Cooperation with Managers of Fur Farms and Fish

Hatcheries

Provide research information on disease control and nutrition.

Youth Programs

Cooperation with 4-H Leaders

Development of 4-H club projects.

Pheasant management

Wildlife winter feeding

Wildlife habitat improvement

Wildlife refuge development

Hunting and fishing

Learning and obeying game laws

Sportsmanship

Safety

Constructing and erecting bird houses

Fur management and trapping

Preparation of project bulletins.

Talks to 4-H clubs.

Demonstrations.

Assist in conducting conservation workshops or
short courses for 4-H leaders.

Cooperation with 4-H clubs, scout troops, Future

Farmers of America, junior wildlife federations,
and other youth groups.

Junior rifle training schools.

Tours in cooperation with other conservation
specialists.

Aid in conducting conservation camps.

Woodcraft

Safety procedures

Nature study

Nature hikes

Trapping

Provide educational information and materials on wildlife conservation:

Bulletins

News releases

Radio talks

Motion pictures and lectures

Liaison Program

Act in a liaison capacity in matters concerning wildlife management as the Extension Service representative with the State Fish and Game Department, Federal land management agencies, organized landowner groups, agricultural experiment station, wildlife research unit, and others. For the purpose of gaining a better appreciation of the activities and programs of these various groups, obtaining a general better understanding of their separate problems, and attaining desirable and cooperative solutions of mutual problems.

SUMMARY

1. Because of the economic importance of wildlife, which makes it a vital part of America's national economy, studies were conducted during the period from June, 1951, through March, 1952, in Cache County, Utah, to determine the possible need for state wildlife extension specialists, to summarize the extension programs in states having a wildlife extension service, and to develop a guide to wildlife extension work in Utah.

2. Eighty-five farmers, 5 sportsmen, 2 fur dealers, 3 youth leaders, and operators of 3 fur farms, 3 nurseries, 2 fish hatcheries and 5 locker plants in 21 communities of Cache County were interviewed.

3. Questionnaires were mailed to the 48 state extension service directors, the 28 Utah county extension agents, the 9 wildlife extension specialists in states having a wildlife extension program, and to 17 organizations concerned with wildlife conservation in Utah and the United States.

4. Of the 85 farmers interviewed 74 or 87 percent had one or more wildlife problems that a wildlife extension specialist could help them with. Of the 23 other persons interviewed 22 or 95.6 percent had wildlife problems.

5. Twenty or 71.4 percent of the 28 county agents in Utah to whom questionnaires were sent had either wildlife problems or requests for wildlife materials that

could be handled by a wildlife extension specialist.

5 6. Of the 4 persons representing organizations in Utah concerned with wildlife conservation and who returned the questionnaires, 3 or 75 percent felt there ^{was} is a need for wildlife extension specialists.

6 7. Forty-two or 97.7 percent of the 43 state extension directors (who returned the questionnaires) ^{was} felt there is a need for wildlife extension specialists.

7 8. Of the 9 persons representing organizations in the United States concerned with wildlife conservation (and who returned the questionnaires) 8 or 89 percent felt there ^{was} is a need for wildlife extension specialists.

8 9. From a survey of literature and through correspondence with state wildlife extension specialists in Michigan, Pennsylvania, New York, Texas, Oklahoma, Ohio, Alabama, Iowa and West Virginia a history of wildlife extension work was compiled, the accomplishments of wildlife extension specialists were summarized, and a guide to wildlife extension work in Utah was developed.

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APPENDIX

Appendix Exhibit 1.

COOPERATIVE AGREEMENT
BETWEEN
FISH AND WILDLIFE SERVICE, U. S. DEPARTMENT OF THE INTERIOR
AND
EXTENSION SERVICE, U. S. DEPARTMENT OF AGRICULTURE

- TITLE:** Cooperative Extension work in Wildlife and Fisheries Conservation and Restoration.
- LEADER:** To be appointed
- DATE EFFECTIVE:**
- LEGAL AUTHORITY:** Agricultural Appropriation Act for the Extension Service and the Coordination Act of March 10, 1934 (48 Stat. 401-16 USC 661-666).
- OBJECT:** The establishment of a cooperative extension program in wildlife and fisheries conservation between the Fish and Wildlife Service and the Extension Service will have the following objects:
1. To develop a better understanding and appreciation of fish and wildlife resources as a permanent part of agriculture and in the development of a National land policy.
 2. To stress the importance of fish and wildlife resources in land management policies in both State and Federal activities embracing the following:
 - a. Control of predatory animals and injurious rodents (as outlined in Memorandum of Understanding of March 29, 1941)
 - b. Farm pond development and management.
 - c. Fur animal production, including fur farming.
 - d. Domestic rabbit production.
 - e. Wildlife and fisheries management.

- f. Economic value of fish and wildlife.
 - g. Wildlife disease control.
 - h. Prevention of damage by birds to agricultural crops.
 - i. Status and distribution of fish and wildlife.
 - j. Game and fish laws as conservation measures.
3. To perfect cooperative arrangements for extension work in wildlife conservation and fish management with State agricultural colleges in order that information may be placed before public agencies and into practice by landowners and operators.
 4. To review fish and wildlife projects submitted by the various State extension services, and to study methods most effective in securing their adoption.
 5. To prepare for publication information on fish and wildlife subjects and to disseminate this information in a manner best designed to carry out purposes of this agreement.
 6. To establish an effective liaison between the Fish and Wildlife Service and the Extension Service on all matters pertaining to fish and wildlife subjects.

ORGANIZATION
AND
PROCEDURE:

A National extension specialist in fish and wildlife conservation and management shall keep in touch with the fish and wildlife extension work in each State, and shall assist the Extension Service, particularly the State specialists assigned to this work, in the best methods of procedure, in full accord and in cooperation with State extension directors. He shall report in writing on the progress of work projects being carried out with Federal and State funds.

The general policies concerned with the development of a fish and wildlife extension program shall be mutually agreed upon between the Directors of the Extension Service and the Fish and Wildlife Service. The

Extension Service agrees to pay the salary and travel expenses of the specialist and provide suitable stenographic services. Should the Fish and Wildlife Service Chicago Office be returned to Washington, that Service and the Extension Service will furnish the specialist with office space, supplies and equipment. In the interim, office space will be furnished by the Extension Service.

The Fish and Wildlife Specialist shall be responsible to the Fish and Wildlife Service for all technical information used in the extension program. He shall be responsible to the Extension Service for establishing the proper operational contacts through the State Extension Directors and for the extension methods used in developing the program.

The extension specialist shall submit a report for each period of travel, one copy to the Fish and Wildlife Service, and one copy to the Extension Service. At the end of each fiscal year, he shall make a full progress report of the cooperative fish and wildlife extension work for submission in the same manner as field reports. From time to time as may be mutually agreed upon, he shall prepare reports on special features as the subject matter may require.

COOPERATION: Fish and Wildlife Service, U.S. Department of the Interior and Extension Service, U.S. Department of Agriculture.

PUBLICATIONS: Publications issued by the extension specialist in furtherance of this program shall be mutually acceptable to the Fish and Wildlife Service and the Extension Service, and these shall state clearly the cooperative relationship.

SOURCE OF FUNDS: Annual appropriation acts providing for Extension Service in accordance with a budget mutually agreed upon at the beginning of each fiscal year.

DURATION: It is intended that this cooperative agreement shall continue in force until terminated by written notice given by either Director to the other 90 days in advance of the effective date of the termination.

March 7, 1946
Date

(signed) Ira N. Gabrielson
Director, U.S. Fish and Wildlife
Service

March 7, 1946
Date

(signed) M. L. Wilson
Director, Extension Work

APPROVED:

(signed) Oscar L. Chapman
Acting Secretary of the Interior

(signed) Clinton P. Anderson
Secretary of Agriculture

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Appendix Exhibit 2.

MEMORANDUM OF UNDERSTANDING
between the
Michigan State College Extension Service
and the
State Department of Conservation, Game Division
relative to
FARM LAND GAME EXTENSION PROJECT

The purpose of this memorandum is to coordinate the efforts and unite the resources of the State Extension Service and the Game Division of the Department of Conservation in formulating and carrying on a program of game management in the farm land areas of the state.

To effectuate this purpose:

A. The State Conservation Department Game Division agrees:

1. To employ a Farm Land Game Specialist who will be mutually satisfactory to the Game Division and the Extension Service and who will devote his full time to the educational program provided for in this memorandum.
2. To make available to the Farm Land Game Specialist the resources of information and field contacts which will be helpful in an educational program.

B. The Michigan State College Extension Service agrees:

1. To cooperate in the selection and employment of a Farm Land Game Specialist.
2. To provide office space, office equipment and supplies and adequate stenographic assistance.
3. To administer the daily schedule and to provide funds for the payment of travel accounts under regulations which now apply to all extension employees.
4. To provide forms for making monthly and annual reports and to have copies of all reports furnished to the parties to this agreement.
5. To maintain a cooperative working relationship between the Farm Land Game Specialist and the County Agricultural Agents, 4-H Club Agents and Agricultural Specialists.

C. It is mutually agreed:

1. That for subject matter taught the Farm Land Game Specialist will be responsible to the Head of the Game Division, who will refer him to members of the staff of the Department of Conservation and to members of appropriate Departments of the Michigan State College.
 2. That the headquarters of the Farm Land Game Specialist will be at the Michigan State College.
 3. That letterheads, bulletins written for this project, press releases, etc., used in relationship to this project shall show the cooperative nature of the project.
 4. That materials published and press releases issued shall be approved by the Head of the Game Division and the Director of Extension.
 5. That the Specialist will submit an annual report each year on or before December 31st to the Head of the Game Division and the Director of the Extension Division.
 6. That obligations of the cooperating parties in this agreement shall be contingent upon federal and state appropriations or such other funds as are shown in approved budgets each year, and may be terminated at any time by mutual consent or by either party at the end of any fiscal year but not earlier than June 30, 1940.
 7. That the required working time, sick leave and vacations shall conform to the established regulations for other Department of Conservation employees.
- D. General considerations for guidance in development of Farm Land Game Project:
1. That sportsmen are greatly interested in game in the farm areas of southern Michigan which are near to their places of residence and business.
 2. That farmers are facing problems incident to hunting, such as trespass nuisance, lack of knowledge of community hunting organizations and opportunities for income from game.
 3. That there is need for mutual understanding between sportsmen and farmers, based upon the appreciation of the problems and points of view of each.

Signatures:

Date _____ Director of Extension Work,
Michigan State College

Date _____ In Charge of Game Division
Department of Conservation

August 3, 1939

Appendix Exhibit 3.

SUGGESTED ARTICLES OF ASSOCIATION FOR A
GAME MANAGEMENT COOPERATIVE*

I. Name -- This organization shall be known as the
Game Management Association.

II. Membership -- The membership of this Association shall consist of all landowners or land operators who have signed up their lands as a part of the Game Management Area on the approval form copies of which are attached and are a part of this instrument; also such others as may be elected to membership from time to time.

III. Officers -- The officers of this Association shall consist of a President, a Vice President and a Secretary-Treasurer. Such officers shall be elected annually and will hold office until their successors have been elected and installed.

IV. Executive Committee -- The Executive Committee shall consist of the officers of the Association and three other members, appointed by the President, who shall transact all business of the Association between meetings.

V. Other Committees -- The President shall appoint such other committees as may be deemed necessary to direct the activities of the Association.

VI. Meetings -- The annual meeting of the Association shall be held during the early spring each year, the exact date and place to be fixed by the Executive Committee. Other meetings shall be held as often as necessary and at such times as the President or Executive Committee may determine.

A majority of the members shall constitute a quorum for the transaction of business at any regular or called meeting.

GENERAL OBJECTIVES

The object of this association shall be to:

1. Provide adequate protection for game and other desirable wildlife.
2. Establish and maintain the game management area for the increase of all game birds, non-game birds, game

*From the 1951 Plan of Work of the Texas Wildlife Extension Specialist.

- animals, fur-bearing animals and fishes.
3. Improve cover and food conditions for wildlife.
 4. To properly stock and manage the farm ponds of the area; to protect against pollution.
 5. Regulate the taking of game to insure an adequate supply of seed stock.
 6. Provide regulated hunting in cooperation with the State Fish and Game Commission at such time as game supplies might warrant to assure the development and maintenance of a maximum game crop.
 7. Prohibit hunting or trespassing in violation of state laws, or the rules and regulations of the Association.
 8. The objectives of this Association shall be carried out under the general direction of the Executive Committee, or such other committees as may be appointed from time to time.

PROGRAM OF THE AREA

The program of the area shall include the following:

1. Protection.
2. Food and cover improvement.
3. Maintenance of predator balance.
4. Regulated harvest of game and fur-bearing species, fish, etc.

Protection

1. Each member of the Association may erect the adopted marker or protective sign on and around his individual holdings (optional). Such markers to be erected at the members own expense.
2. Any member of this Association who may for any reason withdraw his lands as a

part of the cooperative unit shall immediately remove all markers from his land and cease to make further use of same.

3. It shall be the duty of each member to protect the wildlife on his own lands and to report any illegal trespassing to the Executive Committee whether such trespass be on his own property or the property of a fellow member.
4. The Executive Committee shall be the law enforcement committee for the Association and this committee shall cooperate with the local game wardens in law enforcement cases.
5. Any expenses incurred by the Executive Committee in enforcing the law shall be paid by the Association upon approval of the membership.

Food and Cover

The following activities have been adopted by the Association to improve the food and cover conditions.

1. To save and increase game cover along fence rows, road sides, ditches, gullies, and other places where it will not interfere with farming practices.
2. To protect and make additional plantings of fruit bearing trees, shrubs, berries, etc., needed for wildlife; to plant plum orchards in the nooks and corners or on wasteland areas as cover spots; provide grape and berry hedges at the head of gullies and along ditches.
3. To construct brush shelters for quail with brush or by half cutting small trees and tree limbs and bending them to the ground where they will continue to grow.
4. To apply phosphate and other fertilizers to the ground beneath the shelters to increase weed growth and other vegetation for cover.
5. To plant cover patches or strips of grain to be left unharvested for the birds.

6. To prevent the destruction of nesting cover by fire; to protect the nests of birds and the dens and den trees of wild animals.
7. To provide farm ponds for an adequate water supply for livestock and for the production of fish.
8. To follow a deferred grazing program with livestock and guard against overstocking the range.

Predator Control

1. The following species have been placed on the undesirable list and will be controlled: stray house cats; Cooper's hawks; sharpshinned hawks; duck hawks; and wolves.
2. A careful study shall be made of all species classified as predators in order that such may have their proper place in a balanced game management program for the area.

Harvest of Game, Fur-bearers and Fish

1. It shall be the policy of this Association to operate the unit under a "regular harvest" plan and not on a long-time "closed season" basis.
2. Each member of the Association shall continue to exercise complete control of his own premises and be responsible for his own lands. No rights or privileges are automatically surrendered or granted by a member to anyone, not even the other members of the group.
3. Prior to the opening of the hunting season each year, the members shall take an inventory of available game on their respective units and report to the group in session. The members shall limit the "take" in accordance with their agreed allotments or surplus.
4. All hunting, trapping and fishing shall

be done in compliance with state and federal laws, and in accordance with the regulations of the Association.

5. All hunting, fishing or trapping by others than the owners shall be done under lease or under written permit.
6. The members of the Association shall keep a record of all game and furs taken on their individual holdings and report to the Secretary of the Association. The Secretary of the Association will compile reports for the entire area.
7. Regulations adopted which pertain to hunting, fees for hunting privileges, as well as all other details pertaining to same shall be recorded in the minutes of the meetings of the Association from time to time. The rules and regulations adopted and recorded in the minutes at either regular or called meetings shall be binding upon the membership.
8. Violations of state game laws, or any of the rules and regulations of the Association, shall bar the person committing such violation from hunting on the lands of the Association for such period as the Executive Committee may determine.

GENERAL RULES

1. Any member of the Association who fails to comply with the spirit or letter of the Association, or the rules and regulations thereof, shall be summoned before the Executive Committee for such action as may be considered in the best interest of the Association, and said actions shall be final and conclusive.
2. These rules and regulations may be amended or expanded at any time upon approval of a majority of the members present at any regular or called meeting, and the rules adopted and recorded in the minutes of the meetings shall prevail.

AMENDMENTS

The foregoing plan of organization may be amended at any annual meeting by a two-thirds vote of the members of the Association.

SIGNATORIES

We, whose signatures appear on the attached forms, or whose signatures are otherwise affixed, constitute the membership of the _____ Game Management Association. We hereby enter into agreement to participate jointly in the program hereinbefore outlined, and to continue in full force and effort for a period of _____ years.

The above articles of association have been adopted by the majority of the members of this Association. We, the newly elected officers and Executive Committee, hereby declare the organization to be in full force and effect, this _____ day of _____ 19____.

Signed,

President Address

Vice-President Address

Secretary-Treasurer Address

Member Executive Committee Address

Member Executive Committee Address

Member Executive Committee Address

The State of
County of

)
)
)

KNOW ALL MEN BY THESE PRESENT

That I, _____ of the county and state aforesaid, desire to join my neighbors to protect, conserve and increase the desirable wildlife species of game birds, non-game birds, game animals, fur-bearing animals, adapted fishes, etc., do hereby bind myself together with my neighbors in consideration of said purposes, and such purposes only, agreeing to combine my lands and act as a unit with them. The following tracts of land are designated by me to become a part of said unit:

I hereby make application for membership in the _____ Game Management Association. It is my desire that this agreement and application be attached to the Articles of the Association to which I hereby subscribe.

I pledge myself to properly respect the game laws of this state and I will help others to do likewise.

Signed _____

Address _____