

REPORT ON THE ACTIVITIES
OF THE
JACKSON HOLE BIOLOGICAL RESEARCH STATION
SUMMER 1960

L. Floyd Clarke, Director

PHYSICAL FACILITIES

The most significant addition to the equipment and construction included:

1. Installation of cabinet space and bookshelves near all the tables in the large zoology laboratory. This made it possible to move a lot of the material and equipment from the tables, thus providing larger working area for the researchers. These cases were installed not only on the walls of the laboratory adjacent to the side tables but also on the center tables where no storage space had been provided previously.

2. The small darkroom, which has been used for storage and part of the library, was remodeled to provide stacks for all of the library. Previously part of the periodicals and books were housed in the botany laboratory and part in the zoology laboratory. This also increased the working space in the botany laboratory. All of the library periodicals and books were rearranged and properly organized and labeled for ready accessibility.

3. Metal clothes closet cabinets and metal cupboards were provided for each of the cabins with the exception of Numbers 7 and 9 and the director's house, which already had fairly adequate storage facilities.

4. The floors in all cabins as well as laboratories were cleaned and treated except in two cabins with floors which could not be treated because of their age. These will be painted next summer.

5. One half of the shop was equipped with shelves and animal cages as a vivarium for use by researchers working on small mammals.

6. A new herbarium case was purchased for the use of the Station, and through arrangements with the Park Service the entire Station herbarium has been combined temporarily with the herbarium at Park Headquarters where suitable space is available. This, we believe, will provide a much better herbarium for both the Research Station and Grand Teton National Park. This arrangement will also mean that the herbarium will be made available the year round instead of just during the summer season.

The problem of sewage disposal still remains an acute one, and although no major difficulty was encountered during the past summer, as soon as funds are available a new septic tank will be installed.

A new highway was completed by the Park Service which at one point is within 50 yards of the enclosed Station area. Also, a new telephone line was installed which passes right through the Station grounds. Previously the Station was approximately a mile away from any major highway and the telephone lines were quite some distance away. These changes were part of a Mission 66 program in the Park, and although they are not desirable changes from our point of view, only time will tell whether or not they constitute any real impairment of the effectiveness of research operations at the Station.

The Station is in serious need of two improvements:

1. Construction of a room to serve as a seminar room, library and reading room. The weekly seminars have been held in the living room of the home of the director, and the space available is not adequate. This room will be constructed either as a separate building or as an addition to the laboratory.

2. Construction of a log building to serve as bachelor quarters for research workers to replace the existing bunkhouse.

We will constantly attempt to improve the existing facilities to make them more pleasant and more effective in carrying out the various research programs.

SUMMARIES OF RESEARCH PROJECTS CARRIED OUT IN 1960

The Social Role of the Aging Ungulate

Margaret Altmann

Project Number 77

Work was continued on this project during the summer and early fall. A report on this summer's research is not available at the present time, but will be completed in December and will be on file with the reports of other research workers.

Assisted by John Ackerman, Kenyon College, Gambier, Ohio.
Supported by Grant No. M2599 from the National Institute of Mental Health.

Factors Affecting the Ecology of the Teton National Forest

Alan A. Beetle, David Clarke and James Hicks

University of Wyoming

Project Number 85

Five field seasons have been spent in the Jackson Hole region. Teton County, as a political boundary, does not exactly define the natural floristic area. Since there is little or no endemism among the plants of Teton County, other criteria must be sought for defining the boundaries of the Teton County flora as a unit. To do this, it seems most satisfactory to fall back upon geology and take the area which was so affected by the events of the Pleistocene that they are still reflected in the patterns of the vegetation.

This area of floristics which is peculiar to Teton County fades northward into the stable forest of Yellowstone National Park, includes all of the Teton Range, and the glaciated floor of Jackson Hole, as well as adjacent drainages of the Buffalo, Gros Ventre, and Hoback Rivers.

-23-

SEMINARS

Seminars were held each Thursday evening at 7:30 P.M. in the home of the Director. They were well attended by Research Station personnel, Student Conservation Program students, and other biologists who happened to be in the area at the time. The number of biologists attending varied from 40 to 58. This was more than the facilities would accommodate except by some standing or sitting on the floor. The space problem for seminars is a critical one. I sincerely trust we will be able to provide new accommodations before we have to restrict attendance. Each seminar was followed by an informal period of discussion and refreshments.

The following is a list of the seminars presented.

Margaret Altmann - Animal versus man: Interaction.
Robert W. Lichtwardt - Fungi living in the guts of insects and other arthropods.
Paul G. Roofe - Environmental factors affecting blood.
Charles S. Thornton - Regeneration of nervous tissue in salamanders.
Glenn A. Noble - Stress as a factor in parasitism.
J. Gordon Edwards - Ecology of high altitude insects.
Charles C. and Ann-Laing - High alpine ecology.
Alan A. Beetle - Range survey.
Dorothy Beetle - Molluscs of Jackson Hole.
Norman C. Negus and Edwin Gould - Small mammals of Jackson Hole: Ecological studies.
George B. Cummins - Rust-fungi parasitizing plants.

All of the seminars this year were excellent in quality, eliciting discussion and critical evaluation. The research workers presenting the papers as well as those listening profited not only from the reports but from the discussions which followed. The group this year was probably the most enthusiastic and stimulating we have had this far.

LIBRARY

The library books and journals are readily available for Station personnel. Some new books have been acquired and all subscriptions to periodicals continued. Current periodicals are placed in the laboratory for examination before being placed in the stacks. Reprints continue to come in from research workers of previous years. These together with publications of the Grand Teton National Park and the Forest Service are made available to investigators.

Duplicate copies or summaries of all reports of research workers are prepared for use of the personnel at the Station. One copy is kept on file in the Department of Zoology and Physiology at the University. A list of the reprints of publications which we have available on research conducted at the Station is included as an appendix to this report.

COOPERATION WITH OTHER AGENCIES AND INDIVIDUALS

Cooperation with Grand Teton National Park continued during 1959. Two projects were supported in part by National Park Service funds. These included a study of alpine ecosystems in relation to visitor use directed by Dr. Charles C. Laing, and plant identification studies under the direction of Dr. Alan A. Beetle.

The Jackson Hole Cooperative Elk Studies were continued not only at the Research Station, but during the year with the University of Wyoming, Forest Service, Grand Teton National Park, Yellowstone National Park, and the Wyoming Game and Fish Commission cooperating. It is hoped that as a result of the cooperative activities some solution will eventually be developed for the very difficult problem of management of the Jackson Hole elk herd. Many studies are being undertaken in this connection including periodic surveys of the areas affected by elk concentration, marking studies to facilitate our understanding of elk migration, and exclosure studies to determine the effect of elk on the native vegetation.

The summer of 1960 was the first year of a four-year lease prepared by the Grand Teton National Park and agreed to by the New York Zoological Society and the University of Wyoming. This insures the continued cooperation of these three institutions in the development of the research activities at the Station.

STUDENT CONSERVATION PROGRAM

Two students from the Student Conservation Program of the National Parks Association were assigned to the Station for eight weeks. These students worked under the supervision of investigators at the Station. Miss Toni Lincks was assigned to Dr. Charles C. Laing, who was studying the effects of visitor use on an alpine ecosystem in Grand Teton National Park. Miss Linck's study included a project of her own on bird populations of the region surrounding Lake Solitude. She prepared a very detailed map of the area and included the nesting sites and observation records for the species of birds occurring at this altitude. Miss Lincks also assisted in the identification of aquatic insects in connection with the project on aquatic ecology under the supervision of Dr. L. Floyd Clarke.

Miss Helen Gill worked on an aquatic ecology study under the supervision of Dr. L. Floyd Clarke. She presented a very complete and well organized report on the results of her activities. These included study of the aquatic fauna and flora of five beaver pond stations and intervening streams, together with an analysis of chemical and physical factors in the environment of each of these stations. Miss Gill was an outstanding research worker demonstrating originality, ability to organize and analyze research data in an effective manner. Both of these girls were exceptionally well qualified for work at the Biological

-25-

Research Station. They provided valuable assistance to the Station, and at the same time were exposed to a stimulating research experience. Both girls assisted in a program of library reorganization at the Station which was very helpful. In addition each of the girls was provided the opportunity to become acquainted with all the research projects underway at the Station. All of the research workers felt that the students had profited very greatly from this opportunity. I am sure that the girls themselves felt that they were amply rewarded for their efforts in terms of research experience gained, valuable biological information acquired and personal contacts with established investigators. Summary reports of their investigations were prepared by these students and presented to the Station director. Miss Helen Gill registered for four semester hours credit from the University of Wyoming, for which she received a "I" (A) grade. Both students expressed to the director on many occasions their appreciation for being allowed the opportunity of working at the Research Station.

Other activities were provided by the Research Station for the Student Conservation group, which consisted of 13 students at 95 Ranch and the two girls at the Station. All of these students attended the regular weekly seminars, and on many occasions joined with Research Station personnel in social functions, hikes, and other types of activity. A function of special note was the presentation of an orientation program for these students held on July 2, 1960, soon after they had arrived at the Park. This program was an attempt to provide these students with some general background information which would help to make the activities in Grand Teton National Park more meaningful. The following lectures were given and time for discussion was allowed after each.

General information on the Research Station and its objectives -

L. Floyd Clarke.

Game animals of the area - Margaret Altmann.

Small mammals of the area - Edwin Gould.

Birds of the area - Brad House.

Plants of the Jackson Hole valley - Alan A. Beetle.

Alpine plants in the area - Charles C. Laing.

Following these discussions the students were taken on a conducted tour of the Station where each research worker gave a brief discussion of his project combined with some demonstrations. Those cooperating in presenting their projects were Dr. Paul G. Roofe, Dr. J. Gordon Edwards, Dr. Robert W. Lichtwardt, Dr. Margaret Altmann, Dr. Glenn A. Noble, Dr. L. Floyd Clarke and Brad House, Dr. Charles S. Thornton, Edwin Gould, Dr. Alan A. Beetle, and Dr. Charles C. Laing.

The director of the Station worked in cooperation with Miss Ailene Kane and Miss Barbara Hart in the organization and presentation of this cooperative program with the National Parks Association.

VISITING SCIENTISTS

The Station, as in previous summers, continued to have a large number of visitors. The large number of scientific conventions held at Jackson Lake Lodge and Colter Bay contributed in no small measure to our visitors. For the most part those who came to the Station were fundamentally interested in research programs underway. However, we always have a few who are more curious than scientifically interested and a considerable number who seek advice on everything from what mushrooms are edible to where they go for the best fishing. Several European countries were included in the areas from which visitors came. Many scientists came for specific consultation with investigators at the Station. We always encourage this type of visitation and profit much from it. A long list of the names of these visitors is not thought important in this report, and if such a list were attempted, undoubtedly many deserving of mention would be omitted.

-27-

FINANCIAL REPORT

1959-1960

November 16, 1959 - June 30, 1960

<u>Item</u>	<u>Budgeted</u>	<u>Expended</u>	<u>Carried Over To Next Year's Budget</u>
Part-time Assistants	\$ 800.00	\$ 800.00	\$
Equipment	238.15	5.95	232.20
Supplies	425.16	53.40	371.76
Contractual	1,211.55	135.45	1,076.10
Travel	361.04	127.64	198.40
Fixed Charges	36.00	36.00	
Extraordinary Expense . .	54.40		54.40
Totals	\$3,126.30	\$1,158.44	\$1,932.86

July 1, 1960 - November 1, 1960

<u>Item</u>	<u>Budgeted*</u>	<u>Expended</u>	<u>Unexpended</u>
Research Projects	\$ 807.00	\$	\$ 807.00
Part-time Assistants	1,300.00	500.00	800.00
Equipment	1,368.71**	601.18	767.53
Supplies	1,071.76	524.94	546.82
Contractual	1,429.59	458.40	971.19
Travel	504.40	128.00	376.40
Fixed Charges	36.00		36.00
Extraordinary Expense . .	129.40	70.56	58.84
Totals	\$6,646.86	\$2,283.08	\$4,363.78

*Includes money carried over from previous year, therefore, does not indicate amounts appropriated for one year.

**Includes \$589.51 transferred from Contractual.

Rent received in the amount of \$875.33 was placed in the General Fund of the University.

The New York Zoological Society contributed \$500 toward the Director's salary in the form of an honorarium.

Grants-in-aid in the amount of \$1,800 were given by the New York Zoological Society.

National Science Foundation grant -\$2,083.28.

National Institutes of Health grant - \$2,722.00.

The Natural Resources Board supplied \$2,000.00 to the Wyoming Agricultural Experiment Station for range studies.

The National Park Service supplied \$5,000.00 for the two-year period, 1959-1960, for the alpine ecology study.

Other projects not included here were supported by grants from various sources.