REPORT ON THE ACTIVITIES
OF THE
JACKSON HOLE BIOLOGICAL RESEARCH STATION
SUMMER 1959

L. Floyd Clarke, Director

PHYSICAL FACILITIES

No new construction was undertaken during the summer of 1959. After six years of work on improvement of facilities, the Station at present is in fairly satisfactory condition. The most recent improvements completed the preceding year, which included installation of showers, toilet facilities, and wash basins, proved very satisfactory. However, the septic tank installed for these facilities was found to be inadequate to handle the sewage volume. It will be necessary to install an additional septic tank in the near future.

The gasoline tank and pump worked out very satisfactorily, dispensing approximately 2,000 gallons of gas for use of Station personnel.

Equipment and supplies were reorganized in an attempt to increase available space. Existing herbarium cases are completely filled, and an additional case will need to be purchased for next year.

Toward the end of the season this summer a project was begun to sand and treat floors in the laboratories and all the living establishments. The large zoology laboratory and one living quarter were completed. We expect to have the remainder largely completed by the time the research workers arrive next summer.

Much of the space in the shop was used as a vivarium, and will be used for this purpose next summer.

At present we have no plans for increasing the size of the Station, however, we do expect to make the following improvements as soon as possible.

1. Construction of a room to serve as a seminar room, library and reading room. The library is now located in three different places. 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.

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, Park Service employees, Forest Service employees, and other biologists who happened to be in the area at the time. The number of biologists attending varied from 30 to 69. This was more than the facilities would accommodate except by some standing or sitting on the floor. Each seminar was followed by an informal period of discussion and refreshments.

This year's seminars featured some outside speakers, including Dr. David Love with the U.S.G.S., Dr. Olaus Murie, President of the Wildlife Society, and the symposium speakers on the elk management problem listed below. These seminars are extremely valuable in stimulating critical discussion of the biological studies undertaken at the Station. The individual presenting the seminar undoubtedly profits most from the suggestions and criticisms offered by his colleagues.

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.

The following is a list of the seminars presented.

Alan A. Beetle - Lodgepole Pine. Jackson Hole Elk Range Studies.
Paul G. Roofe - Origin of Overt Behavior: An Introduction.
Charles S. Thornton - Regeneration in Salamanders: Progress Report.
David Love - Geology of the Jackson Hole Area.
Symposium on Elk Management Problems - Robert Bendt, Biologist, Grand Teton National Park; Robert L. Casebeer, Biologist, Teton National Forest; Chester Anderson, Technician, Wyoming Game and Fish Department; Ernest J. Greenwalt, Manager, National Elk Refuge; and Kenneth L. Diem, Assistant Professor of Zoology and Game Management, University of Wyoming.
Margaret Altmann - Comparative Studies of Ungulate Behavior.
Olaus Murie - Arctic Wildlife Range.
Gerald Scherba - Ecology of Ants in Jackson Hole.
Charles C. Laing - Ecology of Cirque Basins in the Teton Range.

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. There were eight new publications by research workers at the Station which came out in 1959. These publications by research workers are made available to all who want to examine them. Literature dealing with Grand Teton National Park and other publications pertinent to the activities of the investigators at the Station are made available.

Duplicate copies or summaries of all reports of research workers are being 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 repirnts 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

The Biological Research Station cooperated with Grand Teton National Park in two projects which were supported in part by the Park Service. The first of these was a continuation of a study started in 1958 on the effect of visitors on alpine ecosystems in the Tetons under the direction of Dr. Charles C. Laing; and a second special study directed by Dr. Alan A. Beetle in cooperation with Grand Teton and Yellowstone National Parks, dealt with exclosure areas.

Drs. Kenneth Diem and Alan A. Beetle and others cooperated with a number of agencies in the Jackson Hole Cooperative Elk Studies. Among the individuals from other agencies who cooperated with the Research Station and gave valuable advice were Robert Casebeer, biologist for the U.S. Forest Service; Robert Bendt, biologist with Grand Teton National Park; Chester Anderson of the technical services division of the Wyoming Game and Fish Department; and many others.

A new lease was prepared by the Grand Teton National Park and submitted to the New York Zoological Society for signature insuring the continuation of operation of the Biological Research Station.

STUDENT CONSERVATION PROGRAM

Three students from the Student Conservation Program of the National Park Service were assigned to the Station for eight weeks. These students worked under the supervision of investigators at the Station. Mr. Robert Tesh was assigned to Dr. Glenn A. Noble to make a study of the importance of stress factors in animal parasitism. Mr. Tesh proved to be a very competent assistant and contributed much to the success of this important project. He was also assigned a limited amount of time to assist Dr. Paul G. Roofe. Both Dr. Roofe and Dr. Noble were highly complimentary of Mr. Tesh's contributions to their projects.

Miss Ann Henrikson was assigned as an assistant to Dr. Charles C. Laing for study of alpine ecology, where her knowledge of plant taxonomy and ecology proved extremely valuable. Miss Barbara Hart was assigned to the alpine ecology study and also to the Swan Lake pollution study. Her excellent background in chemistry and her industrious attitude both helped in the pursuit of these projects.

In addition, each of these students was provided the opportunity to become acquainted with all the research projects underway at the Station. Summary reports were prepared by each of these students and are available to anyone interested. These are too extensive to include here. The personnel at the Station felt that these students profited immensely from this opportunity, and the following quotes from the reports of the students indicate that they, likewise, felt that they had gained much from the experience.

"The benefits derived from my summer at the Jackson Hole Biological Research Station are somewhat intangible. The opportunities available were almost unlimited. Contact with the researchers and their various problems of study was most enjoyable as well as educational. The weekly seminars were most interesting and informative in that they provided a means of becoming familiar with the research projects going on at the station as well as presenting a better concept of some problems such as wilderness areas and elk management. Living with people who were concerned about nature and living things helped me create a new awareness of nature. The desire to watch and study plants and animals could be realized. There was time and opportunity to watch and observe the plants and animals in their natural habitats.

"My summer at the station has given me an increased desire and determination to attend graduate school. It has also given me an idea of some projects being carried on in the natural sciences and has given me a new goal for which to strive. I wish to thank all those concerned for this wonderful opportunity."--Barbara Hart

"Of the seventeen Student Conservation Volunteers in Grand Teton National Park this summer the most fortunate were the three chosen to be research assistants at the Jackson Hole Biological Research Station. If I was pleased when I received notification that I had been assigned to JHBRS, I was even more pleased when I got there and compared my lot with that of the other SCP'ers.

"One of my reasons for going to the Tetons was to become acquainted with the biota of the area. This goal was accomplished as well as could be expected in a single summer. In addition to gaining some familiarity with the flora and fauna, the geology and ecology of Jackson Hole and the nearby mountains, I attempted to photograph as many of the flowering plants as possible and the mammals whenever the opportunity presented itself. In all, somewhat more than 130 color transparencies of plants were obtained, representing about 100 species. I also collected and pressed a fair number of plants, perhaps 100 or so, with the idea of contributing them to the herbarium of the University of Minnesota. We were informed on our arrival that we would be expected to carry out some project of our own and this was my project."--Ann Henrikson

Although no direct quotation is available from Mr. Robert Tesh, he expressed many times during the course of the summer how extremely valuable the research experience at the Station was to him.

As during the summer of 1958 the Station personnel presented lectures to the entire group of SCP students. Also, many of the students in addition to the three at the Station attended the weekly seminars. All of the students visited the Station as a group and were given an opportunity to discuss various aspects of the research projects with the principal investigators. On several occasions many of the people at the Station joined with these students in social functions. The cooperation of Mr. and Mrs. Albert Nelson, who were in charge of the remaining students under the SCP, as well as the cooperation of Elizabeth Cushman and Ailene Kane, who organized and directed the entire program, is appreciated.

Plans are being made by the National Parks Association for the Biological Research Station to assume even a more significant role in the training of the students under the SCP. In addition to the activities carried out during the past summer, the Station is being asked to assist in the general orientation program for these students. Personnel at the Station are being asked to provide information on the flora, fauna, and geology of the area and to present the problem of conservation of natural resources as applied to Grand Teton National Park. The value to these students undoubtedly justifies the increased time and effort devoted to this program.

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 and counsel on everything from what mushrooms are edible to where they go for the best fishing. The International Great Plains Entomologists Conference supplied us with many visitors from Canada as well as the United States. 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.

FINANCIAL REPORT
1958-1959

November 1, 1958-June 30, 1959

Item	Budgeted	Expended	Carried Over To Next Year's Budget
Part-time Assistants . . .	$ 800.00	$ 800.00	$
Equipment	721.10	644.01	77.81
Supplies	444.37	63.44	380.93
Contractual	862.78	85.79	776.99
Travel	451.20		328.00
Fixed Charges	36.00	36.00	
Extraordinary Expense	37.24		37.24
Totals	$3,352.69	$1,629.24	$1,600.97

July 1, 1959-November 15, 1959

Item	Budgeted*	Expended	Unexpended
Research Projects	$ 634.00	$ 634.00	$
Part-time Assistants . . .	1,300.00	500.00	800.00
Equipment	2,464.81	2,226.66	238.15
Supplies	880.93	455.77	425.16
Contractual	1,719.99	508.44	1,211.55
Travel	550.00	188.96	361.04
Fixed Charges	36.00		36.00
Extraordinary Expense . .	112.24	57.84	54.40
Totals	$7,697.97	$4,571.67	$3,126.30

*Includes money carried over from previous year, therefore, does not indicate amounts appropriated for one year.
Rent received in the amount of $804.48 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.
Grants from the National Science Foundation totaled $3,599.66.
Interregional Research Program supplied $7,500 to the Wyoming Agricultural Experiment Station for sagebrush study.
The Natural Resources Board supplied $2,000 to the Wyoming Agricultural Experiment Station for range studies.
The National Park Service supplied $5,000 for the two-year period, 1959-1960, for the alpine ecology study.