

STUDENT CONSERVATION PROGRAM

Four students worked at the Research Station under the Student Conservation Program. These students were W. Brenton Costain, Marilee Hylant, Susan Jane Noble, and Cleo C. Pierre. Their program of activities was divided into two major parts, (1) to become acquainted with the various Federal and State agencies concerned with conservation in the area, and (2) to carry out an individual research project. The schedule of activities included the following:

1. A two-day orientation program with Grand Teton National Park Service in Moose. Participating were Mr. Jack Anderson, Superintendent and the heads of various divisions.
2. A Forest Recreational Activities Program conducted by Mr. Bill Jackson.
3. A visit to the Federal Fish Hatchery with explanation of its operation and significance by Ross Kientz and Marvin Tygum.
4. Explanation of operation of Wyoming State Game and Fish Department and its importance in the Jackson Hole area by Kenny Martin, District Warden.
5. Explanation of administration and operation of Teton National Forest by Forest Supervisor Safran.
6. A visit to the Fish and Wildlife Service Elk Refuge. Manager Redfearn discussed the functions of the Refuge including the winter elk feeding program.
7. A two-day visit to Yellowstone National Park at Mammoth with an explanation of the operation of the interpretive program by Stan Cantor, Assistant Naturalist.
8. An explanation of the operation of the U.S. Reclamation Service with emphasis on the importance of the Jackson Lake Dam, by Supervisor Braman.
9. An illustrated lecture and explanation of wildlife in Jackson Hole by John Turner.
10. Seminars by research workers at the Station, listed elsewhere in this Report.

Following are summaries of the reports of these students' research projects:

Biotic Succession in Lodgepole Pine Communities of Fire Origin
in Yellowstone National Park
W. Brenton Costain

Instruments were set up in six burned areas of Yellowstone National Park that were 7, 13, 25, 57, 90, and 260± years old, and analyses were made to measure the variation in physical factors, soil characteristics, plant cover, and animal

communities. The 7, 13, and 25 year old burns were found to represent open habitats. The 57 year old burned area presented a closed canopy forest with a still extensive ground cover. In the 90 year old burn the undergrowth was still sparse and in the 260 year burn, it was negligible in most areas.

Particular emphasis was placed on studying observable vegetation at the Otter Creek Lightning Burn of July, 1966. In this area, the fire had burned to mineral soil over most of the area, but there was little evidence of erosion. Neither big game animals nor birds avoided the burned area. A canopy coverage analysis was run along an arbitrary transect across the burn. The burn remains largely devoid of plant growth; bare soil and deadfall lie on 95% of the area. Comparison is made of the 1966 Otter Creek Burn and the 1960 Central Plateau Burn (in an area west of the 1966 burn) in regard to canopy coverage. In the 1960 burn, lodgepole seedlings still cover only 1% of the ground. Other vegetation present at the 1960 site shows that evidently plants which dominate the early stages of recovery appear during the first season after the fire. Analyses of soil at various depths were made in order to predict the potential of the area to support an adequate plant cover in the next few years. These soil samples await more thorough chemical analysis.

Techniques and Uses in the Study of Mammalian Chromosomes Marilee Hylant

The purpose of this study was to learn something of taxonomic identification, especially the techniques involved in the determination of chromosome counts and karyotypes of mammalian species, specifically, Spermophilus armatus, the ground squirrel, and a vole, tentatively identified as Microtus montanus. Since it is often difficult to make identification on the basis of morphology alone, karyotyping and chromosome count become increasingly important in taxonomy. Techniques detailed in this report include trapping, slide preparation, slide staining, photography, karyotyping and Basic Number (N. F.). After preparing and studying chromosome slides of S. armatus, the same methods of chromosome preparation and study were utilized to identify tentatively M. montanus.

A Study of the Variability in Five Species of Castilleja in the Vicinity of Jackson Hole Research Station Susan Jane Noble

The purpose of this project, conducted during July and August, 1967, at the Jackson Hole Research Station, was to study variations within the local populations of Castilleja. Ninety-six specimens were collected from 11 sites at elevations ranging from 6,750 to 9,000 feet in Grand Teton National Park, Teton National Forest, and Yellowstone National Park. Observations were recorded in regard to the site, soil type, and relative moisture and sunlight. Associates of Castilleja were also noted. Various plant characteristics were noted, e.g., plant height, color and shape of bract, length and shape of calyx, etc., and the plants were thus identified and classed into five species and one hybrid. The occurrence of hybrids in the populations sampled was 6.25% of the total number of collected specimens. C. miniata expressed the greatest variations in floral and leaf