

Some Aspects of Plant and Animal Distribution
as Affected by Geologic Formations
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During the summer of 1961, preliminary investigations were carried on for a proposed three year study which will attempt to evaluate and correlate quantitative and qualitative differences of various plant and animal populations occurring on five different geological formations. Study areas were located in Yellowstone National Park on Pitchstone Plateau, 8,800 feet, and on Two Ocean Plateau, 9,200 feet. In the Teton National Forest study areas were located on Big Game Ridge, 9,400 feet, and on Huckleberry Ridge, 9,200 feet. The Moran study area, 6,800 feet, was located in Teton National Park adjacent to the Biological Research Station. Geological formations represented by these study areas are rhyolite lava, pyroclastic andesitic conglomerates, Cretaceous freshwater sandstone-claystone sediments, late Jurassic marine sandstone sediments and sediments of fluvial and glacial origin, respectively.

Subalpine meadow study area selections were made during the last half of June. Field investigations were conducted during July and August. On each study area the mountain pocket gopher (Thomomys talpoides) populations were sampled with Macabee traps. Other small rodent populations were sampled with snap traps. In late August, on three study areas, a pocket gopher density index was developed by counting new mound diggings on a transect measuring 3,000 feet by 10 feet. Prolonged rain and snow made it impossible to complete these counts on the remaining two areas. Vegetation was clipped from two 9.6 sq. ft. plots and was then weighed. Moisture content of this vegetation was then determined by drying the plants to a constant weight in an oven at temperatures between 65° and 80° C. At each study area, 50-60 g. of the flowers, stems and leaves, and roots of Agoseris, Lupinus, Achillea, and Erigeron were clipped for qualitative analytical studies. These plant parts and the pocket gophers were placed in plastic bags and quick frozen in a dry ice freezer at the time of collection.

Four soil core samples were taken in each area. In addition, two soil samples were taken at each of the four core sample stations, one at the surface and one at the six inch depth. From these soil samples determinations of the physical and chemical characteristics will be made in the University of Wyoming soil laboratories. At these same four stations, water infiltration studies were conducted with 12 fl. oz. tin can infiltrometers.

A total of 32 pocket gophers were collected from the five study areas. The Moran area had the highest density of pocket gophers while the Pitchstone area had the lowest density. We observed that regions of gopher activity were correlated with plant aggregations chiefly consisting of Agoseris, Achillea, Lupinus, and Erigeron which correlated with observations of other investigators. Trapping results for

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other small rodents indicated that those populations were non-existent or extremely low in density on the high altitude study areas.

Considerable variation in phenological development caused some problems with the collection of plants and plant parts at comparable growth stages from one study area to the next. This may be one of the most difficult aspects of future field work in this investigation.

Analysis of soils, plants and animals collected during the course of the summer's field work will be completed at the University of Wyoming during the current school year.

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Population Study of Canada Geese in Jackson Hole, Wyoming

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Project Number 113

General Objectives of Study:

1. To conduct a physical inventory of the Snake River drainages in Jackson Hole to determine the seasonal distribution, size and productivity of the resident goose population.
2. To evaluate the various factors influencing Canada Goose habitat and productivity, i.e. variable stream flow, proposed water impoundments, hunter concentrations, etc.
3. To formulate a management plan suitable for protection of the habitat, optimum productivity, and wise harvest of the Canada goose population in Jackson Hole, Wyoming.

This study will continue through the summer of 1964. The study area includes the Snake River drainage in Jackson Hole Wyoming from South Park to the Flagg Ranch north of Jackson Lake. Extensive surveys into Yellowstone Park will be made to determine sources of geese migrating through Jackson Hole.

Periodic censuses of the post-reproductive population throughout the study area were taken during the period July 24-September 2, 1961. The maximum population occurred during late August when 733 individuals were counted. The major concentrations of geese occurred near the mouth of Berry Creek in the north end of Jackson Lake and in the Third Creek-Pilgrim Creek area near Jackson Lake Dam. These areas offered