

POPULATION STUDY OF CANADA GEESE  
OF JACKSON HOLE

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Objectives

Between 1955 and 1974, the population of Canada geese in the United States almost doubled. Despite this trend, populations in the Pacific Flyway appear to have declined 10 percent (Bellrose 1976) and the causes for the decrease are not obvious. During earlier work, Dimmick (1968) concluded that the 1964 breeding population in Jackson Hole was stabilized at approximately 300 birds with 40-47 percent consisting of breeding pairs. The current status of the goose population is not known and the effects of dramatic changes in land use on the birds is undetermined. Therefore, this study will attempt to compare current conditions and the resulting population status with those of the early 1960's and the late 1940's (Craighead and Craighead 1949).

These topics are being studied:

- 1) A physical inventory of the Snake River drainages in Jackson Hole is being conducted to determine seasonal distribution, size, and productivity of the Canada goose population;
- 2) The various factors influencing quality and quantity of goose habitat and productivity are being identified and evaluated;
- 3) A more complete understanding of the relative role of the Jackson Hole goose population as a factor in the population dynamics of the entire Rocky Mountain population (Krohn 1977) is being obtained; and
- 4) A management plan suitable for protection of the habitat and maintenance of optimum productivity of the goose population will be formulated.

Methods

Intensive ground and aerial surveys of the Snake River drainage in Wyoming are being conducted seasonally to determine numbers of Canada geese in its various components. The aerial censuses are being conducted in cooperation with the Wyoming Game and Fish Department. Thorough searches for nests, in the vicinity of observed singles and pairs will

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commence in early March, 1979, to establish the relative numbers of those geese actually engaged in breeding compared to those exhibiting displays but not actually producing young. Nests will be revisited throughout the spring to determine fate and chronology. Eggs will be collected on a system of stratified sampling and subsequently analyzed for toxicants. This analysis and other egg characters will be assessed via electron microscopy and other techniques to establish a baseline for egg quality.

Nest site selection, availability of nesting areas, and success of nests due to flooding will be correlated with the chronology of water level fluctuations of the Snake River. U.S. Bureau of Reclamation data will be used to graph such fluctuations at the Jackson Lake Dam. Climatological data will be compiled from various stations to detect other influences of the physical environment on goose activities. Qualitative and quantitative measurements of biotic and abiotic parameters will take place at each nest to determine preferred conditions. Observations during the latter parts of the spring and summer should indicate preferred habitats for brood rearing, molting, and feeding. Such areas will be fully characterized.

The effects of major land use changes and increased flood control diking by the U.S. Army Corps of Engineers on historical Canada goose habitat will be determined. Comparative aerial photography, available through federal and state agencies is being used for this purpose. Influences exerted by the vast increases in human populations and the consequent upsurge in recreational activities on the waterways will be evaluated.

### Results

The initial portions of the previous summer's fieldwork involved gaining familiarization of the areas to be censused. This was accomplished through numerous hikes, raft, canoe, and power boat trips in the Jackson Hole region. Equipment necessary for use in such activities has been prepared. Furthermore, contacts have been made with many professionals in various agencies to lay the groundwork for present and future cooperative ventures. I have reviewed the maps and photographs at the offices of Bridger-Teton National Forest and Grand Teton National Park to prepare for future studies already discussed. Pair-count and nest site data accumulated over the past 10 years at the National Elk Refuge have been compiled and reviewed. The cooperation of the individuals in these and other organizations has been secured. This will aid in providing the logistic support necessary for the study to proceed.

Areas which support large numbers of molting, feeding, and/or resting Canada geese have been located. On July 9, groups totalling 400-600 birds, many of which were in molt, were located in fields adjacent to the Southeast Arm of Yellowstone Lake. A little over a month later, on August 15, only approximately 100 were counted. Flight and regrouping behavior were noted on both occasions. Due to the low water levels on Jackson Lake and the subsequent land exposure, more geese are utilizing the northern end for feeding and resting than thought to in previous years (K. Diem, pers. communic.). Groups here have been counted at various

hours on different days (Fig. 1) as have those at a nearby location on the west side of the lake, 0.25 miles north of Lizard Creek. Apparently these areas are utilized for both feeding and resting as geese are present at all times of the day. This is in contrast to observations of the group on the pastures east of the Snake River at the Triangle X Ranch (Fig. 2). The low number of geese observed at 5:30 p.m., one hour before counts on other days, indicates a feeding-only area. Up to 120 Canada geese were counted during trips to the Third Creed region of Jackson Lake. Other areas in which at least 75 birds were counted are the Buffalo River oxbow behind the Pinto Ranch, Flat Creek on the National Elk Refuge, and the Skyline Ranch in Jackson. Plant collection and identification and characterization of the Jackson Lake and Triangle X areas of goose use has commenced.

Smaller numbers (<50) of Canada geese have been observed along the Snake, Gros Ventre, and Buffalo Rivers; Jackson and Lower Slide Lakes; and on numerous ponds in the study area. Goose scat and feathers have been discovered at various locales and the possibility of using such sign as an index of activity is being investigated.

### Discussion

The northern end of Jackson Lake has become a valuable area of various goose activities in the summer months. When the Jackson Lake Dam is reinforced and the Lake is allowed to return to its formerly higher levels, the usefulness of this area to the geese will certainly be diminished. The birds there, as well, appear to be considerably more sensitive to human disturbance than compared to those in the Third Creek region. This has been surmised after a comparison of the distances at which the geese in these two areas will flush, given approximately the same visibility of intruders. Of related importance is the fact that almost all of the geese in the fields across from Lizard Creek would fly towards the Lake's northern end when disturbed. Thus, this region is quite likely an important refuge for those birds that are intolerant of human activities. It is relatively inaccessible to both hikers and boaters. Other feeding and resting spots need to be searched for and more sequential observations are necessary to determine the exact nature of the usage in all locations.

### Summary

The Jackson Hole region has undergone many land use and human population changes in recent years. Since the Canada goose population has not been analyzed in those years, it is important to determine if and how it is being affected.

Preliminary investigations have been concerned with the familiarization of this researcher with the study area, the laying of the groundwork for study in the near future, and observations and counts of Canada geese in various locations used for molting, feeding, and resting activities.

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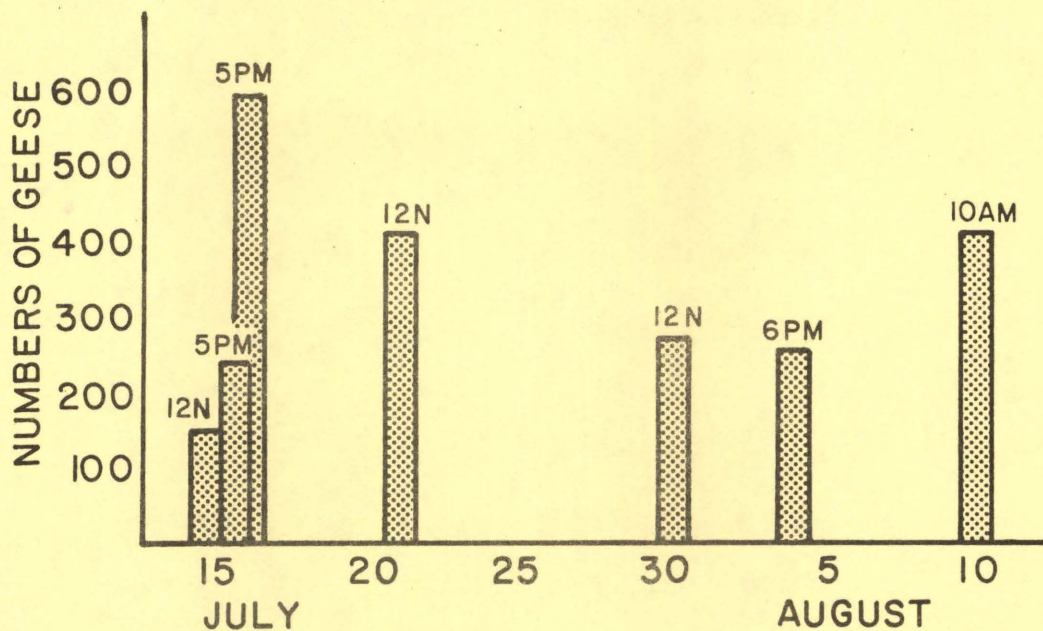


Figure 1. Counts of Canada geese at the north end of Jackson Lake, 1978

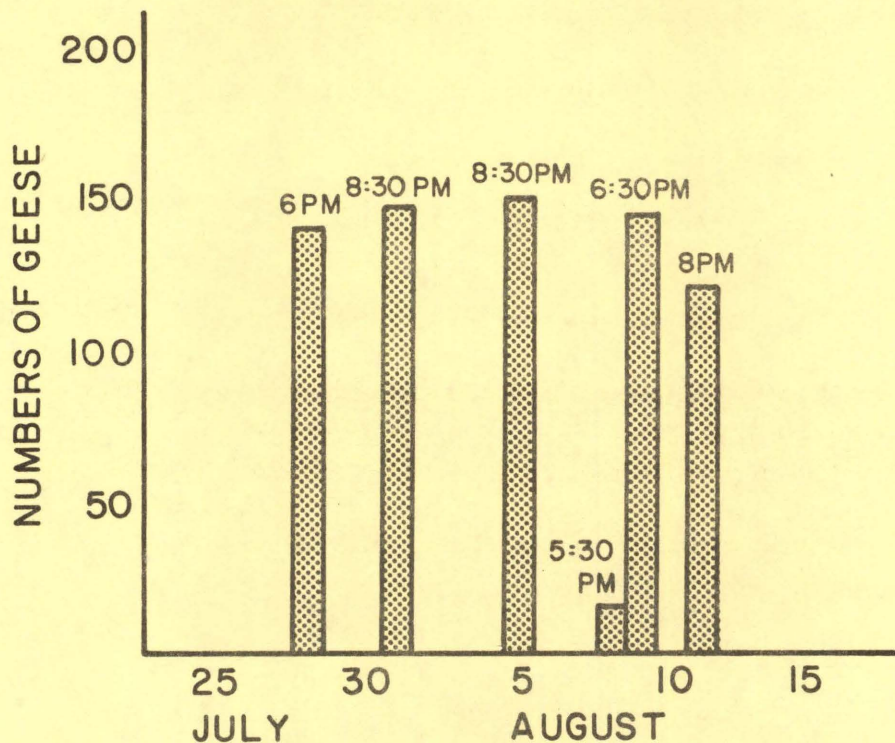


Figure 2. Counts of Canada geese on west fields of the Triangle X Ranch, 1978