

RESEARCH PROPOSAL TO THE
CANADIAN WILDLIFE SERVICE
ENVIRONMENT CANADA

By

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May 1973

A Study of Age-Ratios in Sandhill Cranes

Time Period: 15 August to 8 September 1973

Budget:

Introduction

Age-ratio's of Sandhill Cranes (Grus canadensis) reported from game bag checks indicate that annual recruitment to the migratory population in the Central Flyway might be as low as 11 percent or as high as 54 percent in some years (Stephen et. al. 1966). However, ground counts of Sandhill Cranes at Last Mountain Lake in the fall of 1966 and 1967 showed 4 and 6 percent juveniles in the un hunted sample when hunted samples from the same area showed 19 and 20 percent juveniles respectively (Hatfield 1966, 1967). These observations suggested that juveniles might be 3 to 4 as vulnerable as adults to hunting, and that age-ratios obtained from bag checks are not reliable indicators of annual recruitment.

In the fall of 1972, age-ratios of Sandhill Cranes in the Last Mountain Lake - Kutawagan region of east-central Saskatchewan were obtained from counts of cranes on their roosts, feeding in fields, and flying from roosts to feeding areas from August 13 through September 16. There was a rapid increase in total numbers of cranes in the region from an estimated 4,150 on August 15 to 25,900 on September 2. There was then a gradual increase in numbers to a peak of 30,300 on September 16.

The counts showed 784 juveniles in a total of 33,901 cranes for the entire period of observations but there was an increase in the percentage of juveniles as the total population size increased, suggesting that early migrants are mostly non-breeders. The percentage of juveniles was 0.06 for the week August 13 - August 19, but increased to 3.19 percent for the period August 27 - September 2 and remained stable at

about 3.1 percent for the period August 27 - September 16.

It was found that counts of cranes on their roosts or feeding in fields were more difficult to make and were less accurate than those of birds flying between their roosts and feeding areas. Age-ratios in ground counts for the period August 27 - September 16 showed 1.92 percent juveniles, compared with 3.48 percent obtained during the same period from flying flocks. It was concluded that the latter value of approximately 3.5 percent provided the best estimate of annual recruitment to the fall population.

The annual harvest of Sandhill Cranes in the United States and Canada is estimated to be about 8-10,000 birds with a crippling loss of approximately 25 percent (Miller, et. al. 1972). The total kill is, therefore, between 10,000 and 12,500 cranes, or from 5 to 6 percent of a total population of about 200,000. This suggest that annual recruitment is considerably less than the annual kill, and the population is being heavily over-exploited.

Unfortunately, 1972 was a poor nesting year for geese and swans, and possibly Sandhill Cranes, in some parts of the arctic and we cannot be certain that the age-ratios obtained by Miller and Hatfield (in press) reflect an average value for annual recruitment in the Sandhill Crane population. It seems advisable, therefore, to conduct additional age-ratio counts to compare with previous observations.

Proposed Research

As noted earlier, there is a rapid increase in population size at Last Mountain Lake to near a peak by about the last week of August. Observations in 1972 showed that an adequate sample can be obtained in two weeks or less, and that the most accurate and efficient counts are of flying flocks. It is proposed that the senior investigator conduct preliminary surveys of population size, location of feeding areas and flyways from about August 17 - August 25, and that actual counts be conducted with the help of student assistants from August 26 - September 8. All counts will be made of cranes flying between their roosts and feeding areas.

Facilities and Equipment

The Canadian Wildlife Service will provide trailer accommodations and cooking facilities for two field technicians at CWS headquarters at Last Mountain Lake, Saskatchewan from August 26 to September 8, 1973. Field travel for the two technicians will be by private vehicle, and their wages, travel and living allowances are shown in the following budget.

Binoculars, spotting scopes, data sheets, and other necessary equipment will be provided by the senior investigator. The senior investigator will also assume responsibility for analysis of the data and any journal publication costs.

Copies of the data and a final report will be filed with the Canadian Wildlife Service within six months of the termination of the research.

Budget

Cost Estimate

Air travel, senior investigator,
New Haven - Saskatoon, return. \$270

Car rental, senior investigator,
\$8/day, 15 days. 120

Mileage, senior investigator,
15 days, 60 miles/day,
@ .16/mile. 144

Living allowance, senior investigator,
15 days, \$5/day. 75

Salaries, 2 student assistants,
August 26 - September 8,
\$400/month 400

Living allowance, 2 student assistants,
15 days, \$5/day. 150

Mileage, 1 student assistant,
15 days, 80 miles/day
@ .16/mile. 192

Total \$2251