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1986 Koyukuk NWR Goose Survey

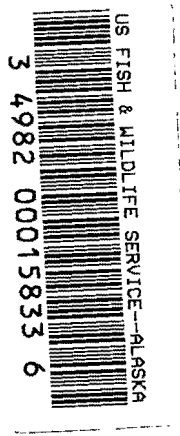
by

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TITLE: 1986 Koyukuk NWR Goose Survey

DATES: 11 July to August 22 1986

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Abstract: A survey to determine the number of white-fronted geese (Anser albifrons) and Canada geese (Branta canadensis) within the boundaries of the Koyukuk NWR was conducted from 11 July to 22 August 1986. The population estimates were 5352 ± 2081 (SE) for white-fronted geese and 1049 ± 725 (SE) for Canada geese. The highest densities were along the river corridors, with the most observed on the Koyukuk River.

NARRATIVE:

Introduction: A goose survey was conducted to gather data on the goose populations using the Koyukuk NWR, Alaska. The Koyukuk NWR provides habitat for white-fronted geese (Anser albifrons) and Canada geese (Branta canadensis), and information on these two species is essential for good management at the refuge.

Study Area: The study area comprised the area within the boundaries of the Koyukuk NWR. The area is in a basin surrounded by high hills. The basin includes numerous lakes, marshes, rivers, and streams. The vegetation types include treeless bogs, open spruce forests, closed spruce-hardwood forests, and alpine tundra.

Methods: The study area was surveyed using a combination of censusing and stratified random sampling (Caughley, 1977). Censusing was used in surveying riverine habitat from 18-22 August and stratified random sampling was used in surveying lacustrine habitat from 11 July to 5 August.

Riverine habitat was delineated from 1:250,000 scale USGS topographical maps and was defined as including any one mile section which contained a double-lined river or slough, an oxbow lake connected to a river or slough, Dulbi Slough, or Boat Lake. The area of river habitat was 756 square miles. Riverine habitat was censused by a pilot and observed on 18 and 22 August in a Piper Super Cub flying at 500 feet over the river and slough corridors, over oxbow lakes, and over Boat Lake. The area censused including any portion of waterfowl habitat within 1/4 mile of the waterbodies censused.

Lacustrine habitat was delineated from 1:63,360 scale USGS topographical maps and was defined as any section with at least 15 acres of water, exclusive of river habitat. Lacustrine habitat included lakes, sloughs with water flowing less than three miles per hour, or streams meandering through marsh habitat. The area of lacustrine habitat was 2653 square miles.

Lacustrine habitat was sampled using 33 square mile plots optimally allocated into three strata. The plots were allocated four to poor, six to moderated, and 23 to key habitat. Poor habitat was any section with more than 15 acres but less than 60 acres of water. Moderate habitat was any section in non-bog areas with at least 60 acres, but no more than 100 acres of water. In bog areas, moderate habitat was defined as any section including at least 60 acres, but no more than 120, acres of water from a lake over 200 acres in size. Key habitat was any section in non-bog areas with over 100 acres of water. In bog areas, key habitat was defined as any section including over 120 acres of water from a lake over 200 acres in size.

Plots were censused with the aid of binoculars by walking, from a canoe, or by helicopter.

Results and Discussions: The estimate of the number of geese within the boundaries of the Koyukuk NWR in 1986 was 5352 for white-fronted geese and 1049 for Canada geese (Table 1). The increase in Canada geese observed in 1986 over 1985 came primarily from an increase in the number of Canada geese observed in the square mile plots in the non-riverine area (Table 2). The estimate of the number of Canada geese in the non-riverine area in 1985 was zero and in 1986 it was 781 ± 725 (SE).

The distribution of geese in the riverine area in 1986 was different from 1985. In 1985, Dulbi River, Huntington Slough, Three Day Slough, Boat Lake, and Kateel River contained 73% of the observed white-fronted geese and 100% of the observed Canada geese. The 58 miles of the Koyukuk River above the refuge administrative cabin that was not surveyed in 1985 was surveyed in 1986. Not including the 58 miles, only 13% of the white-fronted and 30% of the Canada geese were observed in those areas in 1986. The main concentration of geese observed in 1986 was on the Koyukuk River. Sixty eight percent of the white-fronted geese and 50% of the Canada geese were observed there, compared with 14% and 0% respectively in 1985.

The change in distribution was probably a function of the date of the survey. The 1986 survey occurred eleven days later than in 1985, and the geese were probably staging on the Koyukuk River prior to migrating south.

Management Recommendations: This study should be continued to aid in developing baseline data on goose population on the refuge. A correction factor for the aerial census needs to be determined. This could be done by censusing part of the riverine area by boat the same time it is censused by plane.

Literature Cited:

Caughley, G. 1977. Analysis of Vertebrate Populations. John Wiley and Sons, London. 234pp.

Table 1. Estimate of the number of geese within the boundaries of the Koyukuk NWR in 1985 and 1986.

Species	1985		1986	
	N	SE	N	SE
White-fronted geese	6573	3189	5352	2081
Canada geese	170	-	1049	725

Table 2. Estimate of the number of geese per square mile in riverine and non-riverine habitat on the Koyukuk NWR.

Species	Riverine a		Non-riverine b			
	1985	1986	1985		1986	
	\bar{x}	\bar{x}	\bar{x}	SE	\bar{x}	SE
White-fronted geese	3.64	3.437	1.46	1.090	1.19	0.785
Canada geese	0.27	0.421	0.0	0.00	0.29	0.273

a Estimates obtained from aerial census

b Estimates obtained from random sampling

