



Distribution, biology and harvest of Common Snipe (*Capella gallinago delicata*) in Montana
by Graham Stuart Taylor

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE
in Fish and Wildlife Management

Montana State University

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Abstract:

Distribution, migration chronology, breeding biology and harvest of Common Snipe (*Capella gallinago delicata*) were studied during 1976 and 1977 in Montana. Seven census sites, including one intensive study site, were maintained: Jackson and Divide in southwest Montana, Helmsville and Choteau in the westcentral portion of the state, Malta and Medicine Lake in the northeast and Belgrade, which doubled as an intensive study site, in southcentral Montana. Spring arrival dates varied from 11 April to 11 May at Belgrade and Medicine Lake, respectively.

Fall migration observed at the Belgrade area peaked the last two weeks of October in both years. Breeding pair densities (pairs per 100 hectare of habitat) for each census site, based on winnowing censuses were 14 pairs at Jackson, 17 at Divide, 14 at Helmsville, 21 at Choteau, 50 at Malta, 8 at Medicine Lake and 34 at Belgrade. Breeding habitat surveyed ranged in size from 269 hectares at Jackson to 26 at Malta.

Based on information from 20 nests, peak hatch occurred the last week of May and the first two weeks in June at Belgrade. Ninety-five percent of twenty-one nests were successful while individual egg success was equally high at 93 percent. Clutch size averaged 4 eggs. Vegetational analysis of nest sites showed a strong preference by nesting snipe for stands of *Carex* spp. with residual vegetation. Wintering birds were noted on the Belgrade area. Eighty-four snipe were banded in spring and early summer. Two snipe banded as adults on their breeding grounds were retrapped on those same breeding grounds the subsequent year. Montana harvest data for 1976 indicates 450 hunters bagged 1350 snipe in 1125 days afield. Eighty-four percent of the harvest and eighty percent of the hunting pressure occurred in the Pacific flyway portion of the state. Harvest information parallels the distribution of breeding habitat and relative breeding densities of snipe within the state. This habitat centers around the moist intermountain valleys of western and west-central Montana and is supplemented by the presence of many flood irrigation projects.

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(CAPELLA GALLINAGO DELICATA) IN MONTANA

by

GRAHAM STUART TAYLOR

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of the requirements for the degree

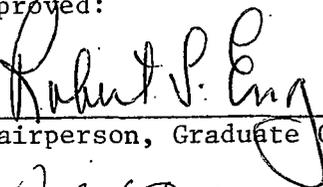
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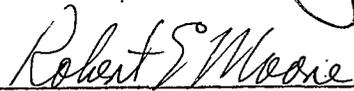
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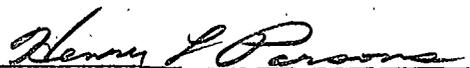
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Approved:


Chairperson, Graduate Committee


Head, Major Department


Graduate Dean

MONTANA STATE UNIVERSITY
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ABSTRACT

Distribution, migration chronology, breeding biology and harvest of Common Snipe (Capella gallinago delicata) were studied during 1976 and 1977 in Montana. Seven census sites, including one intensive study site, were maintained: Jackson and Divide in southwest Montana, Helmsville and Choteau in the westcentral portion of the state, Malta and Medicine Lake in the northeast and Belgrade, which doubled as an intensive study site, in southcentral Montana. Spring arrival dates varied from 11 April to 11 May at Belgrade and Medicine Lake, respectively. Fall migration observed at the Belgrade area peaked the last two weeks of October in both years. Breeding pair densities (pairs per 100 hectare of habitat) for each census site, based on winnowing censuses were 14 pairs at Jackson, 17 at Divide, 14 at Helmsville, 21 at Choteau, 50 at Malta, 8 at Medicine Lake and 34 at Belgrade. Breeding habitat surveyed ranged in size from 269 hectares at Jackson to 26 at Malta. Based on information from 20 nests, peak hatch occurred the last week of May and the first two weeks in June at Belgrade. Ninety-five percent of twenty-one nests were successful while individual egg success was equally high at 93 percent. Clutch size averaged 4 eggs. Vegetational analysis of nest sites showed a strong preference by nesting snipe for stands of Carex spp. with residual vegetation. Wintering birds were noted on the Belgrade area. Eighty-four snipe were banded in spring and early summer. Two snipe banded as adults on their breeding grounds were retrapped on those same breeding grounds the subsequent year. Montana harvest data for 1976 indicates 450 hunters bagged 1350 snipe in 1125 days afield. Eighty-four percent of the harvest and eighty percent of the hunting pressure occurred in the Pacific flyway portion of the state. Harvest information parallels the distribution of breeding habitat and relative breeding densities of snipe within the state. This habitat centers around the moist intermountain valleys of western and west-central Montana and is supplemented by the presence of many flood irrigation projects.

INTRODUCTION

Since little research has been conducted on Common Snipe (Capella gallinago delicata) in Montana, the Accelerated Research Program for Migratory Shore and Upland Game Birds of the U. S. Fish and Wildlife Service, in cooperation with the Montana Department of Fish and Game initiated a snipe study in the spring of 1976. The National Program Planning Group for Migratory Shore and Upland Game Birds (U. S. F. W. S.) has determined basic research needs for the Common Snipe. Among those needs are research on population analysis (banding programs), harvest information and habitat inventory (Sanderson 1977).

Snipe hunting seasons have existed in Montana since 1968 and 1976 for the Pacific and Central flyway portions of the state, respectively. Due to the diverse and abundant nature of game bird species in the state, along with excellent hunter opportunity, bird hunting pressure is light (an average of 3 birds harvested per square mile, (Wallestad 1975)). Consequently, the snipe is given a low priority by most bird hunters, resulting in a low harvest.

Objectives of this study were: 1) to determine the distribution and densities of breeding snipe in Montana; 2) to document spring and fall migration chronology; 3) to document various aspects of the breeding biology of snipe; and 4) to estimate harvest and hunting pressure within the state.

Field data were collected full time during the summer of 1976 and the spring, summer and fall of 1977 and part-time during the spring and fall of 1976.

DESCRIPTION OF STUDY AREAS

Selection of study areas, accomplished during the summer of 1976, was based upon three general criteria: 1) presence of a breeding population of snipe as evidenced by spring and summer winnowing display; 2) location providing representative coverage of statewide snipe breeding densities; and 3) accessibility and proximity to roads satisfactory as census routes. In western Canada, Robbins (1954) was forced to abort efforts to census large portions of snipe habitat because of poor access to major portions of breeding range. Study sites selected in Montana are as follows (Figure 1):

- 1) Belgrade (Gallatin Valley)
- 2) Jackson (Big Hole Valley)
- 3) Divide (Divide Creek)
- 4) Helmville (Blackfoot Valley)
- 5) Choteau (Muddy Creek)
- 6) Malta (Bowdoin National Wildlife Refuge)
- 7) Medicine Lake (Medicine Lake National Wildlife Refuge)

Belgrade Study Area

Two sites serving separate functions were maintained within the confines of the Belgrade study area: a census area and an intensive study area. The Belgrade area is seven kilometers north and northwest of Belgrade, Gallatin County, Montana (Appendix, Figure 14). The census



FIGURE 1. Location of snipe study areas in Montana.

area, 19.5 square kilometers, is delimited by local highway 346 on the east and north boundaries. A western boundary is shaped by the West Gallatin River. The southern boundary is formed by an unnamed county road. Within this census area lies the intensive study site (Figure 2), encompassing approximately 1.3 square kilometers. All other areas served as census sites only.

The Gallatin Valley, in which the Belgrade study area lies, is characterized as a high intermountain valley with the valley floor a gently sloping plain. Mean elevation of the site is 1359 meters above sea level. Typical of the Belgrade study area, much of the valley contains existing and remnant stream beds. Most of the area lies within the prescribed 100 year floodplain of the East and West Gallatin Rivers (U.S.D.A./S.C.S 1972). Soils on the area are mostly poorly drained silt loams and considered to be in the swampy phase. Irrigation is held partly responsible for a high water table contributing to the soil conditions described (DeYoung 1931).

Climate of the area is continental in character and subject to wide extremes of seasonal and daily temperatures. The final killing frost normally occurs the latter part of May, thus beginning a frost free season of 115 days (Caprio 1965). Mean annual precipitation, most of which falls during the growing season, totals 35 to 40 centimeters. Mean annual temperature at Belgrade, Montana is 6.1 degrees C (Southard 1973).

