



Ecology of Merriam's wild turkey in the Helena National Forest
by Katharine Albrecht Holzer

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:

This study was undertaken to determine why low population levels have been prevalent in the population of Merriam's wild turkey (*Meleagris gallopavo merriami*) north of Canyon Ferry Reservoir near Helena, Montana. Eleven turkeys were trapped in cannon nets and clover traps, and 7 of them were radio marked. They were followed throughout 1987 to determine food habits, seasonal and annual home range, movements and habitat use. Results showed turkeys consumed grass and forbs during the entire year, with a higher proportion during spring and summer, and seeds during fall and winter. The pooled annual home range for all 7 turkeys was 2883 ha. Males had larger mean annual home ranges than females. Movements between winter and summer ranges were 1.58 to >5.0 ha. Turkeys avoided disturbed mining areas and open fields and meadows.

Turkeys used climax ponderosa pine (*Pinus ponderosa*) and mixed Douglas fir (*Pseudotsuga menziesii*)/ponderosa pine more often than the other habitats. The habitat seemed adequate from nutritional and spatial standpoints, so another limiting factor is responsible for their low population levels. The possibility of low production, disease, and predation as limiting factors is discussed.

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

This study was undertaken to determine why low population levels have been prevalent in the population of Merriam's wild turkey (Meleagris gallopavo merriami) north of Canyon Ferry Reservoir near Helena, Montana. Eleven turkeys were trapped in cannon nets and clover traps, and 7 of them were radio marked. They were followed throughout 1987 to determine food habits, seasonal and annual home range, movements and habitat use. Results showed turkeys consumed grass and forbs during the entire year, with a higher proportion during spring and summer, and seeds during fall and winter. The pooled annual home range for all 7 turkeys was 2883 ha. Males had larger mean annual home ranges than females. Movements between winter and summer ranges were 1.58 to >5.0 ha. Turkeys avoided disturbed mining areas and open fields and meadows. Turkeys used climax ponderosa pine (Pinus ponderosa) and mixed Douglas fir (Pseudotsuga menziesii)/ponderosa pine more often than the other habitats. The habitat seemed adequate from nutritional and spacial standpoints, so another limiting factor is responsible for their low population levels. The possibility of low production, disease, and predation as limiting factors is discussed.

INTRODUCTION

Merriam's wild turkey (Meleagris gallopavo merriami) originally ranged over Colorado, New Mexico, Arizona, and extreme west Texas (Ligon 1946, Schorger 1966). Numerous introductions in the 1940s through the 1960s have resulted in the establishment of Merriam's turkey populations in nearly every western state. Turkeys were originally introduced by private individuals into Montana as early as 1939 (Jonas 1966), although those released were pen-reared "wild" Eastern (M.g. sylvestris) or Rio Grande (M.g. intermedia) turkeys. The Montana Fish and Game Department first introduced Merriam's turkeys from Colorado into the Judith Mountains in 1954 after that subspecies had been successfully transplanted into South Dakota and Wyoming (Rose 1956). In 1955, 18 birds from Wyoming were introduced into the Long Pines of southeastern Montana (Rose 1956). These 2 transplants have provided a source for nearly every subsequent transplant in the state.

Many of these transplants, including my study population, consisted of relatively few birds, all taken from the same area which were placed in large isolated "islands" of habitat. Several of the populations inhabiting these isolated habitats apparently experienced

exponential growth for a few years followed by a "crash" resulting in long-term population lows. This phenomenon is not uncommon in Montana or in other western states, but it is unclear why it occurs.

The turkeys inhabiting my study area apparently came from releases made on the Hilger Ranch in 1959 (6 toms and 16 hens) and/or the Spokane Hills in 1964 (10 toms and 16 hens) near Helena, Montana (Greene and Ellis 1971).

Presently, 40-60 turkeys are estimated to inhabit the study area, a mere fraction of those present on the same area during the late 1960s to the early 1970s according to many long-time residents of the area. The population was sufficiently large to warrant a hunting season in the fall of 1965. However, there has not been a hunting season since then.

This study was undertaken to assess food habits, seasonal and annual home range, movements, and habitat use of the Merriam's wild turkey north of Canyon Ferry Reservoir in west-central Montana. Field work was done continuously from January 1987 through December 1987 and periodically from January 1988 to July 1988.

STUDY AREA DESCRIPTION

The study area was located approximately 20 km east and 13 km north of Helena, Montana, and directly north of Canyon Ferry Reservoir in Lewis and Clark County (Figure 1). The area was composed of the Helena National Forest, Bureau of Land Management and private lands. Land uses included recreational, residential, limited (selective) logging, and 1 small agricultural operation which grazed cattle on the study area from June through October on National Forest land. No paved roads existed on the study area, and the topography was generally rough and rugged.

Nine stands which were earlier determined to be representative of the vegetation on the entire study area were examined by a range scientist (Olsen, pers. comm.) and were categorized into habitat types as per Pfister et al. (1977). A list of plant species on the area was also compiled using references by Taylor (1982), Stubbendieck et al. (1986), Spellenberg (1987).

On south-facing slopes the predominant habitat type was ponderosa pine/bluebunch wheatgrass (Pinus ponderosa/Agropyron spicatum), which is typical for this elevation and climate (Pfister et al. 1977). Ponderosa pine and Rocky Mountain juniper (Juniperus scopulorum) were the only

