



A two year investigation of the food habits and range use of the Rocky Mountain goat in the Crazy Mountains, Montana
by Jack K Saunders

A THESIS Submitted to the Graduate Faculty 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:

An investigation of the food habits and range use of an introduced Rocky Mountain goat herd was conducted in the Crazy Mountains, Montana, 1952-1953. A general description of the various vegetative types inhabited by goats is given. The time of day when feeding animals were observed and the seasonal utilization of feeding areas are discussed. Information concerning the age at which mountain goat kids begin grazing is included. Several methods of studying food habits are reviewed. The procedure used for stomach analysis is described. Observations of animal use of plants on summer feeding areas, and the analyses of 27 stomach samples collected throughout the year, are considered in the food habits evaluation.

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A TWO-YEAR INVESTIGATION OF THE FOOD HABITS AND RANGE USE
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by

Jack K. Saunders, Jr.

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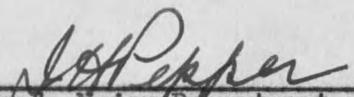
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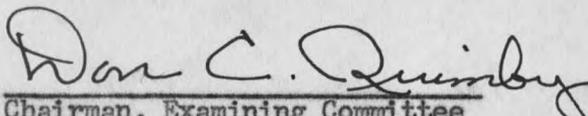
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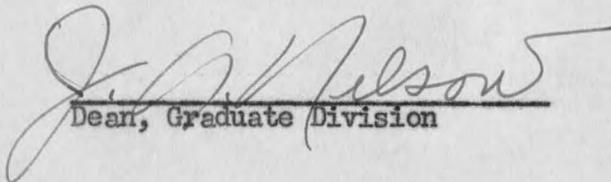
at

Montana State College

Approved:


Head, Major Department


Chairman, Examining Committee


Dean, Graduate Division

Bozeman, Montana
June, 1954

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ABSTRACT

An investigation of the food habits and range use of an introduced Rocky Mountain goat herd was conducted in the Crazy Mountains, Montana, 1952-1953. A general description of the various vegetative types inhabited by goats is given. The time of day when feeding animals were observed and the seasonal utilization of feeding areas are discussed. Information concerning the age at which mountain goat kids begin grazing is included. Several methods of studying food habits are reviewed. The procedure used for stomach analysis is described. Observations of animal use of plants on summer feeding areas, and the analyses of 27 stomach samples collected throughout the year, are considered in the food habits evaluation.

INTRODUCTION

An investigation of a transplanted Rocky Mountain goat (Oreamnos americana missoulae) herd was conducted in the Crazy Mountains, Montana during 1952 and 1953. The history of the herd, biological data concerning the goats, and a general description of the area have been reported by Lentfer (In Press). The author worked in conjunction with Lentfer, but concentrated on the food habits and range use of the goat.

The writer is indebted to the Montana Fish and Game Department for financial aid; to Dr. Don C. Quimby, Montana State College, for direction of the study and aid in preparing the manuscript; to J. E. Gaab, Montana Fish and Game Department, for assisting in setting up the study and for giving aid in the field; to Jack W. Lentfer and Philip R. South for field assistance; to Doctors John C. Wright and W. E. Booth, Montana State College, for aid in identification of plants and food materials; and to the Brannin Dude Ranch of Melville, Montana for hospitality and information concerning goat distribution.

METHODS

During the spring, summer and fall of 1952 and 1953, plants of the vegetative types frequented by goats were collected. They were pressed, identified and mounted for use as reference specimens to be used in the verification of plants and parts of plants concerned in the food habits evaluation.

Seven 100-ft. line transects (two in alpine meadows, three on slide rock slopes, one on a ridge top, and one in the timber) were

used as an indication of the plants present. The author recognizes the limitations of the sampling, but believes the data warrants inclusion. A 100-ft. cord was stretched out on the vegetative type, and the basal intercept of each plant was measured, similar to the method described by Canfield (1941). Instances of animal use on these plants were also recorded.

A total of 149 days was spent in goat habitat: 24 in spring (June), 94 in summer (July and August), 21 in fall (September), and 10 in winter (December and March). Spring, summer and fall travel within the area was usually on horseback. When possible, close observations of goats were made on foot. Winter travel required the use of snowshoes. The animals were approached as closely as possible, sometimes a distance of 100 - 200 yards, but the majority of goats seen were at greater distances. One was observed at six feet. A total of 1262 goat observations was recorded, 795 of feeding goats. The following information was recorded for goats observed: time of day seen, vegetative type utilized, and when possible the plant species fed upon. Early in the study an attempt was made to evaluate the latter on the basis of "animal minutes" of feeding on individual plants, after the procedure of Cowan (1947) and Beuchner (1950). This method was abandoned. Observations were made with 7-power binoculars and a 20-power spotting scope. Even at distances of 10 - 100 yards, it was usually impossible to identify the individual plant species being utilized. A follow-up method as used by Brazda

(1953) on elk was adopted. The area where feeding occurred was closely examined. Plants utilized were recorded.

Twenty-seven stomach samples were obtained: three from intentionally collected animals, six from trap casualties, and 18 from hunter-killed goats. The monthly sequence was: 2 in June, 5 in July, 14 in September, 4 in October, and one each in December and March. The samples were preserved in 10% formalin as soon as possible after collection.

Stomach analyses were performed in the laboratory. Volumes of the samples were determined by water displacement, after the excess moisture was removed by squeezing on paper towels. The average volume of 19 samples was 218 cc. Each sample was washed on a four-mm. ($3\frac{1}{2}$ mm. opening) mesh screen in a specimen pan. The material which passed through was collected on a one-mm. mesh (1 mm. opening) screen and retained as unidentifiable. The material on the four-mm. mesh screen was then emptied into the pan and flooded with water. Recognizable plant parts were removed with forceps and placed in dishes for comparison with reference specimens. With the use of a binocular microscope, identification to species was possible in most instances. Plant volumes were determined by water displacement in 10-cc. and 100-cc. graduated cylinders. This material was then air dried, and weights were determined to the nearest hundredth of a gram. The unidentifiable component from the four-mm. screen was combined with that from the one-mm. screen, and the volume and weight were determined. The

