



Food habits and range use of the mule deer in the Scudder Creek area, Beaverhead County, Montana
by Philip R South

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:

A study of range use, food habits, and effect on the range of mule deer (*Odocoileus h. hemionus*) was conducted at various times from 1953 to to 1957 in the Pioneer Mountains, Montana, A description of the area'S vegetational types is given. Observations of deer provided information on use of vegetational types at different seasons. Tracking deer through the fresh snow indicated browse preference by the presence of leaves on the snow beneath the plants used. Food habits, were determined by analysis of rumen samples. Range trend, as effected by deer, was indicated by measurements, in the spring and fall, of tagged browse plants, and also by ecological data. Population density was determined by a pellet group count, and some of the aspects of starvation in relation to deer population were discussed.

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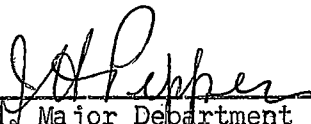
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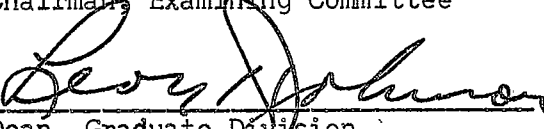
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ABSTRACT

A study of range use, food habits, and effect on the range of mule deer (Odocoileus h. hemionus) was conducted at various times from 1953 to 1957 in the Pioneer Mountains, Montana. A description of the area's vegetational types is given. Observations of deer provided information on use of vegetational types at different seasons. Tracking deer through the fresh snow indicated browse preference by the presence of leaves on the snow beneath the plants used. Food habits were determined by analysis of rumen samples. Range trend, as effected by deer, was indicated by measurements, in the spring and fall, of tagged browse plants, and also by ecological data. Population density was determined by a pellet group count, and some of the aspects of starvation in relation to deer population were discussed.

INTRODUCTION

Reports indicate unusually large populations of mule deer (Odocoileus h. hemionus) in the vicinity of Scudder Creek, Beaverhead County, Montana, as early as 1949. According to Bob Harrison, sheepherders who crossed the range from the Harrison ranch in the spring months of 1949, 1950, 1951, reported seeing scores of deer carcasses. At least one rancher in the area complained that deer were causing heavy damage to his hay stacks in 1950. J. E. Gaab (1950) of the Montana Fish and Game Department ventured the opinion that deer had seriously depleted the mountain mahogany (Cercocarpus ledifolius) browse plants during the winters preceding 1949.

These fragmentary reports suggested a serious deer problem involving the usual conditions of winter mortality and range depletion common to such situations, but specific information was lacking. Data on the ecology of the deer were needed to aid in developing a sound management program. Studies were conducted at various times from the spring of 1953 to 1957. Mule deer food habits, range use, and effects on the range were emphasized but other ecological information was also recorded.

The writer is indebted to the following: the Montana Fish and Game Department for financial and other assistance under Federal Aid Project 35R; Dr. Don C. Quimby, Montana State College, for directing the study, and for valuable aid in preparing the manuscript; Joseph E. Townsend, Orville Lewis, and Wayne Fitzwater for aid in the field; Doctors W. E. Booth and John C. Wright, Montana State College, for aid in identification of plants; and Dr. Bernard Ostle for aid in statistical analysis of the data.

DESCRIPTION OF THE STUDY AREA

The range of the Scudder Creek Deer Herd encompasses the southern-most portion of the Pioneer Mountains. The highest peaks of this range are over 11,000 feet above sea level and the valley floors lie between 5,000 and 6,000 feet. Baldy Mountain, the southern-most peak, is 10,592 feet in elevation. The southern and western slopes of this mountain extend downward to dry foothills bordering the valley floor of the Grasshopper Creek drainage.

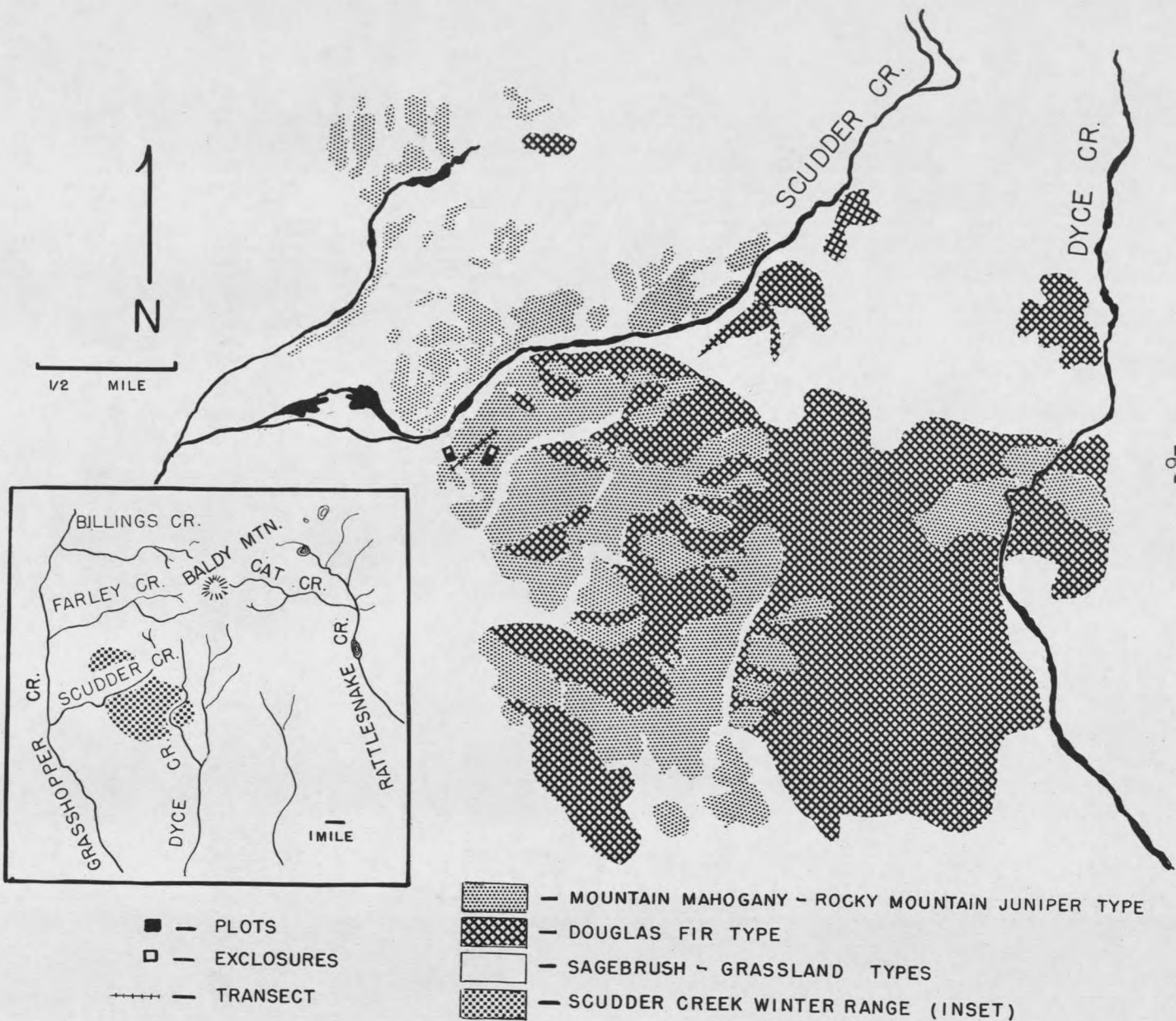
Five streams have their sources on the slopes of Baldy Mountain; Billings, Farley, Scudder, and Dyce Creeks, drain west and/or south into Grasshopper Creek (Fig. 1). Cat Creek drains eastward into the Rattlesnake drainage.

From the sliderock areas above 9,000 feet to sagebrush-grassland below 6,000 feet six vegetational types were recognized. The scientific and common names of the plants used in the following descriptions follow Booth (1950), and Wright and Booth (1954), or in cases where these authors did not cite common names, those given by the American Joint Committee on Horticultural Nomenclature are used.

Whitebark Pine - Alpine Fir Type

This type occurs at timber line and on the upper slopes. It is characterized by whitebark pine (Pinus albicaulis) and alpine fir (Abies lasiocarpa) interspersed with Englemann spruce (Picea englemanni) (Fig. 2). The vegetation of the forest floor is predominantly elk sedge (Carex geyeri) and/or low red huckleberry (Vaccinium scoparium).

FIG. 1 MAP OF STUDY AREA



Douglas Fir Type

This type is found on the intermediate slopes and on the northern exposures of the lower slopes (Fig. 3). It is characterized by Douglas fir (Pseudotsuga taxifolia) with an understory of buffaloberry (Shepherdia canadensis), snowberry (Symphoricarpus alba), and Kinnikinnick (Arctostaphylos uva-ursi).

Lodgepole Pine Type

This type appears in dense stands in various sites on the intermediate and upper slopes and is characterized by lodgepole pine (Pinus contorta) with an understory predominantly of low red huckleberry (Fig. 4).

Mountain Mahogany - Rocky Mountain Juniper Type

This type occurs on the southern exposures of the xeric lower slopes or foothills and is typical of a large part of the deer winter ranges in south-western Montana (Fig. 3). It is characterized by mountain mahogany interspersed with Rocky Mountain juniper (Juniperus scopulorum) and limber pine (Pinus flexilis). The under-story is mostly short vegetation represented by harbinger-of-spring (Haplopappus acaulis), square stem phlox (Phlox bryoides), and chimaya (Cymopterus bipinnata); with the important grasses being indian rice grass (Oryzopsis hymenoides) and bluebunch wheatgrass (Agropyron spicatum).

Sagebrush - Grassland Type

Three variations of this type were recognized which coincided with the upper, intermediate, and lower slopes.

The sagebrush - grassland type of the upper slopes is characterized by big sage (Artemisia tridentata), mountain brome (Bromus marginatus) and



Fig. 2. White bark pine - Alpine fir type.



Fig. 3. Mountain mahogany - Rocky Mountain juniper type with Douglas fir type on slopes right of center, and Baldy Mountain in the background.

