



Vegetative characteristics of two water areas in Teton County, Montana, in relation to waterfowl usage
by Richard R Knight

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 at Montana State College

Montana State University

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Abstract:

During the summers of 1956 and 1959, information was gathered on the' vegetative characteristics and waterfowl usage of two water areas in Teton County, Montana. Maps of vegetative types were drawn and described. Data relating to occurrence of individual species were obtained from transects extending across the areas. The sum of occurrences for any plant was expressed as a percentage of the total of all occurrences.

Information on waterfowl usage was gathered from total counts of waterfowl, nest searches and brood observations. Differences in waterfowl usage for the two years were compared to the vegetative changes which occurred.

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RICHARD R. KNIGHT

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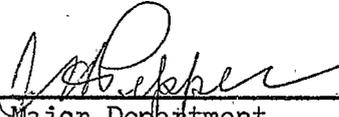
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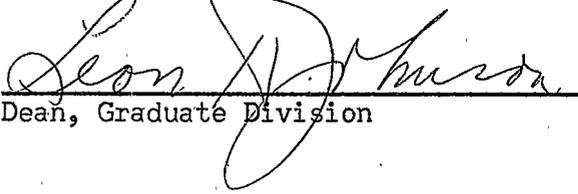
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ABSTRACT

During the summers of 1956 and 1959, information was gathered on the vegetative characteristics and waterfowl usage of two water areas in Teton County, Montana. Maps of vegetative types were drawn and described. Data relating to occurrence of individual species were obtained from transects extending across the areas. The sum of occurrences for any plant was expressed as a percentage of the total of all occurrences.

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INTRODUCTION

Freezeout Lake in Teton County, Montana, is a natural sump supplied by waste water from adjacent irrigated farmland. For many years, this lake has furnished good duck hunting. From 1941 to 1952, due to unusual moisture conditions, the water area increased from 1,900 to 4,100 acres. Drainage of the area was proposed by local groups. Ellig (1955), in cooperation with the Montana Fish and Game Department, studied waterfowl relationships of the area in 1951 and 1952. In 1953, the Montana Fish and Game Department began to develop this region into a waterfowl management area. A drainage system was constructed and dikes with water control structures were planned to divide the area into several water units for management purposes.

In 1956, two water areas on the northern edge of the lake were chosen by the writer for study to determine vegetational characteristics and waterfowl usage. Information was gathered from June 15 to October 15, 1956, and from June 10 to September 24, 1959.

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DESCRIPTION OF THE AREA

Freezeout Lake lies at the western edge of the Fairfield Bench. It occupies part of a glacial lake basin, surrounded by rolling uplands. The climate of this general area is semi-arid. Upland native vegetation is mainly grassland. Soils in the area are cloddy stratified silty clays and clays with subsoils impregnated with alkali (Geiseker, 1937).

Study Area No. 1 lies north of the main body of Freezeout Lake and is connected to it by a drainage canal 0.5 mile long and a seepage region. Ellig (op. cit.) described this area as it appeared in 1952, as a 400 acre cattail marsh. In 1953, rising water expanded this pond until it was directly connected to the main lake (Fig. 1). The rise in water levels was accompanied by elimination of much of the emergent vegetation. Drainage of Freezeout Lake, beginning in 1954, reduced the area to the size shown in figure 2 by 1956. Figure 3 shows Study Area No. 1 in 1952, supporting an extensive emergent growth. Figure 4 shows this area as it was in 1959, after drainage had reduced the area to its present size (about 296 acres) and without the extensive emergent vegetation present in 1952. This area is fed by three supply ditches entering the northern edge. All receive waste water from adjacent irrigated farmland. Maximum water depth found was 25 inches but most depths varied from six to 15 inches. Water fluctuations up to four inches were common.

Study Area No. 2 lies north of Freezeout Lake and west of Study Area No. 1. In 1952, this was a pond of about 40 acres separated from Freeze-



Fig. 1. Freezeout **Lake** area in 1953. The numerals 1 and 2 designate the locations of the respective study areas.



Fig. 2. Freezeout Lake area in 1959 with numerals indicating study areas. Dotted line indicates water level on Study Area No. 2 in 1956.

