



Yearly food habits of the river otter in the Thompson Lakes region, northwestern Montana, as indicated by scat analyses  
by Kenneth R Greer

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 food habits study by scat analysis was conducted from April, 1952, through May, 1953, in the Thompson lakes region of Lincoln County, Montana to help evaluate the economic status of the river otter (*Lutra canadensis*) Ninety-six otter latrines supplied 1374 scats with a known date of deposit. Material was gathered from two separate areas and analyzed data were compared. Limited sampling was conducted to obtain a suggestion of fish abundance and "sign" was used to estimate fur bearer numbers to help evaluate the food habits. For the entire year and for both areas fish remains were identified most frequently, appearing in 1280 (93.2%) of the 1374 scats. Invertebrates were recorded for 566 (41.2%), amphibians 233 (18.4%), mammals 212 (15.4%), birds 71 (5.2%) and reptiles 5 (0.4%). Each of these groups retained the same position in relative importance throughout all seasons except fall when mammals replaced amphibians for third.

The data suggest availability of prey to be important in determining the food habits' of the otter.

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KENNETH R. GREER

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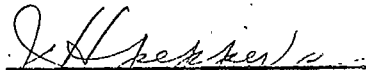
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ABSTRACT

A food habits study by scat analysis was conducted from April, 1952, through May, 1953, in the Thompson lakes region of Lincoln County, Montana, to help evaluate the economic status of the river otter (Lutra canadensis). Ninety-six otter latrines supplied 1374 scats with a known date of deposit. Material was gathered from two separate areas and analyzed data were compared. Limited sampling was conducted to obtain a suggestion of fish abundance and "sign" was used to estimate fur bearer numbers to help evaluate the food habits. For the entire year and for both areas fish remains were identified most frequently, appearing in 1280 (93.2%) of the 1374 scats. Invertebrates were recorded for 566 (41.2%), amphibians 253 (18.4%), mammals 212 (15.4%), birds 71 (5.2%) and reptiles 5 (0.4%). Each of these groups retained the same position in relative importance throughout all seasons except fall when mammals replaced amphibians for third. The data suggest availability of prey to be important in determining the food habits of the otter.

## INTRODUCTION

Otters (Lutra canadensis) have been protected in Montana since the 1949-50 trapping season but there is evidence that a few are unintentionally taken in traps and there are rumors that some are eliminated by acts of vandalism. Certain unfounded reports from Lincoln County indicated these animals are undesirable. Some fishermen claim they reduce the numbers of trout and bass and thus contribute to poor fishing. Some trappers declare otters destroy muskrats, beavers and minks. A survey of the literature did not reveal information to substantiate or refute these claims so it seemed desirable to conduct a study.

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## THE STUDY AREA

The investigation was centered around Thompson Lakes, a group of 31 lakes and streams, situated approximately 40 miles southeast of Libby, Montana (Fig. 1). These lakes are easily accessible and many can be seen from U. S. Highway No. 2.

Fishes native to the area include: Kokanee salmon (Onchorhynchus nerka), dolly varden trout (Salvelinus malma), cutthroat trout (Salmo clarkii), rocky mountain whitefish (Prosopium williamsoni), Columbia coarse scaled sucker (Catostomus macrocheilus), Columbia long-nosed

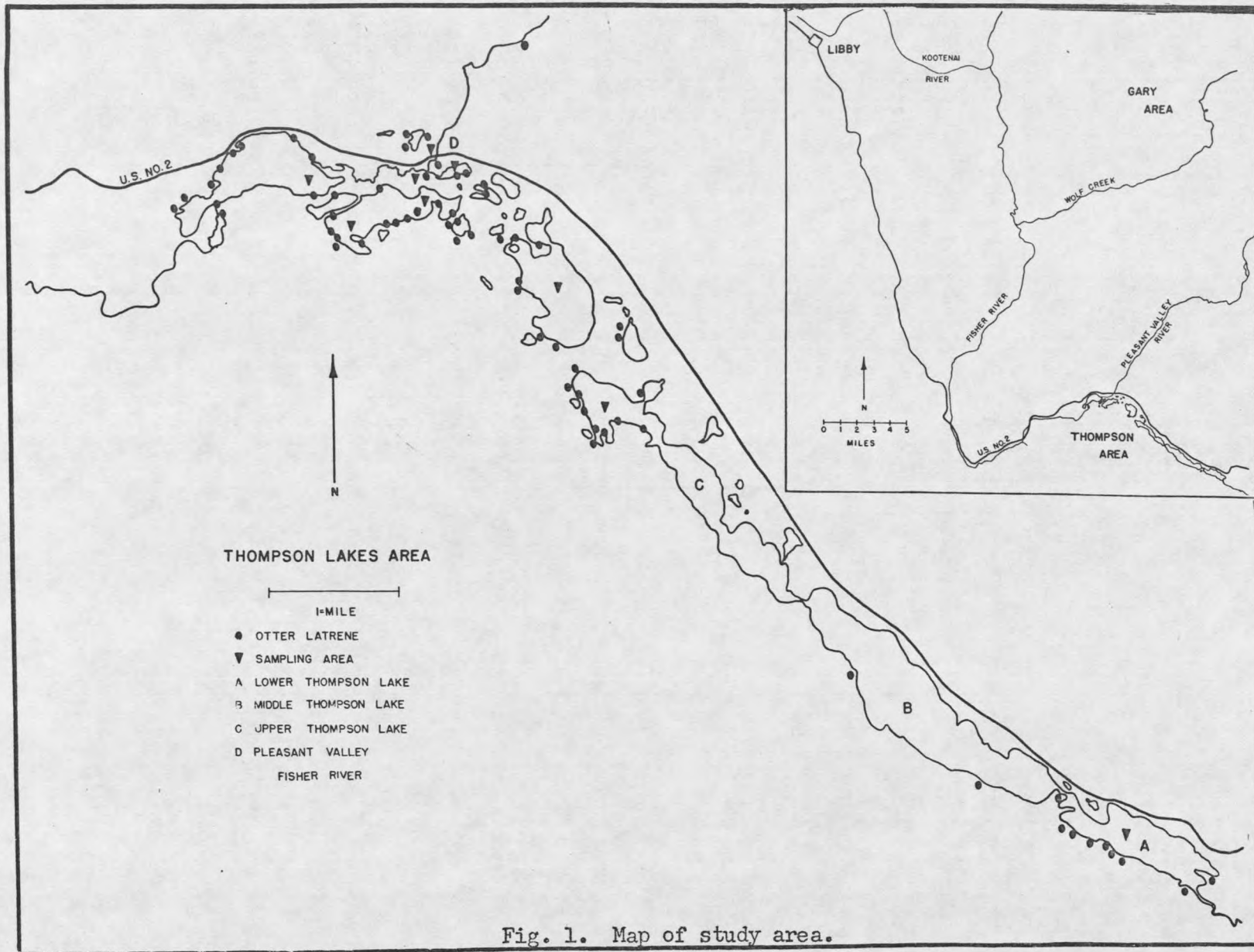


Fig. 1. Map of study area.

sucker (Catostomus catostomus), red-sided shiner (Richardsonius balteatus), sculpin (Cottus punctulatus), squawfish (Ptychocheilus oregonensis) and Columbia river chub (Mylocheilus caurinus). Hybrids between the latter two were common. Exotics include: Eastern brook trout (Salvelinus fontinalis) rainbow trout (Salmo gairdnerii), largemouth bass (Micropterus salmoides), yellow perch (Perca flavescens) and pumpkinseed (Eupomotis gibbosus). According to Echo (personal communication) there exists an over population of perch and sunfish.

Gill nets, electric shocking equipment and fishing were employed to obtain information on fish abundance in the various waters (Table I). An indication of muskrat (Ondatra), mink (Mustela), and beaver (Castor) numbers was afforded by "sign" (Table II).

Gary's Lake, about 20 miles due north of the Thompson Lake area was included for comparison because it is somewhat isolated and supports a greater concentration of fur bearers.

Only on three occasions were pairs of otter observed within the study areas. Few sight records were reported. Liers (1951), observed dens of three litters along a 20 mile stretch of stream in Minnesota. No dens were seen in this study. Two otter were observed on a small lake (8 acres) for 2 hours. They were not observed to eat anything. During the 5-10 minutes they were on the shore they deposited 3 droppings. This one direct observation was not sufficient to determine the number of scats deposited by an otter in a given length of time. The number of scats collected at latrines between known dates, and known or estimated dates

Table I. Relative abundance of fish in study area as indicated by limited sampling.

Area and Date	Sampling Method	Catch
Thompson (9 sampling areas, see fig. 1) June-Aug.	7 hr. fishing (4 areas)	50 YP in 2 hrs., 100 SF in 3 hrs., 10 SU in 1 hr., 12 CRC, 8 SF in 1 hr.
Sept. 3	electric shocking (2-100 ft. stream sections)	76 SC, 21 SU, 16 T, 10 S, 7 WF, 3 SH
June-Sept.	*70-24 hr. gill net sets (1 area)	(av. catch per 24 hr. set) 63 YP, 35 WF, 17 S, 7 SF, 1 SU
May, Aug.	13-24 hr. sets (3 areas)	28 SF, 22 S, 14 CRC, 6 B, 3 T, 2 WF, 1 SU
Gary's (1 area)	2 hrs. fishing	4 SH, 2 T

B-bass, CRC-Columbia river chub, S-sucker, SC-sculpin, SF-squawfish, SH-shiner, SU-sunfish, T-trout, WF-whitefish, YP-yellow perch.

\*The data of 70 gill net sets were supplied by John Echo while working on a fish study in the lower Thompson Lake.

Table II. Relative abundance of fur bearers in study area as indicated by "sign".

Area	Av. no. beaver houses	Av. beaver "sign"	Av. muskrat "sign"	Av. mink "sign"
Thompson (9 sampling areas)	1.3	X	XX	X
Gary's (1 area)	3.0	XXX	XXX	X

X-Light, XX-Moderate, XXX-Heavy



of scat deposition, revealed few otter in the area. Those present usually remained only a day or two in any one locality. According to Liers (op cit), "Individuals may cover 50 to 60 miles of stream course in a year. Families range about 3 to 10 miles in a current season". The extensive home range of the otter in the study area is indicated by the dates scats were deposited at known latrines. During spring, the deposits seemed to show a visit to an area for a day or two, absent 2 or 3 days, return for a day and absent 2 or 3 days. This pattern was repeated 3 or 4 times then an absence between visits of 7 to 15 days occurred. The frequency of visits decreased as summer progressed. Scat evidence suggested that otters deserted the lakes when they became frozen over. The fact that droppings were deposited on the same day at Gary's and the Thompson area, separated by 28 water miles, indicated each of these areas served as separate home ranges for the otter inhabitants. The number of otters estimated to use the study area was 6-8.

#### METHODS

"Pulling out" places and latrines (Liers, op cit) were located by walking the shores. Most latrines were on the shores, several were on or near beaver houses. Fallen trees, larger than 18 inches in diameter, extending from the shore into the water were often used. Latrines appeared to be of long establishment.

Otter scats are readily recognized with experience. The average is approximately  $3/4$  inches in diameter and characteristically in 2, 3, or 4 curved segments each about  $1\frac{1}{2}$ -3 inches long making a total length of 4-7

inches. It is not unusual for droppings to vary in size from above average to a remnant. Fresh droppings were usually black with a strong characteristic odor. They usually consisted of fish scales and bones although other materials such as hair, feathers etc. were frequently present. Heavy mucus was mixed throughout a fresh scat. Drying, crusting and decrease in mucus content progressed with age. To determine the rate of change, fresh scats were tagged, left unmolested and revisited daily. Droppings from immature otter could be mistaken for those from a large mink if it were not for the smaller diameter of the latter and the characteristic one segment (Fig. 2).

An occasional "sign" noticed at a latrine site was a white discharged substance. Some trappers reported this to be "phlegm" from an oral discharge. It was usually found separate from the scats but in their vicinity. It had an irregular form ( $1/8$  to  $1/4$  inch thick and 1 to 2 inches long), white opaque color, elastic quality and apparently was lacking in odor. A yellow tinge accompanied aging. One trapper was reported to have used this material to make scent for trapping otter.

When a latrine was discovered all scats were aged and placed in separate envelopes on which essential data were recorded. Once the location of a latrine was established it was visited regularly for scat collections. Eight were located at Gary's Lake and 88 on the Thompson study area. Snow made accessibility to the areas difficult throughout the winter and fall but 6 collections were made. Final collections were made after all snow disappeared and "lost" droppings were recovered. A total of 2209 scats was collected from April, 1952, through May, 1953. The approximate date of















































