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RIVER OTTER FOOD HABITS IN NORTHWESTERN ILLINOIS

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ABSTRACT

A study was conducted to determine river otter food habits in northwestern Illinois on seasonal and habitat specific bases. Based on scat analysis, fish dominated utilization each season and occurred in 98% of scats collected. Centrarchidae (sunfishes), Cyprinidae (minnows and carps), Clupeidae (herrings), and Percichthyidae (temperate basses) occurred in 50%, 40%, 37%, and 16% of all scats, respectively. Amphibians (frogs) and crustaceans (crayfish) each occurred in 10% of the scats. Insects and birds were identified in 3% and 2% of all scats, respectively. Notable differences in frequency of occurrence of the different food items were evident when the data were analyzed per location. Fish survey data suggested otters take fish in proportion to availability.

River otter (*Lutra canadensis*) diets have been studied in representative areas of their extensive range. According to Toweill and Tabor (1982), fishes were the major dietary item. Melquist et al. (1981), Melquist and Hornocker (1983), and Larson (1984) substantiated the importance of fish in the otter diet.

Melquist and Hornocker (1983:26) noted "an understanding of the temporal relationships of predators and their prey is important in identifying potential limiting factors." We concur and conducted this study to determine otter food habits in northwestern Illinois on seasonal and habitat specific bases. Studies were part of a broader effort to determine critical habitats, habitat use, and possible factors limiting otters, which are listed as "threatened" in Illinois (Thom 1981).

STUDY AREA AND METHODS

The principal study area was a 220 ha site in Whiteside County north of Fulton, IL immediately downstream from Mississippi River Lock and Dam 13. Scats (n = 822) were collected from the study area November 1981 — February 1982 and October 1982 - June 1983. An additional 101 scats were collected from three other sites along the Mississippi River in northwestern Illinois and eastern Iowa February 1982 — June 1983.

Collection on the principal study area were during frequent, often daily, visits; hence, most were fresh and approximate time of deposition known. Collection from the other sites were sporadic. Scats were placed in individual plastic bags, stored in a freezer, and then air dried in paper cups before analysis. Prey remains were identified according to Lagler's (1947) criteria. Amphibians, crustaceans, and insects were readily identifiable without keys.

All remains in a scat were considered a single occurrence. Data were tabulated by frequency of occurrence on a seasonal and/or location basis.

RESULTS AND DISCUSSION

Fish dominated utilization each season and occurred in 98% of scats from the principal study area (Table 1). At least 8 families were represented with Centrarchidae (sunfishes), Cyprinidae (minnows and carps), Clupeidae (herrings), and Percichthyidae (temperate basses) occurring in 50%, 40%, 37%, and 16% of all scats, respectively. Next in importance were amphibians (frogs) and crustaceans (crayfish), each occurred in 10% of the scats. Insects and birds were identified in 3% and 2% of all scats, respectively. Trace amounts of otter hair found in many scats probably originated from grooming.

Notable differences in frequency of occurrence of the different food items were evident when the data were analyzed per location (Anderson and Woolf 1984). Fish were the dominant food item at all locations. However, at Lake 1, crustaceans occurred in 35% of the scats from one location and 33% of the scats from another location contained remains of amphibians. Centrarchidae, Cyprinidae, Clupeidae, and Percichthyidae were the prevalent species of fish ingested at all locations; however, order of importance varied depending on location. Analysis of 101 additional otter scats from other areas along the Mississippi River indicated similar variation depending on collection site (Anderson and Woolf 1984).

Based on limited fish survey data (Anderson and Woolf 1984), otters appeared to take fish in proportion to availability. Direct correlation between abundance of specific families occurring at a given site and frequency of occurrence in scats from the same site was not evident. However, Centrarchidae, Clupeidae, Cyprinidae, and Percichthyidae were most abundant and accounted for 30%, 27%, 17%, and 11% of the fish collected from the study area, respectively. Results of these surveys also indicated species of fish that were principal prey of otters, specifically: bluegill (*Lepomis macrochirus*), gizzard shad (*Dorosoma cepedianum*), common carp (*Cyprinus carpio*), and white bass (*Morone chrysops*).

Our findings are analogous to otter food habits summarized by Toweill and Tabor (1982). Prey diversity and abundance do not appear limiting to the small and scattered otter populations inhabiting the Mississippi River and associated habitats in northwestern Illinois.

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Table 1. Number of occurrences and frequency of occurrence to nearest percent per season of food items in 822 otter scats collected from the principal study area north of Fulton, Illinois; November 1981 — February 1982 and October 1982 — June 1983.

Food Item	Fall (Oct-Nov)	Winter (Dec-Feb)	Spring (Mar-May)	Summer (Jun)	Total
Sample size:	167	362	277	16	822
FISH	164 (98)	361 (99)	269 (97)	11 (69)	805 (98)
Centrarchidae (Sunfishes)	134 (80)	190 (52)	86 (31)	5 (31)	415 (50)
Cyprinidae (Minnows and carps)	29 (17)	158 (44)	145 (52)	—	332 (40)
Clupeidae (Herrings)	16 (10)	146 (40)	136 (49)	6 (38)	304 (37)
Percichthyidae (Temperate basses)	8 (5)	51 (14)	73 (26)	—	132 (16)
Esocidae (Pikes)	6 (4)	5 (1)	12 (4)	1 (6)	24 (3)
Percidae (Darters and perches)	3 (2)	7 (2)	8 (3)	—	18 (2)
Amiidae (Bowfins)	2 (1)	2 (1)	8 (3)	—	12 (1)
Catostomidae (Suckers)	1 (1)	5 (1)	—	—	6 (1)
Unidentified fish	7 (4)	9 (2)	6 (2)	2 (13)	24 (3)
AMPHIBIANS					
Frog (*Rana* spp.)	18 (11)	57 (16)	8 (3)	1 (6)	84 (10)
CRUSTACEANS					
Crayfish (*Cambarus* spp.)	13 (8)	26 (7)	32 (12)	8 (50)	79 (10)
INSECTS					
Dragonfly nymph (Odonata)	10 (6)	8 (2)	6 (2)	—	24 (3)
BIRDS (Unidentified)	5 (3)	1 (1)	11 (4)	2 (13)	19 (2)