River Otter in Arkansas III. Characteristics of Otter Latrines and Their Distribution Along Beaver-Inhabited Watercourses in Southwest Arkansas

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THE RIVER OTTER IN ARKANSAS. III. CHARACTERISTICS OF OTTER LATRINIES AND THEIR DISTRIBUTION ALONG BEAVER-INHABITED WATERCOURSES IN SOUTHWEST ARKANSAS

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ABSTRACT

Forty-one river otter (Lutra canadensis) fecal deposit (latrine) sites were located during April 1983 through March 1984 along beaver (Castor canadensis) inhabited watercourses in Clark, Nevada, and Ouachita counties, Arkansas. Latrine sizes ranged from 64 cm² to 5.01 m² (x=3.0 m²; S.D. =0.88), and contained 2 to 78 scats per latrine (x=9.2; S.D. =13.8). The most common sites for latrines included elevated leaf or moss covered banks (51.2%), beaver lodges or bank dens (17.1%), and beaver scent mounds (12.2%). Other latrine sites included felled logs over open water, bare soil along elevated banks, and exposed sandbars. Otter presence fluctuated seasonally in beaver areas, with the periods of greatest occurrence being early summer and late winter.

INTRODUCTION

Numerous studies concerning the effects of beaver pond formation on wildlife have been conducted (Beard, 1955; Rutherford, 1955; Speake, 1956; Knudsen, 1959; Arner, 1963; Reese and Hair, 1976; Alfred, 1980). Practically all reports have found beaver ponds to be beneficial to the forms of life studied.

Analyzing harvest records, Tumlison et al. (1982) reported the possible existence of a commensal relationship by river otter (Lutra canadensis) with beaver (Castor canadensis), facilitated through the development of suitable otter habitat in beaver ponds. This study was initiated to define characteristics of otter latrines and investigate the extent of utilization of beaver-inhabited watercourses by otter in southwest Arkansas.

METHODS AND MATERIALS

The study was conducted on eight beaver-inhabited watercourses during April 1983 through March 1984. Watercourse sizes ranged from small intermittent woodland branches to larger creeks and meandering sloughs in Clark, Nevada, and Ouachita counties (Fig. 1). On all watercourses beaver, through dam construction, had created ponds ranging from 0.8 ha to extensive areas of inundation 24 ha in size. Dominant vegetation of these beaver areas included bald cypress (Taxodium distichum), water tupelo (Nyssa aquatica), buttonbush (Cephalanthus occidentalis), green ash (Fraxinus pennsylvanica), smartweeds (Polygonum spp.), cattails (Typha spp.), and rushes (Juncus spp.). Maximum depths in all areas sampled were greater than one meter during April through July and December through March. Due to dam removal and paucity of rainfall during the remaining months of the study, water levels were reduced to isolated pools and shallow channels in existing beaver runs.

Initially, only cursory investigations of study areas were conducted (April through June). During the remainder of the study, examinations were conducted at monthly intervals except at times when routine management activities provided more frequent examinations, or at times when, due to high water or ice cover, regular examinations were prevented.

Latrine sites were identified and size, distance from water, and elevation above waterline were recorded. When possible, estimations regarding the length of use, freshness of scats, and number of animals using a latrine were also recorded. During some sampling periods no latrine sites were discovered although tracks indicated otter were utilizing an area, or at least frequenting a particular location. To derive a more

Figure 1. Locations of beaver-inhabited watercourses in southwest Arkansas.
Table 1. Numbers of latrines (track counts) recorded monthly along beaver inhabited watercourses in southwest Arkansas.

<table>
<thead>
<tr>
<th>Location</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Apr</td>
<td>May</td>
<td>Jun</td>
<td>Jul</td>
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<tr>
<td>#2</td>
<td>1</td>
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<td>#8</td>
<td>0</td>
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</tbody>
</table>

Ni: Not investigated during month.

**RESULTS AND DISCUSSION**

Latrine Characteristics: A total of 41 latrines were identified during the study (Table). The number of scats per latrine ranged from 2 to 78 (F = 9.2; S.D. = 13.8). The average latrine covered 0.30 m² (S.D. = 0.88), ranging from 64 cm to 5.01 m². Distances from water and elevations above waterline ranged from 5 cm to 2.7 m (F = 59.9 cm; S.D. = 49.6) and 11 cm to 1.8 m (F = 37.6 cm; S.D. = 37.4), respectively.

Hewson (1973) reported finding spraints of European otter (*Lutra lutra*) in piles near the center of islands and beneath rhododendrons on a Scottish loch. Greer (1955) described river otter as having particular "toilets" near regular landings. Otter often defecate on large logs, rocks, logs, and banks, and object protruding from the water (Melquist and Hornocker, 1983). The most common site for latrines found during this study were elevated debris-covered banks (21 sites or 51.2%) along main stream channels and beaver ponds. Seven latrines (17.1%) were located on beaver lodges or bank dens. Interestingly, five latrines (12.2%) were found in association with beaver scent mounds. Muller-Schwarz and Heckman (1980) discussed the social role of scent marking in beaver. Along trails and dams on main travel lanes beaver scent mounds provide readily discernable signals to transient beaver that an area is currently occupied. Consequently, due to the strategic location of these areas, otter latrines may also be deposited. Towell and Tabor (1982) described scent marking activities among otter as including "not only deposition of excrement but also scratching together mounds of soil and debris or twisting tufts of grass together, either of which may have scent deposits or spraints deposited on top". During this study no otter scent marking consisting of mounds of soil and debris were observed, although otter latrines undoubtedly served a role in scent marking activities. Other less frequently encountered latrine sites included fell logs over water, bare soil on elevated banks, and exposed sandbars.

Many river otter latrine sites are used repeatedly (Melquist and Hornocker, 1983). Older scats at well established latrines often were difficult to classify according to age. Studying European otter, Jenkins and Burrows (1980) found 50% of spraints disappeared after two weeks and 83-94% disappeared after seven weeks. In this study exposure to rain and high water were major factors reducing the longevity of discernable scats. Scattered fragments of fish remains often indicated past use at well established latrine sites.

Fourteen (34.1%) of the recent latrine deposits were determined to represent repeated visits to an established latrine. Length of use for these latrines ranged from extended periods lasting more than two months (for two latrines situated on beaver lodges at locations 2 and 4), to repeat visits for a single latrine during a 36 hour period (location 8) after which the animal did not return. Melquist and Hornocker (1983) reported that traveling otter marked at traditional landing sites with the greatest amount of marking occurring at activity centers. When several otter congregated at activity centers, the area eventually became blanketed with scats. Liers (1951) reported that when several otter travel together each tries to be the last to leave its mark. In most instances it was impossible to ascertain the number of otter using a particular latrine, however using track counts it was determined that two latrines had been visited by more than one otter. One latrine located during August (location 5) was only minutes old when discovered and tracks along the bank indicated the presence of one large and three small otter, probably a male and female. During January, tracks in the vicinity of another latrine (location 2) indicated the presence of two otter. Melquist and Hornocker (1983) believed that frequent confrontations between unrelated otter traveling on the same stream were resolved by mutual avoidance; profuse fecal marking at activity centers served as signals to arriving otter that the site was presently occupied. Kaufmann (1983) presents a thorough discussion on the definitions and functions of dominance and territoriality. In his paper, Kaufmann summarized that there is an indivisible continuum in degree of trespass onto territories, and functionally it is priority of access that is important rather than exclusive occupancy. This statement may describe otter dominance and territoriality. During the non-breeding season unrelated otter occupy the same general home range, move freely throughout the area, and use the same activity centers without associating with each other (Melquist and Hornocker, 1983).

Seasonal Activity Trends of Otter: Tumlison et al. (1982) compiled data indicating that trophic requirements of otter are supplied by beaver ponds on smaller streams through enhancement of all levels of the food chain. Otter were found to occur in all beaver areas throughout the course of the study (with the exceptions of October and November when all locations were virtually dry) indicating that otter make use of beaver areas so long as water levels maintain sufficient depth to provide foraging space.

Water levels probably exerted the greatest influence on seasonal habitat of beaver areas by otter. Humphrey and Zinn (1982) found seasonal changes in the distribution of aquatic habitat to be a factor involved in a seasonally declining muskrat abundance. Their observations of otter sign suggested that otter occupied permanent water bodies during the late dry season. Six of the eight locations used in this study were within 400 m of permanent creeks and rivers. This distance is easily within the expected limits of travel for a highly mobile animal such as the otter. Therefore, during the extremely dry months of October and
The breeding season in Arkansas probably closely resembles those reported for other southeastern states (McDaniel, 1963; Lauhachinda, 1978). The period of greatest otter presence recorded during this study occurred during late winter. This period would coincide with the reported breeding season, indicating that otters may utilize beaver areas as breeding and rearing sites. Finally, this indication is strengthened by a reported preference for active and abandoned beaver bank dens and lodges as den and resting sites by otter (Melquist and Hornerock, 1983).

**LITERATURE CITED**


