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# THE RIVER OTTER IN ARKANSAS: I. DISTRIBUTION AND HARVEST TRENDS

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## ABSTRACT

River otter (*Lutra canadensis*) management in Arkansas is hampered by a lack of information on population parameters. This initial study on the biology of Arkansas river otter is concerned with present distribution and harvest trends. Otter occur throughout Arkansas, except in the upper Ozark region. A distributional shift, apparently along the Arkansas River, has led to an increase in otter harvest in the Ouachita Mountain region. A dramatic increase in otter harvest over the past four years (1976-1979) is attributable, in part, to a pelt price increase. Additionally, nuisance level beaver (*Castor canadensis*) populations and an extended trapping season for beaver may have influenced the otter harvest.

## INTRODUCTION

The status of the river otter (*Lutra canadensis*) in North America has been of concern in recent years, causing it to be placed on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Its status in Arkansas must be determined. Most states contiguous with Arkansas consider the otter to be threatened or rare (Schwartz and Schwartz, 1959; Lowery, 1974; Kennedy and Harvey, no date).

Holder (1951) estimated a population of 700-800 otter in Arkansas, primarily in the Delta region. Harvest records of the Arkansas Game and Fish Commission for the 1979-80 trapping season indicate a take (749 otter) equal to the 1951 population estimate. Sealander (1956) reported that otter were found in over 40 counties in Arkansas, principally in the central and eastern parts of the state. He believed otter populations to be increasing at that time. Sealander and Gipson (1974) placed the otter in the position of "status undetermined". Sealander (1979) included a distribution map for the river otter in Arkansas (based on museum specimens and fur harvest records), and he emphasized that otter appear to be increasing, parallel to muskrat, beaver, and nutria populations. This paper is concerned with the distribution and possible population trends of river otter in Arkansas as evidenced by museum specimens and fur harvest records.

## METHODS AND MATERIALS

Fur harvest records of the Arkansas Game and Fish Commission for the past 20 years (1959-79) were utilized in this investigation. The accuracy of these records affects all subsequent calculations and assumptions concerning them. We tried to discern the relative accuracy of fur harvest records by comparing available harvest data (by county) with the number of furbuyers licensed in each county. Such a comparison should reveal the validity of reports (completed by the furbuyer) concerning the county of origin of otter pelts (it is possible that furbuyers report the county of sale rather than the county of origin).

The Arkansas Game and Fish Commission used the four major physiographic regions of Arkansas (Gulf Coastal Plain, Ouachita Mountains, Ozark Mountains, and Delta) to group otter harvest records. Physiographic bias exists since the county boundaries of Holder (1951) were used to demarcate regions. Foti (1974) has shown

that, in fact, eastern White County is deltaic and that the entire southern tier of Ozark counties (according to Holder) actually contain components of both the Ouachita and Ozark physiographic regions.

Since habitat characteristics vary among physiographic regions, certain habitat requirements for otter would more likely be better represented in one region than another. The Delta and Gulf Coastal Plains regions appear to include more of the preferred otter habitat in Arkansas. Harvest records were used to test the hypothesis that, in response to habitat, more otter occur in the Delta and Gulf Coastal Plain and are therefore taken more often from these regions.

Fluctuations in harvest records cannot be interpreted as fluctuations in furbearer populations *a priori*. To facilitate interpretation of harvest records, factors or variables suspected of influencing otter harvest were examined (e.g., otter pelt price and beaver harvest).

## RESULTS AND DISCUSSION

In many counties with reportedly high takes of otter there were no licensed furbuyers, whereas few otter were reported from several counties with many furbuyers. Since furbuyers often listed counties other than their own as sources of pelts, harvest data seemed sufficiently accurate to allow analysis of harvest by region.

The reported otter harvest from each physiographic region for trapping seasons from 1959-1979 are shown in Figure 1. The Gulf Coastal Plain generally produced the greatest harvest, with the Delta ranking second in most years. These results support our preliminary hypothesis. However, in the past few trapping seasons, the Ouachita Mountain region became more important as a source of otter pelts, and in the 1979-80 season surpassed the Delta. For the Ouachita region, the otter harvest from 1976 to 1979 comprised 89.1% of the total Ouachita otter harvest since 1959. In the Gulf Coastal Plain, this same four-year harvest period represented 50.3% of the total, for the Delta 48.9% and for the Ozarks 75.4%. Incomplete harvest records for the 1980-81 season indicate that the trend is continuing.

This trend could be explained by a combination of factors. Increased agricultural activities and channelization projects in the Delta would logically be detrimental to otter habitat, and therefore to populations. If heavy harvest in early years reduced otter populations (Sealander, 1979), then more controlled harvest in recent years may have allowed a return of river otter to the Ouachita region. Additionally, the recent population explosion of beaver may have promoted otter re-establishment by creating suitable habitat via the damming of smaller streams.

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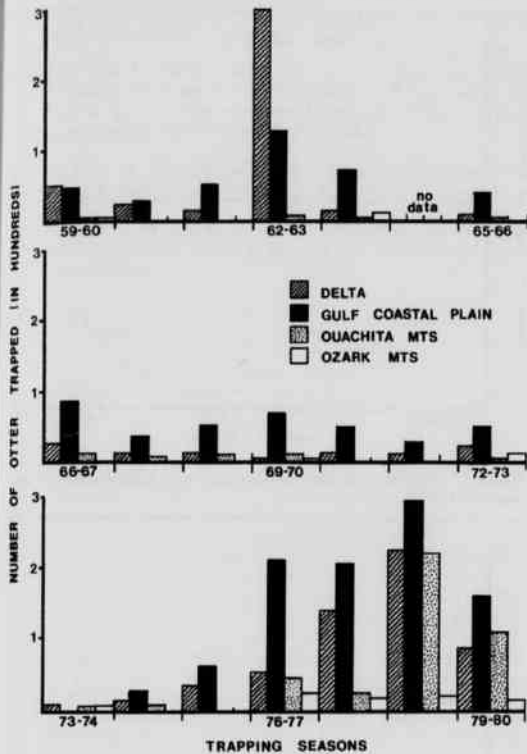


Figure 1. Reported otter harvest by physiographic region for trapping seasons from 1959-1979.

Major drainages used by otter throughout Arkansas include the Arkansas, White, Black, Saint Francis, L' Anguille, Cache, Ouachita, Saline, Little Missouri, and Red rivers. Also, major creeks and bayous are utilized, and the collective range and state of alteration (e.g., impoundments and channelization) of these waterways determine otter distribution, since the species is adapted to an aquatic environment.

Our proposed recent distribution of the river otter in Arkansas is indicated by stippling in Figure 2. Records show the heaviest harvest to be in central and southern Arkansas, from Perry to White counties in the Ouachitas, through Woodruff, Monroe, Prairie, and Arkansas counties in the Delta, down to Grant, Clark, Ouachita, and Calhoun counties in the Gulf Coastal Plain. Ozark counties collectively tally one to 35 pelts per year, and the counties from which they come vary from year to year. Harvest from Delta counties bordering the Mississippi River likewise yield few otter pelts. In recent years, otter distribution apparently has shifted to include more of the Ouachitas than has been previously reported (Sealander, 1979). This is possibly due to dispersal along the Arkansas River system, since the counties bordering the river yield more pelts. Other Ouachita counties, e.g., Polk, Scott, and Montgomery, report only a few otter pelts which, again, vary from year to year with regard to county of origin. Circles in extreme northwestern Arkansas (Fig. 2) represent reports by Sealander (1956, 1979) of an otter killed in 1948 and of sight records of Dellinger and Black (1940). Recently, two otter were taken from Madison County (1977-78 season). The current status of the otter in the extreme northwestern part of Arkansas is uncertain. Consequent-



Figure 2. Proposed recent distribution of river otter in Arkansas. Triangles represent specimens from the Collection of Recent Mammals, Arkansas State University Museum of Zoology (ASUMZ). Circles appear in counties not represented in the ASUMZ collection but for which fur harvest records or literature citations are available.

ly, the older records have been excluded from the map of the recent distribution of Arkansas otter.

Otter harvests have ranged from 25 pelts (1973-74 season) to 749 (1978-79 season). Although the reported take dropped to 400 in 1979-80, incomplete tabulations for the 1980-81 season indicate a minimum take of 650 otter. A plot of otter harvest versus otter pelt price was subjected to linear regression analysis. Pelt price has risen concurrently with the post-1976 harvest increase. The regression line has a positive slope ( $b=2.44$ ), representing 2.44 more otter being taken for each dollar increment in fur value. The positive correlation coefficient for these data (0.729) suggests that the increase in harvest is at least partially attributable to pelt price increase. Values of otter pelts over this time period ranged from \$11.00 (1967-68) to \$43.97 (1978-79). Otter pelt prices have remained consistently high as compared with those of other furbearers.

Fluctuations in otter harvest may be artifacts of harvest records or may represent actual population trends. In an attempt to interpret fluctuations in otter harvest data, a means of viewing otter harvest in light of "trapping pressure" was sought. Otter harvest was compared with a potential indicator of trapping pressure (inherent in the fur harvest records). Total harvest is not a valid indicator as it represents a composite of 14 to 15 species having variable harvest parameters. This melange of species variables must be reduced to one variable representative of a hypothetical "constant trapping pressure". Qualifications of this "indicator species" are:

- 1) it must compose a significant part of the total harvest,
- 2) it must have peaks and crashes of harvest similar to the total harvest (i.e., it must represent a constant percentage of the total harvest),
- 3) it must not be uncharacteristically affected by increases or decreases in pelt price, and
- 4) it must be found in habitats similar to those of the otter, thereby being subject to similar trapping strategies (i.e., it must be a wetland furbearer).

The mink (*Mustela vison*) most closely meets these prerequisites in Arkansas. Annual mink harvest is compared with total harvest in Fig. 3. During most of the time frame, mink obviously "track" the total harvest, and normally represent from 6-11% (average of 8%) of the

harvest. Price for mink has always been relatively high (\$4.00-\$14.00, averaging \$7.80) and reasonably constant. Mink are also wetland fur-bearers, meeting the fourth criterion.

Figure 4 depicts mink and otter harvest for the 20 year period. Because so few otter historically have been taken, their numbers have been multiplied by a factor of 10 to facilitate comparisons on the same graph with mink. In some years, such as the 1970-71 season, mink drop but otter do not decrease proportionately, although total harvest and mink harvest exhibit similar crashes. To explore the relationship between otter and mink harvests, the number of otter harvested per mink was plotted for each trapping season (Fig. 5). Seasons from 1969-71 showed an increase in the number of otter taken per mink, as did the 1978-79 season.

The peak in 1970 was a function of the mink harvest. At that time, both mink harvest and mink fur price were at a minimum. Otter were low in price compared to most years but were above their minimum; the take was down but not substantially so. The low mink harvest caused the otter/mink ratio to increase. The 1970 peak, then, does not represent an otter population increase.

Price seems to have had its effect in 1978. As otter price nearly doubled, the take of otter pelts also nearly doubled. Mink were more valuable than ever before, but take did not follow the increase in price. Therefore, the 1978 peak in Fig. 5 is the result of an otter harvest increase, most likely in response to otter pelt price.

Beaver (*Castor canadensis*) harvest has risen greatly statewide due to increases in both beaver population and trapping for beaver control. This higher take is not a function of pelt price, which remains relatively low, but it could be a significant factor in increasing otter harvest. Beaver may be trapped legally for a much longer season than otter. Presently, beaver are considered to be at nuisance level and therefore are trapped for control as well as for fur. Beaver sets are normally kill sets, and otter accidentally caught in them are killed, thereby artificially extending the otter trapping season. Usually these otter are frozen and sold during the next legal furbearer season, elevating otter harvest levels following periods of intensive beaver trapping.

### CONCLUSIONS

Otter harvest has increased substantially over the past 20 years, most notably since 1976, but whether or not it reflects a real population increase is still uncertain. Much of this increase can be attributed to a higher otter pelt price, and consequently selective trapping pressure, and also to more beaver trapping. Too, it may be a function of increased otter populations, but this possibility is not confirmed in fur harvest records. These variables, such as pelt price, inherent in harvest records, obscure true population increases. Ironically, increased otter harvest may have, in a sense, "masked" elevated population levels. Without knowledge of the true population increase, if it indeed exists, increased harvest could easily exceed the harvest tolerance of the otter population. Investigation of the biology of Arkansas river otter continues, to gain further insight into its true status in Arkansas.

### ACKNOWLEDGMENTS

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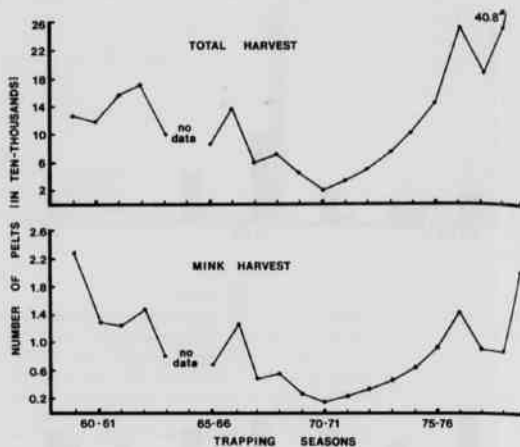


Figure 3. Annual mink harvest compared with total annual fur harvest (1959-1979).

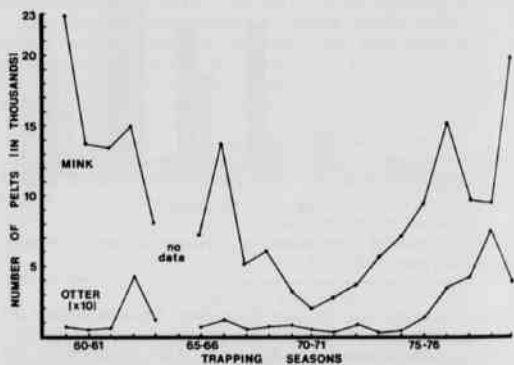


Figure 4. Mink harvest compared with otter harvest (1959-1979). Otter numbers have been multiplied by a factor of 10 to facilitate comparison.

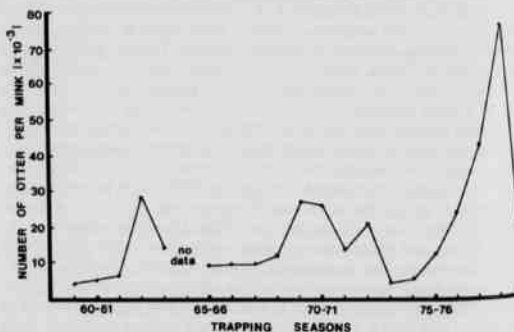


Figure 5. Ratio of otter harvest to mink harvest (1959-1979).

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