

1989

Mammals of Southwestern Arkansas Part III. Carnivores

Tim W. Steward
Arkansas State University

V. Rick McDaniel
Arkansas State University

Daniel R. England
Southern Arkansas University

Follow this and additional works at: <http://scholarworks.uark.edu/jaas>

 Part of the [Zoology Commons](#)

Recommended Citation

Steward, Tim W.; McDaniel, V. Rick; and England, Daniel R. (1989) "Mammals of Southwestern Arkansas Part III. Carnivores," *Journal of the Arkansas Academy of Science*: Vol. 43 , Article 28.
Available at: <http://scholarworks.uark.edu/jaas/vol43/iss1/28>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This Article is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Journal of the Arkansas Academy of Science by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, ccmiddle@uark.edu.

THE MAMMALS OF SOUTHWESTERN ARKANSAS PART III. CARNIVORES.

T.W. STEWARD, V. RICK McDANIEL and DANIEL R. ENGLAND*

Department of Biological Science, Arkansas State University
State University, AR 72467

* Department of Biology, Southern Arkansas University
Magnolia, AR 71753

ABSTRACT

This study investigates the composition of the carnivore fauna of southwestern Arkansas and presents data on habitat affinities. The study area is comprised of the 21 counties located south and/or west of and including Pulaski County. The previously existing data set pertaining to the mammals of Arkansas was notably incomplete and the study area, in particular, was poorly known mammalogically. Specimens were collected by standard trapping and salvage methods throughout the study area. Species considered during this study were limited to those meeting a set of criteria designed to eliminate species that had been introduced or artificially maintained. This study has accumulated records of 11 species of carnivores present in the study area and proposes the presence of one other; over 2100 specimens have been recorded; and a total of 81 new county records has been documented.

INTRODUCTION

A reliable understanding of an area's ecosystem can not be accomplished unless it is known of what that ecosystem is comprised biotically and abiotically. This realization is accentuated by the increase in the number of local, state, and federal agencies that have been studying aspects of the environment beyond those involving only recreational or economic considerations. These agencies agree that the more complete the knowledge of a studied area, the more efficiently the area can be managed and utilized. Consequently, many states are attempting to compile a complete data set of their natural resources. In Arkansas, the need for information on resources is intense. The present study, then, attempts to increase the data set available on the mammalian resources of southwestern Arkansas (an area previously only poorly known mammalogically).

There are relatively few studies on the distribution of mammals in southwestern Arkansas. For the state as a whole, the information available ranges from nonexistent to nearly complete depending on the species and area of concern. Black (1936) made the earliest study of the distribution of Arkansas mammals. His study was limited to northwestern Arkansas and contained limited habitat information.

Dellinger and Black (1940) attempted the first statewide inventory of Arkansas mammals. However, this study included little information on the mammals of southwestern Arkansas and almost no information on the habitats of mammals. The data were often restricted to one or two specimens from as many locations.

One of the first systematic distributional studies for southern Arkansas was conducted by Baker and Ward (1967). They reported on the distribution of nine species of bats in the southeastern portion of the state (Bradley, Cleveland, and Drew counties).

Sealander (1956, 1979) made the first comprehensive studies attempting to establish accurate distributions for the Arkansas mammalian fauna. His distributions were based on previous literature records, his personal collections, the collections of other researchers, and reports of sight observations. Although quite valuable, Sealander's book lacked data from many areas, particularly from southwestern Arkansas.

The purposes of the present study were to establish, as completely as possible, the current distributions of the mammalian species found in southwestern Arkansas and to present data on habitat affinities of these mammals.

STUDY AREA

The study area comprises 21 counties located south and/or west of, and including, Pulaski County. Within this area of the state, habitats vary widely from the rolling hills and rocky outcroppings of the Ouachita Mountains in the northern portion, to forested hills and cultivated tracts of land, to the sandy flood plains found throughout the southern portion of the area.

Habitat characteristics examined included: predominant vegetation, substrate composition, topography, successional stage, and developmental stage. These characteristics were not considered on an individual basis, but instead were considered to be attributes of overall habitat at any given location. These data could be valuable for evaluating the possibility of encountering a desired species of mammal based on habitat parameters.

The dominant vegetation of the study area included oak-hickory climax forests, loblolly pine forests, cedar glades, brush and grass fields, and agricultural cropland. Substrates varied from deep sands and clays of the flood plains, to rocky cliffs and outcroppings of the mountains, and to tracts of rich loams with scattered swampy areas.

The term "developmental stage" refers to the extent to which a site has been changed from its normal ecological condition by the activities (intentional or inadvertent) of man. These activities include commercial, private, or governmental developments, such as city growth, road construction, farming, and development of recreational areas.

For the purposes of this study, mammals were included if they met the following criteria:

1. The species is not a recently escaped exotic.
2. The species has not been recently introduced or (reintroduced) to the area by other than those avenues naturally open to native species.
3. The species' presence in the area is not a result of current or very recent artificial management or control procedures (i.e., the stocking of game animals into the area from some other area).
4. The record(s) is(are) not likely to be considered spurious.

Finally, only those sight records from acceptably knowledgeable persons and for those species for which misidentification is not likely were used. In most instances, sight records were corroborated by the capture of the same species from a nearby area.

METHODS

Numerous field collections were conducted throughout the period of this study by various individuals including Arkansas Game and Fish personnel, university personnel, public school teachers and their classes, graduate students, and other knowledgeable laypeople.

A variety of collection methods were necessitated by the different habits and life-styles of the mammals encountered in the study area. Sight identification of and collection of some road-kill specimens, particularly of larger species, resulted in many of the records accumulated for larger mammals and for those difficult to obtain by traditional collection methods. Sight identification of living specimens was made on only a few occasions, when accurate identification was assured.

Specimens were prepared as standard museum skin and/or skeletal

The Mammals of Southwestern Arkansas Part III. Carnivores

preparations. The specimens were deposited in the Arkansas State University Collection of Recent Mammals.

The habitat composition of the study area was determined by a variety of methods. In most cases, a brief description of the habitat in which the specimen was collected was included with the standard collection data. In those cases where habitat information was not available, the most probable habitat for the collection site was determined. This determination involved consulting published reports for the specific area, personal knowledge of the site, and review of detailed maps and/or aerial photographs of the area when available. Ultimately, habitat information was used to determine the range of "usual" habitats for a given species. Additional sources of distributional and habitat data included the few published literature records, records of the Arkansas Department of Health, and the Collection of Recent Mammals at Arkansas State University.

RESULTS AND DISCUSSION

This study has resulted in the collection of more than 2100 specimens and the accumulation of numerous sight records from various points in the study area. Voucher specimens now exist for nine species of carnivores found in southwestern Arkansas. Nomenclature and phylogenetic relationship utilized in this study are as reported by Jones *et al.*, 1986.

Species' Accounts
Order Carnivora
Family Canidae

Canis latrans Say, the Coyote. The coyote resides in areas of open brushlands and idle fields with forest borders while avoiding dense forests (Lowery, 1974; Sealander, 1979). This canid is abundant throughout the study area. Coyotes are able to adapt to almost any habitat type, from farms and fields, to the residential areas of some of the larger cities. This species can undoubtedly be found in all counties of the study area, although, we have only 68 records from seven counties (Table 1) and a sight record from Miller Co., all of which are the first published records for this species in the area.

Table 1. Carnivores from Southwestern Arkansas

County\Species	1	2	3	4	5	6	7	8	9
Calhoun	1	-	6	-	-	-	-	*	-
Clark	1	-	27	20*	-	-	X	11*	26
Columbia	-	-	11	5	-	-	X	1*	-
Dallas	-	-	3	8	-	*	-	8*	17
Garland	17	-	122	50	19	*	X	5*	29
Grant	-	-	2	4	-	*	-	*	6
Hempstead	-	1	76	216	2	*	X	5*	5
Hot Springs	-	-	39	11	1	-	X	7*	19
Howard	-	-	20	22	-	-	X	1*	20*
Lafayette	-	-	3	1	-	-	X	*	-
Little River	-	-	10	289	X	-	-	-	4
Miller	X	-	-	2	-	-	1	*	-
Montgomery	45	-	207	56	-	*	X	4*	82
Nevada	-	-	16	3	-	-	X	*	1
Ouachita	1	-	-	1	-	-	1	*	1
Pike	3	1	70	308	11	*	X	2*	35
Polk	1	-	29	27	-	*	X	*	24
Pulaski	-	-	33	18	-	2*	-	2*	6
Saline	-	-	6	X	-	-	X	*	-
Sevier	-	-	-	14	-	*	X	*	8
Union	-	-	4	-	-	*	-	*	8
Total	68	2	648	1055	33	2	2	46	291

LEGEND

1. *Canis latrans* 2. *Vulpes vulpes* 3. *Urocyon cinereoargenteus*
4. *Procyon lotor* 5. *Mustela vison* 6. *Spilogale putorius*
7. *Mephitis mephitis* 8. *Lutra canadensis* 9. *Felis rufus*

* indicates a previous literature record for the species in that county.
X indicates a sight record of the species in that county.

Vulpes vulpes (Linnaeus), the Red Fox. The preferred habitat of this fox is open oak-pine uplands with fields and pastures. Areas of dense cover are avoided by the red fox (Lowery, 1974; Sealander, 1979). The distribution of the red fox is poorly known for the study area. Sealander (1979) proposed a statewide distribution of this fox while stipulating that it would be scarce in southern Arkansas.

Residents of the area claimed to have seen this fox on several occasions, but these claims were not substantiated. Single specimens were collected from both Pike and Hempstead counties.

Urocyon cinereoargenteus (Schreber), the Gray Fox. Like its relative, *V. vulpes*, this fox can usually be found to inhabit oak-pine uplands with open fields (Lowery, 1974). Hall (1981) reported that the gray fox was closely associated with deciduous forest. Sealander (1979) reported that the gray fox prefers rocky, forested areas with dense undergrowth, but will also utilize hardwood forests, bottomland forests, and farmlands with fields and cover areas. A total of 684 specimens has been collected from 18 counties of the study area (Table 1).

Family Procyonidae

Bassariscus astutus (Lichtenstein), the Ringtail. This animal prefers to live in areas of rocky slopes and bluffs with brushy cover, normally no more than half a kilometer from water. It occasionally inhabits wooded areas with hollow trees as den sites (Sealander, 1979). Sealander (1979) reported this species from Clark, Dallas, Miller, Montgomery, and Pike counties of the study area. No additional records resulted from the present study.

Procyon lotor (Linnaeus), the Raccoon. The noted and often reported ability of the raccoon to adapt to almost any habitat type creates difficulty in ascertaining its preferred habitat. Sealander (1979) reported that the raccoon prefers bottomland hardwood forests and, though seldom far from water, they may be found in many habitats, such as swamps, upland forests, residential areas, and farmlands. Dellinger and Black (1940) reported the only published record of this species from the study area from Clark County. A total of 1055 raccoons was collected from 19 counties of the study area (Table 1). This species is very common in the study area and has been encountered in habitats ranging from swamps to residential backyards, and is plentiful in the uplands and the lowlands.

Family Mustelidae

Mustela frenata Lichtenstein, the Long-tailed Weasel. Sealander (1979) stated that "...this species is most abundant in areas with high pocket gopher populations." He also reported that areas of brush cover, fence rows, upland forests, forest borders, and bottomland forests along water courses may be used as habitat by this weasel. The long-tailed weasel is undoubtedly rare and extremely secretive in the study area. Its favorite food source, the gopher, is present in large numbers.

Mustela vison Schreber, the Mink. The one key habitat requirement for this animal is its need for a waterway, such as a stream, pond, lake, or swamp (Lowery, 1974). Sealander (1979) added that water sources with suitable cover such as brush, windfalls, or other debris are preferred by this species of weasel. As was true for its relative, *M. frenata*, records of the mink have not been published for the study area. Unlike the weasel though, the mink is rather common. Thirty-three specimens were collected from four counties of the study area (Table 1), in addition to a sight record in Little River county.

Spilogale putorius (Linnaeus), the Eastern Spotted Skunk. Lowery (1974) reported that this skunk will make its abode in sheltered locations such as hollow logs, abandoned buildings, lumber piles, tree roots, and burrows. It prefers rocky areas with crevices where fields, pastures, fence rows, forests and forest edges are used. Wet or dense timber areas are usually avoided (Sealander, 1979). Sealander (1979) reported this skunk from 10 counties of the study area (Table 1). We have additional records of only two specimens from Pulaski County.

Mephitis mephitis (Schreber), the Striped Skunk. Lowery (1974) reported that this skunk chooses much the same habitats as *S. putorius*:

abandoned burrows, stumps, rubbish piles, and old buildings. Sealander (1979) reported that the spotted skunk inhabits open areas, fence rows, and wood lots that are not far from water and it prefers rock cavities for den sites. This species is a common sight as roadkills along the roadways of the study area. We have specimens of this skunk from two counties and sight records from 13 additional counties of the study area (Table 1).

Lutra canadensis (Schreber), the River Otter. This animal is limited in habitat by its aquatic life style. Otters require open water courses and prefer those that are bordered by timber. The diet of the otter is made up of mostly reptiles, amphibians, fish, and aquatic invertebrates (Lowery, 1974; Sealander, 1979). Polechla (1987) reported that the otter is common throughout the study area. Sealander (1979) reported specimens from Union County and sight records from 14 additional counties. Tumilson *et al.* (1981) reported specimens from all counties of the study area, with the exception of Little River County. We have 46 specimens from 10 counties of the study area (Table 1).

Family Felidae

Felis concolor True, the Mountain Lion. This cat is a creature of the deep forest and may be found in dense upland and bottomland hardwood forests and swamps (Lowery, 1974). Areas in which it can avoid man are most favored by the mountain lion and include swamps, dense forests and rough uplands (Sealander, 1979). Currier (1983) defined the habitat of the mountain lion as having become limited to those areas that offer a large enough home range, available prey, and seclusion. Sealander (1979) reported that the last mountain lion killed in the study area occurred in Montgomery County in 1949. If this species still occurs in the study area, it does so in very small numbers and in those areas isolated from the presence of man.

Felis rufus (Schreber), the Bobcat. Rocky outcrops and canyons are the preferred habitat of this species, although dense forested areas, swamps, and semi-open areas are used also (Lowery, 1974; Sealander, 1979). This species of cat is rather common in the study area. We have 291 specimens from 16 counties (Table 1). It is most common in the forested areas, usually along streams and other water sources.

LITERATURE CITED

- BAKER, R.J. and C.M. WARD. 1967. Distribution of bats in south-eastern Arkansas. *J. Mammal.* 48:130-132.
- BLACK, J.D. 1936. Mammals of northwest Arkansas. *J. Mammal.* 17:29-35.
- CURRIER, M.J. 1983 *Felis concolor*. Mammalian Species. Amer. Soc. Mammal. 200:1-7.
- DELLINGER, S.C. and J.D. BLACK. 1940. Notes on Arkansas mammals. *J. Mammal.* 21:187-191.
- HALL, E.R. 1981. The mammals of North America. Second ed. John Wiley and Sons, New York, 2 Vols. 1083 pp.
- JONES, J.K., JR., D.C. CARTER, H.H. GENOWAYS, R.S. HOFFMANN, D.W. RICE, and C. JONES. 1986. Revised checklist of North American mammals north of Mexico, 1986. *Occas. Pap. Mus., Texas Tech Univ.* 107:1-22.
- LOWERY, G.H., JR. 1974. The Mammals of Louisiana and its adjacent waters. Louisiana State Univ. Press, Baton Rouge. 565 pp.
- POLECHLA, P.J. 1987. Status of the river otter (*Lutra canadensis*) population in Arkansas with special reference to reproductive biology. Unpubl. Ph.D. dissertation, Univ. Arkansas, Fayetteville, 383 pp.
- SEALANDER, J.A. 1956. A provisional check-list and key to the mammals of Arkansas (with annotations). *Amer. Midl. Nat.* 56:257-296.
- SEALANDER, J.A. 1979. A guide to Arkansas mammals. River Road Press, Conway, Arkansas. 313 pp.
- TUMLISON, C.R., A.W. KING, and L. JOHNSTON. 1981. The river otter in Arkansas: I. Distribution and harvest trends. *Proc. Ark. Acad. Sci.* 35:74-78.