

1999

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### Recommended Citation

Witsell, Theo; Heidt, Gary A.; Dozhier, Parker L.; Frothingham, Tom; and Lynn, Mark (1999) "Recent Documentation of Mountain Lion (*Puma concolor*) in Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 53 , Article 31.

Available at: <https://scholarworks.uark.edu/jaas/vol53/iss1/31>

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## Recent Documentation of Mountain Lion (*Puma concolor*) in Arkansas

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Sealander and Gipson (1973) stated that the mountain lion (*Puma concolor*) was probably never extirpated in Arkansas, and that populations may be expanding with the growing white-tailed deer (*Odocoileus virginiana*) herd. Because of persistent reports of mountain lion sightings and vocalizations, the Arkansas Game and Fish Commission conducted a field search (1988-89), led by an qualified lion hunter/tracker, for evidence of mountain lions in Arkansas. This study suggested "there are no wild, reproducing populations of mountain lions in Arkansas" (McBride et al., 1993).

Herein we report five localities in which hard evidence of mountain lions was found in late 1998 and early 1999 by the authors. Evidence can be assigned to one of two categories: soft or hard evidence. Soft evidence is that evidence which cannot be documented for future reference, such as sight/vocalization reports that are not accompanied by tracks, scat, photographs, audio/video recordings, or other documentable evidence. All hard evidence (scat, plaster casts, photographs) was deposited in the vertebrate collections at the University of Arkansas at Little Rock.

On 1 October, 1998 one of the authors (PLD) found a 45 cm long scat in a stone quarry near Magnet Cove, Hot Spring County (T3S R17W S28). In November 1998, a second scat (33 cm long) was found in a quarry near Lonsdale, Garland County (T2S, R17W, S18). On 31 December 1998, T. Witsell and C. Tracey found a 30 cm scat at an elevation of 268 m on a steep rock outcrop on the south-facing slope of the western-most peak of the Maumelle Pinnacles (T3N, R14W, S31) in western Pulaski County. The scat consisted almost entirely of white-tailed deer hair and bone fragments. A second scat was found 19 February 1999 by Witsell at an elevation of 177 m on the south-facing slope of Buzzard Mountain (T2N, R15W, S21), Pulaski County, along an old logging road. Mountain lion scat is usually deposited in large amounts and varies from masses to irregular shapes. The scat contains hair and possibly bone fragments from the animal's prey (Rezendes, 1992).

Also on 19 February 1999, further down Buzzard Mountain, at an elevation of 145 m, along the same road, a set of approximately 15 tracks were found under a high voltage power line. The front prints measured 12 cm long by 11 cm wide. The hind prints measured 10 cm wide by 10 cm long. The stride was 56 cm. Plaster casts and photographs

were made from the prints. Mountain lion tracks are typical of cats in general, with four toes on both the front and hind feet. Tracks are wider than long and the claws are not observed. Typical front tracks measure approximately 7-11 cm long by 9-12 cm wide; hind tracks are slightly smaller 5-7 cm long by 6-8 cm wide. The animal's stride is 50-80 cm (Rezendes, 1992).

A fresh white-tailed deer kill was found 27 February, 1999 by T. Frothingham along Nowlin Creek (T2N, R14W, S6), Pulaski County at an elevation of 90 m. Though the carcass had been scattered by dogs, drag marks and a trail of blood and hair indicated that the deer had been dragged from a field of broomsedge (*Andropogon virginicus*), over a fence and into an area of dense bottomland forest where the carcass was consumed. The hindquarters and head of the deer were never found. Two mountain lion prints were found in mud along Nowlin Creek near the carcass.

In early March 1999, S. O'Quinn of the Little Rock Parks and Recreation Department contacted the authors about the sighting of mountain lion tracks at Otter Creek Park (on the border of Pulaski and Saline counties) during the winter of 1998. Witsell, Frothingham, and O'Quinn searched the 50 ha park and found several ambiguous scats composed largely of animal hair that had been weathered by the elements. At least two of these scats were of dimensions consistent with that of a mountain lion. A single track was found in a wet depression along a powerline right of way. Although this track wasn't as well preserved as the others found, it had the same size and shape of an adult mountain lion track (11 cm long by 11 cm wide, large heel pad, and no claw marks). A plaster cast was made.

All of the areas where evidence was found are within a 40 km radius. Hornocker (1969, 1970) found western mountain lion home ranges to be quite large (13-52 km<sup>2</sup> for females and 39-78 km<sup>2</sup> or larger for males). Thus, our evidence may well represent one or more mountain lions. DNA analysis could be used to determine how many lions might be in the area.

Aside from the availability of prey items, the main limiting factor for mountain lion populations is the availability of sufficiently large, rugged forested areas removed from human activity (Sealander and Heidt, 1990). Now, more than ever before, such areas are disappearing from the Arkansas landscape. All three areas where evidence was

found in Pulaski County are now either being developed or are marked for development in the near future. Smallwood (1994) found that loss of forest was strongly correlated with decline of some populations of mountain lions in California and concluded that forest management must be the focus for their conservation. If it is proven that there is a reproducing population of mountain lions in Arkansas, remaining areas providing suitable forested habitat will need preservation if this species is to be part of our wildlife heritage for future generations (Sealander and Heidt, 1990). Clearly, more research needs to be conducted to gather and evaluate information on the presence of the mountain lion in Arkansas.

Questions remain as to whether these recent reports are of the endangered native Florida panther (*Puma concolor coryi*) or are of introduced individuals of other subspecies (Young and Goldman, 1946). Introductions can take place either by natural movements from populations in neighboring states or result from individuals releasing captive lions. Again, DNA analysis can possibly answer where existing mountain lions originated.

Ongoing research includes historical cataloging of sightings from 1973 to present. DNA analysis of collected scat and scent rubs, follow-up of sight/vocalizations reports, and placement of motion-triggered cameras in areas of suspected activity.

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