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Additional Specimens of the Western Cottonmouth (*Agkistrodon piscivorus leucostoma*, Reptilia: Squamata) from Kansas

ERIC M RUNDQUIST
Department of Herpetology, Sedgwick County Zoo and Botanical Garden
5555 Zoo Boulevard, Wichita, Kansas 67212

JAMES TRIPLETT
Department of Biology, Pittsburg State University
Pittsburg, Kansas 66762

ABSTRACT

The collection of two Western Cottonmouths (*Agkistrodon piscivorus leucostoma*) from Cherokee County in 1991 is reported. The history of this taxon in Kansas is discussed and previous records are discredited. The collection of the latest specimens confirms the presence of this taxon in extreme east-central Cherokee County.

The history of *Agkistrodon piscivorus leucostoma* in Kansas is a curious one. Although the taxon had been reported from the state as early as 1937 (Hall and Smith, 1947) and as recently as 1977 (Collins, 1977; Perry, 1977; Rundquist et al., 1978), no undoubtedly valid specimens have been collected from Kansas (Collins, 1982). We herein report on two specimens of *A. p. leucostoma* collected in 1991 that establish this species' existence in Kansas.

On 14 September 1991, an adult male *A. p. leucostoma* (KU 218677) was taken by Shane Eckhardt at ca. 4.8 km E of the jct. of U.S. route 69 and Kansas route 160, Cherokee County, extreme southeastern Kansas. The animal was found in late afternoon at a litter-strewn parking area approximately 125 m W of the Spring River. Associated habitat is mixed hardwood deciduous forest (primarily *Quercus* and hickory) in the Spring River floodplain in the Cherokee Plain physiographic province (Küchler, 1974).

The specimen (KU 218677) is an adult male with an SV of 778 mm, TL 925 mm. Meristic characters are as follows: ventrals—133, subcaudals—45, undivided subcaudals—24, supralabials—8-undet. (damaged), infralabials—9-10, scale row formula—23-25-21. The dorsal pattern is normal for *A. p. leucostoma,* as is the ventral pattern. There is damage to the right mandible and a portion of the venter in the anterior quarter of the specimen.

As a consequence of news media publicity connected with KU 218677,

another specimen found earlier was reported to us by Mr. Eckhardt. On 29 August 1991, an adult male *A. p. leucostoma* (KU 218780) was collected at 1.6 km S, 3.4 km E of the junction of U.S. route 69 and Kansas route 160, Cherokee County, Kansas, by Ken Outt. The animal was found near a small concrete culvert that runs under a gravel road. Associated habitat was cultivated fields to the north of the road and mixed hardwood deciduous secondary growth forest immediately to the south. While recovering this snake, Mr. Outt was bitten by it on the first phalange of his right index finger and was mildly envenomated.

This second specimen is an adult male with an SV of 600 mm, TL 705 mm. Meristic characters are as follows: ventrals—136, subcaudals—43, undivided subcaudals—17, supralabials—8-8, infralabials—11-11, scale row formula—24-24-21. The dorsal pattern is somewhat more distinct than normally seen in living adult *A. p. leucostoma,* but this may be an artifact of preservation. The ventral pattern is normal. The specimen has sustained severe midbody trauma, apparently after having been run over by a vehicle. In addition, there are three major dislocating fractures of the vertebral column anterior to the midbody trauma.

Discussion

Prior to the collection of these specimens (KU 218677, KU 218780), the status of *A. p. leucostoma* had been uncertain in Kansas. A specimen of *A. p. leucostoma* (KU 23284), purportedly collected by H. H. Hall in Labette County (Hall and Smith, 1947) in 1937, deserves comment.

This specimen has never been fully described and the following characters for KU 23284 are now given: adult male, SV—783 mm, TL—910 mm, ventrals—138, subcaudals—47 (terminal spine missing), undivided subcaudals—34, supralabials—8-8, infralabials—11-11, scale row formula—27-23-21. There are 10 distinct dorsal crossbands. The venter is dark with virtually no pattern.

Although KU 23284 is undoubtedly *A. piscivorus,* there are a number of problems with accepting this specimen as a valid record for the state. Foremost among these is that KU 23284 does not appear to be *A. p. leucostoma.* The presence of distinct dorsal bands, a large number of undivided subcaudals, and the scale row formula of 27-23-21, place this specimen more closely with eastern forms, most particularly *A. p. conanti* (Gloyd and Conant, 1990). In addition, no additional specimens of this snake have been found in the area of purported collection, even though numerous field workers have spent considerable time looking for it there (J. T. Collins, pers. comm.; K. J. Irwin, pers. comm.; M. Capron, pers. comm.). To the best of our knowledge, no specimens of *A. p. leucostoma* have been recovered from the Neosho River system near Kansas in Oklahoma, although there are apparent records farther to the east in Oklahoma (Gloyd and Conant, 1990). Finally, there is a

problem with the credibility of the senior author of the 1947 paper. Hall reported several range extensions and new state records in this paper, among them *Ambystoma maculatum, Crotalus atrox,* and *Crotalus viridis* in southeastern Kansas. All three of these records have subsequently been discredited or discounted (Collins, 1982).

Given the peculiar characteristics of KU 23284 and the fact that virtually all significant records by Hall have been discredited, there is no reason to believe that KU 23284 is a valid record for the state. How it came into Dr. Hall's possession is unknown and can probably never be known, but until additional information validating this specimen is brought fourth, KU 23284 should not be considered a valid record for Kansas.

Two additional specimens of *A. p. leucostoma* collected in Kansas exist. These are KU 170051 and KU 174719. Several papers have been written concerning these specimens (Collins, 1978; Perry, 1977; Rundquist et al., 1978). It is strongly suspected that these specimens were the result of deliberate introductions of exotic specimens from outside the state (Collins, 1979, 1982), and their validity is highly questionable.

In summary, we have shown that the only verified records of *A. p. leucostoma* in Kansas are KU 218677 and KU 218780. These specimens establish the taxon's presence in extreme east-central Cherokee County and within the Spring River drainage. Additional specimens should be looked for in Jasper County, Missouri, within this drainage and perhaps in Newton County, Missouri, as an old unsubstantiated record (Johnson, 1987) exists for that county. The fact that both KU 218677 and KU 218780 are males and were collected when *A. p. leucostoma* is known to move to hibernating areas (Burkett, 1966) may indicate that *A. p. leucostoma* is a low density transient in the state. However, if the specimens were returning to established den sites, the population would have to be considered resident. Recovery of juveniles or pregnant females from this area would establish *A. p. leucostoma* as a permanent resident of Kansas.

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