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THE SUBSPECIES OF THE COPPERHEAD,
AGKISTRODON MOKASEN BEAUVOIS

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Studies leading toward a monographic treatment of the American species of *Agkistrodon* have led to the conclusion that the copperhead, *A. mokasen* Beauvois, is represented by three geographic races. One of these, a southwestern form, has been described under the name *laticinctus* (Gloyd and Conant, 1934). Since the completion of the longer paper has been delayed, it seems desirable to publish comments on the taxonomy involved and preliminary diagnosis of the remaining two forms which occur in the Mississippi Valley and eastern states.

When Stejneger and Barbour (1917, p. 76-77) showed that the name *contortrix* of Linné (1766) is applicable not to the copperhead but to a species of *Heterodon*, they adopted (op. cit., p. 106) the next oldest name, *mokasen* of Beauvois (1799), for the copperhead. Since Beauvois (pp. 370, 381) did not mention a specific locality nor give a description of the "mokasen" on which he based his genus *Agkistrodon*, it is not clear from his paper whether his name referred to the copperhead or to the cottonmouth moccasin. Although he did not distinguish his species from *piscivorus* of Lacépède (1789, Tab. Meth., p. 130), this name probably was known to him for he mentioned (p. 379) Lacépède's classification of serpents with some critical comments. Daudin (1803, p. 358, pl. 70, fig. 3), however, did distinguish between

the two species, using *piscivorus* of Lacépède for the cottonmouth and *mokasen* of Beauvois for the copperhead. It seems, therefore, that the present application of Beauvois' name to the species does not need to be modified. In the absence of a description and a stated locality, however, it is difficult to determine to which of the two eastern subspecies the original name should be restricted.

If *mokasen* as a subspecific name be restricted to the more northern race, a new name must be proposed for the southern subspecies; if restricted to the more southern race, the name *cupreus* of Rafinesque (1818, p. 84) is available for the northern subspecies. Since Beauvois first mentioned the "mokasen" (p. 370) along with a number of southern snakes, it is probable that he had in mind representatives of the more southern form. For this reason the present writers prefer the latter alternative and propose that the three subspecies of the copperhead be designated as follows:

***Agkistrodon mokasen mokasen* Beauvois. Southern Copperhead.**

*Agkistrodon** *mokasen* Beauvois, Trans. Amer. Philos. Soc., vol. 4, 1799, p. 370. Type locality not designated. Neotype: Chicago Acad. Sci. No. 5089, Gentilly, Orleans Parish, Louisiana.

Diagnosis. Coloration generally pale and usually with a noticeable pinkish tinge in life. Viewed from above, the pattern consists of a series of hour-glass-shaped crossbands, conspicuously narrow at the midline (rarely more than 2 or 3 scales wide); viewed from the side, the crossbands resemble triangles, roughly equilateral, with acute basal angles rounded off on the second or third row of scales, and bearing an upward extension at the apex which, in this subspecies, often fails to meet the similar extension from the opposite side. Belly pale, not heavily marked. A distinct series of ventro-lateral blotches, the more conspicuous of which alternate with the bases of the triangles. Fig. 1.

Range. The coastal plain of the Gulf States, from Victoria County, Texas, north to northeastern Texas, central Arkansas, southern Illinois, and east-central Alabama; the Atlantic coastal plain and lower Piedmont areas north to southern Maryland, exclusive of peninsular Florida.

***Agkistrodon mokasen cupreus* (Rafinesque). Northern Copperhead.**

Scytalus cupreus Rafinesque, Amer. Journ. Sci., vol. 1, 1818, p. 84. Type locality Fishkill, New York. Neotype: Mus. Zool. Univ. Michigan No. 81758, 2 miles south of Fishkill, Dutchess County, New York.

*Typographical error.

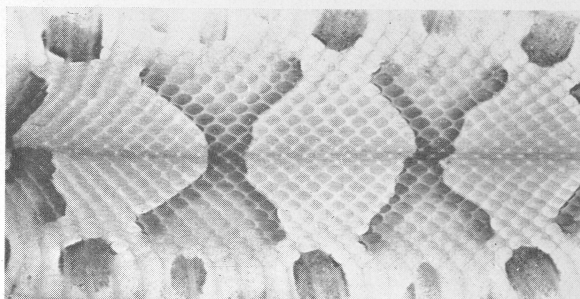


Fig. 1. Pattern of *Agkistrodon mokasen mokasen*. Chicago Acad. Sci. No. 5089, Gentilly, Orleans Parish, Louisiana.

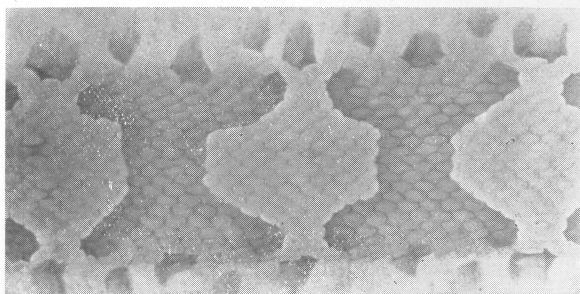


Fig. 2. Pattern of *Agkistrodon mokasen cureus*. Mus. Zool. Univ. Michigan No. 75610, Ramapo Mountains, New Jersey, near Suffern, New York.

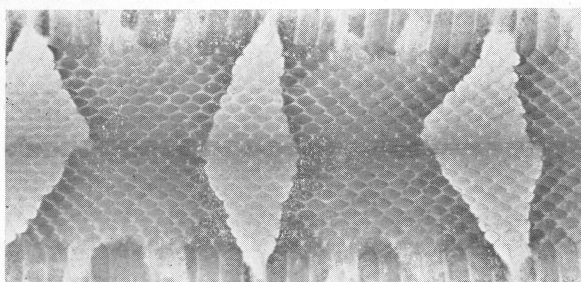


Fig. 3. Pattern of *Agkistrodon mokasen laticinctus*. Type specimen. Mus. Zool. Univ. Michigan No. 75599, 26 miles northwest of San Antonio, Bexar County, Texas.

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Diagnosis. Coloration darker in general than that of *A. m. mokasen*; often reddish brown or chestnut, sometimes with little contrast between pattern and ground color; specimens from some localities are densely stippled with gray or marked with small round or irregular spots between the crossbands. Viewed from above, the crossbands are somewhat spool-shaped, less constricted mid-dorsally (3 to 5 scales at midline); viewed from the side, they resemble isosceles or equilateral triangles with less acute basal angles and with the upward extension of the apex usually meeting the blotch of the opposite side. Belly usually darker, more or less heavily mottled with gray or black. Ventro-lateral blotches distinct, some alternating with the bases of the triangles. Fig. 2.

Range. Eastern Oklahoma and eastern Kansas; higher areas of west-central and northwestern Arkansas, Missouri (except southeastern part), north to central Illinois, central Indiana, southern and eastern Ohio, Pennsylvania, and southeastern New York; Appalachian highlands from the Tennessee River and northeastern Alabama to eastern Massachusetts. Specimens intergrading with *mokasen* are known from northeastern Arkansas, southeastern Missouri, southern Illinois and northwestern South Carolina.

***Agkistrodon mokasen laticinctus* Gloyd and Conant.** Broad-banded Copperhead.

Agkistrodon mokasen laticinctus Gloyd and Conant, Occas. Papers Mus. Zool., Univ. Michigan, No. 283, 1934, p. 2. Type locality 26 miles northwest of San Antonio, Bexar County, Texas. Holotype: Mus. Zool. Univ. Michigan No. 75599.

Diagnosis. Coloration bright of tone with marked contrast between pattern and ground color; crossbands strikingly broad (7 to 14 scales wide on sides at first row of scales), only slightly constricted mid-dorsally (4 to 8 scales wide at midline), and extending downward laterally to the ventrals where instead of alternating they blend with the ventro-lateral pattern of three more or less conspicuous blotches to each crossband. Fig. 3.

Range. Western and central Texas, from Jeff Davis, Reeves and Brewster Counties eastward to Colorado County; north through central Oklahoma to Cowley County, Kansas. It intergrades with *cupreus* in Okmulgee, Tulsa and Kay Counties, Oklahoma, and probably with *mokasen* in southeastern Texas.

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