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First Records for the Blackmask Racer (*Coluber constrictor latrunculus*) in Eastern Arkansas

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Abstract

The presence of the blackmask racer (*Coluber constrictor latrunculus*) in eastern Arkansas was first demonstrated by examination of a series of color slides of live specimens now preserved and deposited in the Arkansas State University Museum of Herpetology. Adult color pattern is of paramount importance in the definition of subspecies of *C. constrictor*, and this is especially true for *C. c. latrunculus*. This subspecies is characterized by a conspicuous black stripe that extends from the postnasal, through the eye and onto the temporals or anterior dorsal scales. The dorsum is slate gray, and the venter is a pale grayish blue. These identifying color characteristics tend to either fade or be obscured following preservation. *Coluber c. latrunculus* also has a larger average number of both ventrals and subcaudals when compared to other subspecies of racers in Arkansas. This subspecies was described in 1970 from populations occupying the lower Mississippi River Valley of Louisiana. Recent field guides place the subspecies throughout the alluvial plain and adjacent areas of western Mississippi. With the addition of the blackmask racer, Arkansas now has a total of four racer subspecies, each occupying different habitats within the state.

Introduction

Racers (*Coluber constrictor*) are members of the family Colubridae and are long, slender, fast-moving terrestrial snakes that can grow to lengths up to around 1.8 m (Boundy, 1995). This is a geographically-variable, polytypic species with 11 known subspecies occurring in the United States (Wilson, 1978). Color patterns are often the most effective means used to distinguish one subspecies from another (Wilson, 1970).

In December 1996, while examining a series of color slides of Arkansas racers found in the Arkansas State University herpetology collection, I noticed a postocular stripe on the sides of the heads of several specimens from eastern Arkansas (Fig. 1). Based on comparisons with the description of the blackmask racer (*C. c. latrunculus*), a subspecies known to occur in the lower Mississippi Alluvial Plain in the neighboring states of Louisiana and Mississippi (Wilson, 1970; Cliburn, 1979; Dundee and Rossman, 1989; Conant and Collins, 1991), I report herein, for the first time, the presence of *C. c. latrunculus* in Arkansas. In addition, I compare this racer with the other forms known to occur within the state.

Materials and Methods

A total of 202 specimens of four subspecies of *Coluber constrictor* housed in the Arkansas State University herpetological collection (ASUMZ) was examined during this



Fig. 1. Adult specimen (ASUMZ 18609) of the blackmask racer (*Coluber constrictor latrunculus*) from Jonesboro (Craighead County), Arkansas.

investigation. Most of the specimens were collected from Arkansas and were deposited in the collection since 1984.

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All snakes, except juveniles, were sexed; the snout-vent length (SVL) and tail length were measured to the nearest mm. Counts of the number of ventrals and subcaudals were also recorded from a subsample of adult snakes; mean values for the scale counts are accompanied by \pm one standard deviation. The color pattern of preserved specimens in all subspecies normally fades, obscuring critical diagnostic features useful in separating races of *C. constrictor* (Wilson, 1970); however, color slides and photographs of live ASUMZ specimens were available to aid in evaluating differences among subspecies.

Results and Discussion

Color Pattern and Distribution of Arkansas Subspecies of Racers.—The southern black racer (*C. c. priapus*) is the most widespread race in the state (Conant and Collins, 1991). This subspecies possesses a mostly shiny bluish-black dorsum; the venter varies in color from a pale bluish-gray to mostly black. The belly of some southern black racers may be pale cream, buff, or white. The chin and throat of *C. c. priapus* are normally white, but this area can possess some black markings, especially in specimens from the southern and western counties. The southern black racer ranges throughout most of the Interior Highlands and Gulf Coastal Plain.

Two racers have mostly marginal distributions in the state. The buttermilk racer (*C. c. anthicus*), found in south-central Arkansas, usually possesses a mixture of white, yellow and pale blue scales on the dorsum; the venter is white, but can have a suffusion of ivory-yellow or gray down the middle of the belly (Wilson, 1970; Tumlison and Gann, 1988; Conant and Collins, 1991). The buttermilk racer is restricted to pine/hardwood areas of the western Gulf Coastal Plain. Eastern yellowbelly racers (*C. c. flaviventris*) occupy native grasslands and prairies of northwestern and extreme northcentral Arkansas. They possess a variable coloration; the dorsum can be brown, tan, gray, olive-green, or dark blue (Auffenberg, 1955). The belly is usually yellowish, but can also be a pale cream. In Arkansas, southern black racers can occur in habitats similar to those of the eastern yellowbelly racer.

The blackmask racer (*C. c. latrunculus*) is the second most widely-distributed racer in the state and is most similar to the southern black racer in appearance. The range of this racer is restricted to the Mississippi Alluvial Plain or Delta region of eastern Arkansas; however, *C. c. latrunculus* also occurs in the Missouri bootheel (Dunklin County; ASUMZ 2375). Wilson (1970) described the *C. c. latrunculus* from southcentral Louisiana. This race has a slate gray, black, or bluish-black dorsum, and the venter is usually pale cream. A conspicuous black stripe extends from the postnasal and

upper surfaces of the supralabials, leads through and beneath the eye, and extends onto the temporals (Fig. 2). Dundee and Rossman (1989) illustrated this subspecies and compared its unique head coloration with that of the other races found in Louisiana. Wilson (1970) stated that the preferred habitat for this subspecies was bottomland forest of the lower Mississippi River Valley. Lohofener and Altig (1983) discussed the distribution of the blackmask racer in Mississippi, noting its presence in extreme southwestern counties, as documented by Cliburn (1979). More recently, Conant and Collins (1991) indicated the range of this subspecies to extend throughout much of western Mississippi. The blackmask racer occurs in bottomland habitats of eastern Arkansas, but also occurs on Crowley's Ridge (a narrow, low-elevated, eroded ridge extending from southeastern Missouri to Helena, Arkansas).

Morphometric Dimensions and Scale Counts in Arkansas Subspecies of Racers.—Wilson (1970) noted significant distinctions in the number of ventrals between *C. c. latrunculus* and other racers in Louisiana. In all cases, the blackmask racer possessed the highest average number of ventrals in both males and females when compared to the other races. He also found that the number of subcaudals was a less meaningful feature to separate subspecies, because of the high percentage of incomplete tails in all racers; however, some major differences were observed among the Louisiana subspecies of racers.

In a sample of Arkansas *C. c. latrunculus*, the number of ventrals in males averaged 174.0 ± 2.9 ($n = 22$; range, 170-177) and in females, 176.2 ± 4.0 ($n = 20$; range, 169-183). The number of subcaudals in this subspecies averaged 93.9 ± 4.9 ($n = 15$; range, 85-103) in males, and the number in females averaged 88.5 ± 6.1 ($n = 14$; range, 77-96). By comparison, in *C. c. priapus*, the number of ventrals in males averaged 170.5 ± 2.7 ($n = 23$; range, 166-175) and in females, 172.7 ± 4.3 ($n = 28$; range, 169-181). The number of subcaudals in this subspecies averaged 95.4 ± 5.3 ($n = 21$; range, 84-107) in males, and the number in females averaged 87.9 ± 5.5 ($n = 11$; range, 82-102).

Only a limited number of specimens of *C. c. anthicus* and *C. c. flaviventris* were available for examination. In *C. c. anthicus*, the number of ventrals in males averaged 168.0 ($n = 2$; range, 166-169) and in females, 172.0 ($n = 3$; range, 170-175). The number of subcaudals in this subspecies averaged 96.0 ($n = 2$) in males, and the number in females averaged 89.5 ($n = 2$; range, 88-91). In *C. c. flaviventris*, the number of ventrals in males averaged 167.7 ($n = 3$; range, 164-172) and in females, 170.7 ± 3.5 ($n = 9$; range, 167-175). The number of subcaudals in this subspecies averaged 91.0 ($n = 3$; range, 80-97) in males, and the number in females averaged 86.8 ± 4.8 ($n = 4$; range, 81-92).

The average number of ventrals and subcaudals in the Louisiana sample of *C. c. latrunculus* averaged higher (male,

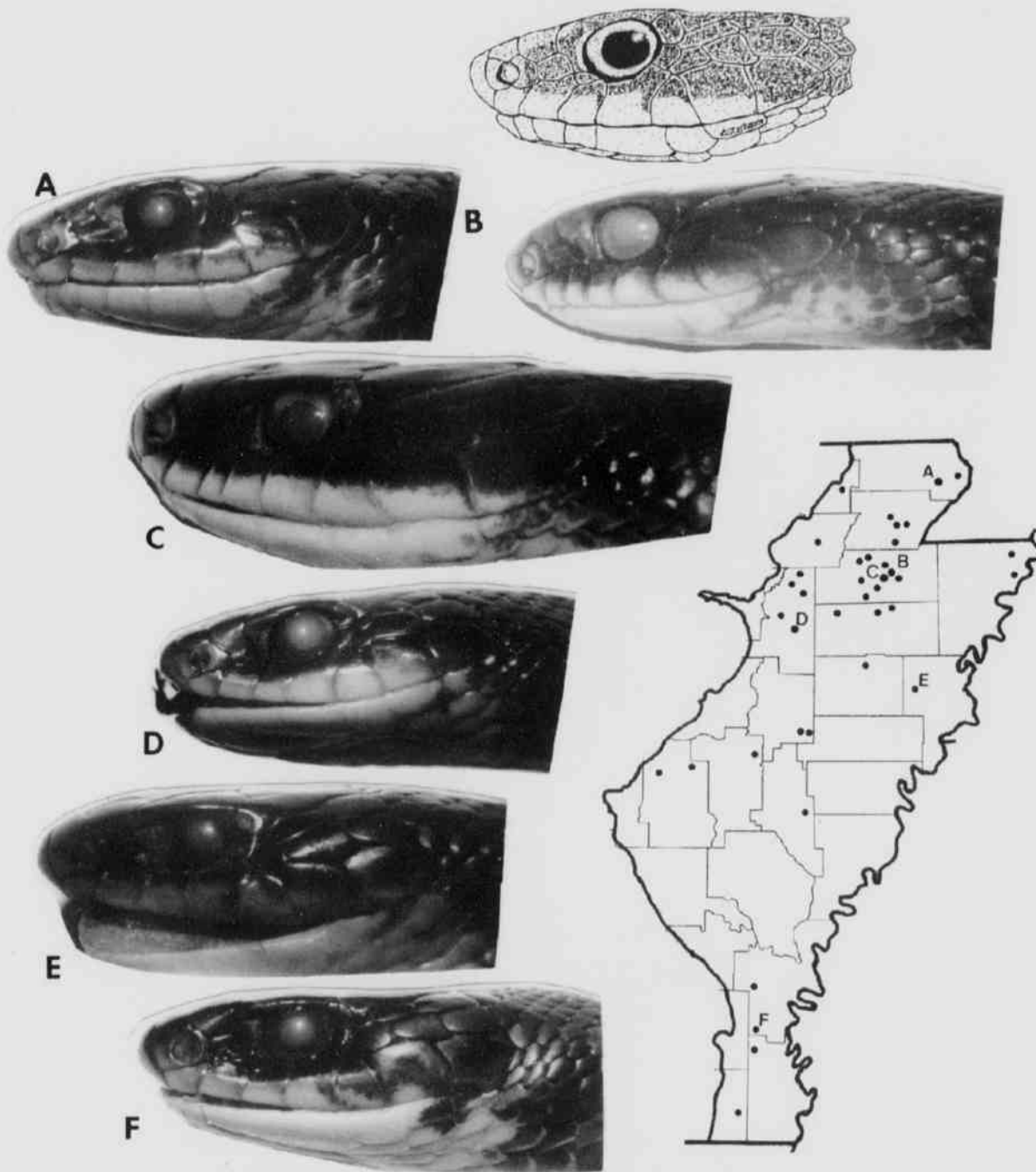


Fig. 2. Variation in the facial mask in preserved adult blackmask racers (*Coluber constrictor latrunculus*). Map encompasses the Mississippi Alluvial Plain of eastern Arkansas. Line drawing at top shows dark pigmentation of facial mask derived from a preserved specimen (ASUMZ 13754; Greene Co.). A. ASUMZ 4478 (Clay Co.). B. ASUMZ 13887 (Craighead Co.). C. ASUMZ 18609 (Fig. 1). D. ASUMZ 20249 (Jackson Co.). E. ASUMZ 12613 (Crittenden Co.). F. ASUMZ 4480 (Desha Co.).

followed by female--178.0, 180.4 and 96.1, 93.7, respectively) than the values found in my Arkansas sample in this subspecies. These differences can be attributed to clinal variation as discussed by Auffenberg (1955). As observed in Louisiana populations, scale counts for Arkansas specimens of this race were noticeably greater than for the other races in the state.

Facial Stripe in the Blackmask Racer in Arkansas.--Figure 2 illustrates the variation in the facial mask of the *C. c. latrunculus* in eastern Arkansas. Although the mask is quite vivid in live adult snakes (Fig. 1), in preservative the pigmentation of this distinct mask is most obvious only in the preocular region and cannot be clearly detected in the neck region as it blends and fades onto the temporal scales. No sexual differences were observed in mask development. The spread of dark pigmentation from the mask onto the supralabials is a variable feature in the racers examined. In many of the preserved snakes from northeastern Arkansas, the lower edge of the mask penetrated along contiguous borders of the supralabial scales, thereby producing a sawtooth edge effect (e.g., Fig. 2B). In other specimens, a straight-line lower edge to the mask was observed (Fig. 2D). In contrast, nearly all of the supralabials' surface area in *C. c. priapus* is covered by dark pigmentation.

Region of Intergradation.--No intergradation zone could be firmly established by Wilson (1970) between the three subspecies *latrunculus*, *priapus*, and *anthicus* in northern Louisiana; the same can be said for these subspecies in southern Arkansas. Given the range extension for *C. c. latrunculus* as shown in Fig. 2, the range of *C. c. priapus* within the eastern Ozark Plateau counties of Arkansas (and probably includes areas in southeastern Missouri as well) appears constricted into a narrow band or bottlenecked corridor separating *C. c. flaviventris* (to the northwest) and *C. c. latrunculus* to the southeast (see range map in Conant and Collins, 1991). This corridor will likely contain intergrades between and among these subspecies (*flaviventris*, *latrunculus*, and *priapus*), but live specimens will be necessary to clarify the details of intergradation, as indicated by color pattern.

Conclusions

The present study documents a major range extension of the blackmask racer into the Mississippi Alluvial Plain of eastern Arkansas. This subspecies also inhabits the higher elevations along Crowley's Ridge. The characteristic facial mask in this racer is distinct in live adult specimens; the mask is also retained in preserved snakes as a darkly-pigmented region extending from the preocular area onto the temporal scales. Blackmask racers average higher ventral and subcaudal counts than do other subspecies of racers in Arkansas. Further study is required to understand any

intergradation among the four subspecies within the state.

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