

An Observation of Pigmy Rattlesnakes (*Sistrurus miliarius*) Mating in Alabama

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Because of the secretive nature of many snakes, often little is known about their reproductive behavior. Pitvipers can be especially elusive due to the lack of movement associated with their ambush mode of foraging and because of their cryptic coloration (May et al. 1996). Therefore, most information on timing of mating in these species is derived from the accumulation of anecdotal information over time (Aldridge and Duval 2002). These data have been used in attempts to determine which factors have led to the development of contrasting unimodal (late summer/fall) and bimodal (late summer/fall and spring) mating patterns in North American pit vipers (Aldridge and Duval 2002, Schuett et al. 2002).

Because of the increased number of males found during the fall (Dalrymple et al. 1991), most workers have assumed that Pigmy Rattlesnakes (*Sistrurus miliarius*) mate at that time. Observations of copulation in Florida include three pairs of *S. m. barbouri* in central Florida on 21 September, 28 September, and 27 October 1992 (Farrell et al. 1995). May et al. (1996) observed four copulating pairs in central Florida between late September and early November. However, observations of copulating pairs are lacking in other parts of the range of the species.

Since reproductive behaviors can vary within a species at different latitudes (Aldridge and Duval 2002), reports of copulation across a species' range are necessary to develop an understanding of reproductive patterns. Here we report an observation of a copulating pair of Carolina Pigmy Rattlesnakes (*Sistrurus miliarius miliarius*). The pair was observed at Horseshoe Bend National Military Park in east-central Alabama (Tallapoosa County, Alabama; 32° 58' 15" N, 85° 44' 18" W) on 25 September 2009 at ~1500 h CST. The pair was in the shade at an air temperature of ~21 °C. This site is north of the Fall Line and in the Piedmont physiographic province of Alabama. The general habitat type is mixed pine-hardwood, and this observation was in a recently (February 2009) burned stand.

The pair of snakes was inactive when we discovered them. We concluded that the pair was copulating due to the close proximity of the cloacae. The snakes remained in position for 30 min while being photographed. However, the male soon began tongue-flicking while rubbing his mental scales along the dorsum of the female. At one point during the observation, the male rattled, at which point we discontinued the observation. The total length of both individuals was estimated to be ~30 cm. The body of the male was generally positioned above that of the female. The female had an olive-brown ground color, whereas the male was more brightly marked with coloration typical of *S. miliarius*. This difference in color is typical in this species (Ernst and Ernst 2003) and is not attributable to sexual dimorphism (Bishop et al. 1996).

This observation is consistent with other observations that suggest that the mating season of this species occurs in the fall. However, this is the first report of mating in *S. m. miliarius*, and in this species outside Florida.

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Literature Cited

- Aldridge, R.D. and D. Duvall. 2002. Evolution of the mating season in the pitvipers of North America. *Herpetological Monographs* 16:1–25.
- Bishop, L.A., T.M. Farrell, and P.G. May. 1996. Sexual dimorphism in a Florida population of the rattlesnake *Sistrurus miliarius*. *Herpetologica* 52:360–364.
- Dalrymple, G.H., T.M. Steiner, R.J. Nodell, and F.S. Bernardino, Jr. 1991. Seasonal activity of the snakes of Long Pine Key, Everglades National Park. *Copeia* 1991:278–294.
- Ernst, C.H. and E.M. Ernst. 2003. *Snakes of the United States and Canada*. Smithsonian Institution Press, Washington, D.C.
- Farrell, T.M., P.G. May, and M.A. Pilgrim. 1995. Reproduction in the rattlesnake, *Sistrurus miliarius barbouri*, in Central Florida. *Journal of Herpetology* 29:21–27.
- May, P.G., T.M. Farrell, S.T. Huelett, M.A. Pilgrim, L.A. Bishop, D.J. Spence, A.M. Rabatsky, M.G. Campbell, A.D. Aycrigg, and W.E. Richardson II. 1996. Seasonal abundance and activity of a rattlesnake (*Sistrurus miliarius barbouri*) in Central Florida. *Copeia* 1996:380–389.
- Schuett G.W., S.L. Carlisle, A.T. Holycross, J.K. O'Leile, D.L. Hardy, E.A. Van Kirk, and W.J. Murdock. 2002. Mating system of male Mojave Rattlesnakes (*Crotalus scutulatus*): Seasonal timing of mating, agonistic behavior, spermatogenesis, sexual segment of the kidney, and plasma sex steroids, pp. 515–532. In: G.W. Schuett, M. Höggren, M.E. Douglas, and H.W. Greene (eds.), *Biology of the Vipers*. Eagle Mountain Publishing LC, Eagle Mountain, Utah.



A copulating pair of Pigmy Rattlesnakes (*Sistrurus miliarius miliarius*) on 25 September 2009 at Horseshoe Bend National Military Park in Tallapoosa County, Alabama.