

**CROTALUS MITCHELLII** (Speckled Rattlesnake). **MATING.**

Most North American pitvipers have a distinct fall and/or spring mating season, exhibiting the aestival postnuptial pattern of the male reproductive cycle (Saint Girons 1982. *Herpetologica* 38:5–16). Recent evidence suggests that *C. mitchellii* males undergo spermiogenesis primarily in the spring (Goldberg 2000. *Bull. South. California Acad. Sci.* 2:101–104) in contrast to other North American rattlesnakes (e.g., Aldridge 1979. *J. Herpetol.* 13:187–192; Goldberg 1999. *Western North Am. Nat.* 60:98–100; Jacob et al. 1987. *Southwest. Nat.* 33:273–276). However, few mating dates for wild *C. mitchellii* have been published. Here we present our own observations as well as those from the literature in order to elucidate when mating occurs in *C. mitchellii* under natural conditions.

On the afternoon of 18 April 1953, a mating pair of *C. mitchellii* was reported by Brattstrom (Brattstrom 1965. *Amer. Midl. Nat.* 73:376–422.) near Afton, San Bernardino County, California, USA. On 18 April 1980, T. B. Johnson photographed (see Fig. 13 in Lowe et al. 1986. *The Venomous Reptiles of Arizona*, Arizona Game and Fish Department, Phoenix. p. 115) a pair of mating *C. mitchellii* in the Mohawk Mountains, Yuma County, Arizona, USA. The pair (T. B. Johnson pers. comm.) was courting at 0908 h and mated at 0935 h. The female retreated to the rocks at 1118 h as ambient temperatures increased. The male, with hemipenis still inserted, was dragged along with the female. On 11 June 1964 at 1800 h, G. Ahern found a pair of *C. mitchellii* copulating on the western slope of the San Jacinto Mountains, Riverside County, California, USA (Goldberg 2000, *op. cit.*). At 2248 h on 13 June 1995 (air temperature ca. 29°C, sunny substrate temperature ca.

40°C) RSR found a copulating pair of *C. mitchellii* in the shade of a small bush near an unmarked jeep trail, 2 km SW of the junction of Hwy 247 and Mikisha Blvd., San Bernardino Co., California, USA (34°19'25.6"N, 116°30'26.1"W). Rattling by the larger male drew attention to their presence. The male assumed a defensive posture, but remained engaged with the female while photographs were taken. At 2300 h on 23 May 2000 (air temperature ca. 26°C with the asphalt significantly warmer) GEAG discovered a female *C. mitchellii* crossing Kelbaker Rd., north 5 km from the junction of Hwy 40 and Kelbaker Rd., Mojave Natl. Preserve, San Bernardino Co., California, USA (34°44'00"N, 115°40'00"W). A male was 2 m away, crawling rectilinearly towards the female (identification confirmed by H. W. Greene from photographs). Both snakes were briefly restrained in plastic acrylic tubes, sexed, and then released 5 m off the road. Upon release, the male immediately pursued, courted, and mated with the female (hemipenal insertion was noted). Mating continued for more than 30 min., at which time the pair was left alone. GEAG found another two *C. mitchellii*, presumably a courting pair, on the same evening (23 May 2000) 100 m to the south. Both animals were lifted from the road with hooks; no courtship or mating was observed.

During a field study (by RSR) from 1998 to 1999 in Johnson Valley, San Bernardino Co., California, USA, three large male *C. mitchellii* were encountered crossing roads in June. These snakes were many kilometers from rocky retreats, apparently traversing long distances through creosote (*Larea tridentata*) flats. Long distance movements by large adults through atypical habitat are most consistent with mate searching and, despite daily road driving from May to October, no other *C. mitchellii* were encountered away from rocky habitats. RSR collected a post-ovulatory gravid female on 3 August 1998 in the western foothills of Rodman Mountain (34°39'34"N, 116°39'34"W). Mucous removed from her reproductive tract by oviductal lavage was examined microscopically and contained abundant active sperm, suggesting a recent mating.

These data indicate a primarily spring and summer mating season for *C. mitchellii*, with an extension of mating activity up to the time of ovulation (Goldberg 2000, *op. cit.*; RSR, pers. obs.) in June. Goldberg's histological data suggest that mating could occur throughout the month of June. Mating in close temporal proximity to ovulation might reduce reliance on long-term sperm storage (e.g., Schuett 1986. *Copeia* 1986:807–811), perhaps biasing multiple paternity through an order effect that depends on shear numbers of sperm present rather than on sperm selection by females.

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**CROTALUS PRICEI MIQUIHUANUS** (Miquihuanan Rattlesnake). **DIET.** Few prey items have been reported for the montane rattlesnake species *Crotalus pricei*. Klauber (1972. Rattle-