

**CNEMIDOPHORUS UNIPARENS**

(Desert Grassland Whiptail). **BEHAVIOR.** Various aspects of the behavior of the parthenogenetic whiptail *Cnemidophorus uniparens* have been described for captive populations (e.g. Crews and Fitzgerald 1980. Proc. Natl. Acad. Sci. 77:499-502; Moore et al. 1985. Anim. Behav. 33:284-289; Crews et al. 1986. Proc. Natl. Acad. Sci. 83:9547-9550). These and other studies show that agonistic behavior precedes pseudocopulation in parthenogenetic whiptails (e.g., *C. tessellatus*, *C. velox*, and *C. uniparens*, Crews and Fitzgerald op. cit.; *C. laredoensis*, Paulissen and Walker 1989. Southwest. Nat. 34:296-298). Confirmation of these behaviors in natural populations, however, has not been forthcoming. Agonistic behavior in wild whiptails was not reported in Mitchell (1979. Can. J. Zool. 57:1487-1499) as implied in Crews et al. (1983. In R. B. Huey et al, eds., Lizard Ecology, Harvard Univ. Press, Cambridge, Massachusetts, pp. 205-231). Paulissen and Walker (op. cit.) stated that pseudocopulation may be an abnormal artifact of cage conditions and it is "not part of the reproductive biology of parthenogenetic *Cnemidophorus* in natural conditions."

Bouts of pseudocopulatory behavior in whiptails begin with aggressive chases and head bobbing (Crews and Fitzgerald op. cit.). Because no other role has been ascribed to intraspecific agonistic behavior in these lizards, its occurrence in natural populations may represent initial stages of a pseudocopulatory bout. On 26 May 1975 I observed such behavior in adult *C. uniparens* in desert grassland habitat, 32 km SE Willcox, Cochise County, Arizona on the southern slope of the Dos Cabezas bajada. One female was initially observed to run from under a mesquite, then turn and face the area from which she came. At the base of the tree was another female bobbing her head, apparently with an open mouth. She chased the original female for approximately 15-25 cm whereupon the original female retreated a similar distance, each time turning and facing the aggressive female. This was observed on three occasions over a 30 s period. The original female attempted to circle around the base of the mesquite, whereupon she was chased away by the female on the other side. The original female then walked away bobbing her head. She then engaged in nervous foraging behavior. After her last chase the aggressive female under the mesquite began head bobbing and elevated a front foot (armwave). She,

*denticulata* is 82.0 cm for males and 70.8 cm for females (Pritchard and Trebbau 1984. The Turtles of Venezuela, SSAR, 403 pp.). Here we report on a record size female specimen from the Zoo of the Museu Paraense Emilio Goeldi, Belem, Para, Brazil. The specimen was obtained from a private individual from Porto Velho, Rondonia, Brazil. No other information regarding its origin is available. The specimen is very dark in color with a pronounced flaring of the carapace over the hind legs and pronounced nuchal indentation.

Straight-line CL = 73.1 cm; maximum straight-line length (measured from midline at the rear of the carapace to the anteriormost edge of the carapace) = 75.9 cm; CW (at the level of the 6th marginal scute) = 45.2 cm; PL = 61.5 cm; maximum shell height = 33.0 cm; mass = 57.7 kg.

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**CROCODYLIA**

**CROCODYLUS ACUTUS** (American Crocodile). **REPRODUCTION.** We report here the presence of a double-yolked egg, found in a *Crocodylus acutus* nest at the mouth of the Cuitzmala River, Jalisco, México, on 25 April 1991. The nest contained 27 eggs (mean size 78.3 X 43.7 mm, 91.2 g). Egg fertility in the clutch was 81.5%. The double-yolked egg was infertile, larger and heavier (79.4 X 43.6 mm, 94.4 g) than the mean; it was laid at the end of the oviposition. Presence of twin eggs and large eggs containing two embryos in *C. acutus* has been mentioned by Thorbjarnarson (1989. IUCN Publ. New Ser. CSG-SSC:228-259). Double-yolked eggs of *Alligator mississippiensis* are large, infertile, and laid at the beginning and end of oviposition (Ferguson and Joanen 1983. J. Zool. 200:143-177).

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**CLEMMYS INSCULPTA** (Wood Turtle). **CLEANING SYMBIOSIS.** Mutualistic relationships in which one species cleans algae or ectoparasites from another are well known between fishes, and between reef fishes and sea turtles. J. Brockmann (pers. comm.) has seen freshwater fishes nibbling at large, stationary, algae-covered *Pseudemys* turtles in Silver Springs, Florida, but the turtles were evidently not presenting themselves to the fishes and simply resembled lumps of algae-covered substrate. There are several reports of freshwater turtles eating algae or skin from other individuals (Lotze 1963. Aquarien Terr. 16:220-221; Meshaka 1988. Herpetol. Rev. 19:88; Molland and Legler 1971. Bull. Los Angeles Co. Mus. Nat. Hist. Sci. 11:1-102).

In May and June of 1985 and 1986 in a creek in Centre County, Pennsylvania, I observed blacknose dace (Cyprinidae, *Rhinichthys atratulus*) apparently cleaning wood turtles on three occasions, and three times saw a turtle apparently unsuccessfully soliciting cleaning. On the three former occasions male turtles were observed in water 18-30 cm deep holding unusually still or moving very slowly. The neck was extended, and often one or more of the legs was extended out to the side in atypical fashion. Small schools of 3-6 dace, 5-7 cm long, darted at the head, neck, and outstretched legs, and could sometimes be seen nipping at the skin. On one of these occasions the turtle picked something off the creek bottom in his jaws, and the fish nibbled at it right from his mouth. On three other occasions another male behaved similarly, keeping motionless or moving very slowly for up to 1.5 h, with neck and legs outstretched, but I could not detect any fish closer than 5-7 cm to him.

Two of the cleaning episodes and one of the apparently unsuccessful ones occurred in a 5 m stretch of one pool. The three other episodes were each in a different location. This behavior may be more common than these few observations suggest. It was difficult to make these observations because of poor visibility underwater, and because the fish were extremely wary, easily disturbed by my presence, and dashed away each time the turtle moved.

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**GEOCHELONE DENTICULATA** (Yellowfoot Tortoise). **MAXIMUM SIZE.** The reported maximum size for *G.*