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Notes on Maternal Behavior and Post-brooding Aggression in the prairie skink *Eumeces septentrionalis*

Louis A. Somma

Parental behavior in lizards and snakes seems to be a relatively rare phenomenon (Porter, 1972). Snakes such as pythons (Hutchison et al., 1966; Harlow and Grigg, 1984), cobras (Oliver, 1956; Campbell and Quinn, 1975; Tryon, 1979), kraits (Wall, 1921), the blind snake, *Leptotyphlops dulcis*.

(Hibbard, 1964), the Malayan pit viper, *Calloselasma rhodostoma* (Smith, 1943), the mountain viper, *Trimeresurus monticola* (Pope, 1929), the mud snake, *Farancia abacura* (Meade, 1937, 1940; Hahn and Wilson, 1966) and certain rat snakes of the genus *Elaphe* (Kopstein, 1938; Fukada, 1965) are all known to brood their eggs.

Maternal behavior in lizards was probably first described by P.R. Hoy in 1883, based on his observations of the slender glass lizard, *Ophisaurus attenuatus*, and the prairie skink, *Eumeces septentrionalis*. Since then, brooding behavior has been reported in the Texas alligator lizard, *Gerrhonotus liocephalus* (Greene & Dial, 1966) and most oviparous (egg-laying) members of the scincid genus *Eumeces* (Ditmars, 1904; Noble and Mason, 1933; Taylor, 1935; Tanner, 1943; Fitch, 1954, 1970; Evans, 1959; Mount, 1963; Collins, 1975; Hikida, 1981; Hasegawa, 1985).

The most recent observations on brooding behavior in *E. septentrionalis* were made by Breckenridge (1943) and Nelson (1963). The observations reported in this article were made on three female *E. septentrionalis* that were obtained on June 11, 1983 from an urban colony of skinks living in Omaha, Nebraska. They were captured while in a gravid condition and within their nest cavities which were hollowed out beneath a rock. All three cavities were connected to each other by a system of burrows.

The skinks were separated and placed in individual plastic terraria that had a soil substrate. A square plate of $\frac{1}{4}$ " thick transparent red acrylic was provided for each of them as a shelter under which they could hollow out a nest chamber. The acrylic plates facilitated easy observation of the skinks while providing them with a sense of security.

Nest cavities were not constructed by the captive skinks until June 25. On this same day, two of the skinks began ovipositing their eggs. On the following day, all three had completed ovipositing their eggs. The clutch sizes numbered 11, 15 and 18.

During the incubation period, the skinks maintained olfactory contact

with their eggs by tongue-flicking them. Eggs were occasionally rolled about the nest chambers by the females with the use of their snouts. This egg-manipulating activity seemed to increase when the skinks were disturbed by the observer. Much of the females' time was spent quietly coiled around or lying on top of their eggs. One individual refused food for the duration of the incubation period. Whenever a finger was prodded into the nest chambers, two of the females aggressively bit it, presumably to defend their clutches. Defensive behavior while brooding has not been previously documented for this species (Breckenridge, 1943; Nelson, 1963). An adult ringneck snake, Diadophis punctatus, was introduced into one of the terraria and was immediately attacked when the female came rushing out of the nest and bit it. The snake was so severely lacerated about the head and neck region that it died two days later.

On July 16, two clutches of eggs began hatching. The third clutch hatched on July 18. The presence of 19 hatchlings from a clutch of 18 eggs suggests that one of the eggs was twinned. All three skinks were observed to lick fluid from some of their young while they were hatching. Similar grooming behavior has been reported in the great plains skink, E. obsoletus (Evans, 1959). One of the females gathered all 19 of her young into a heap in the corner of the nest and coiled around them. Juveniles that attempted to leave were nudged back into the heap. The female that had previously killed the ringneck snake remained defensive. When a finger was placed near the young, it was promptly bitten.

The females remained in the nests with their young for three days.

Neonatal care has not been previously documented for E. septentrionalis, although it is known to occur in E. fasciatus (Fitch, 1954), E. obsoletus (Evans, 1959), E. fasciatus (Fitch, 1954), E. obsoletus (Evans, 1959), E. taticutatus (Hikida, 1981) and E. taticeps (Hammond, 1985).

On July 22, the skinklets were separated from the females. All three females were placed together in the same terrarium. These females showed a remarkable degree of aggression towards each other for one week prior to being released. They constantly bit each other at the bases of their tail regions which soon became covered with scars. None of the skinks had previously shown aggression towards others while they were gravid. Such post-brooding aggression has been documented for E. egregius (Mount, 1963) and E. taticeps (Hammond, 1985).

The observations reported in this article generate many questions. It is hoped that this note will stimulate more interest in the study of maternal behavior in the scincid genus Eumeces.

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