



Courtship and Mating Behavior of the Diamondback Terrapin *Malaclemys terrapin tequesta*

The only observation of courtship and mating behavior of *Malaclemys terrapin* under natural conditions is by Hay (1904) who reported only that "conjugation usually takes place at night or in the very early hours of the morning, and always in the water, the diminutive male being carried about on the back of the female". From January 1977 to April 1979, I conducted a study on the life history and ecology of the Florida east coast diamondback terrapin, *M. t. tequesta*, at the Merritt Island National Wildlife Refuge, Brevard County, Florida, and observed the courtship and mating behavior of *Malaclemys* in greater detail. The refuge consists of three large, permanent, brackish water lagoons, each surrounded by a series of canals and ditches. A more detailed description of the study area is given elsewhere (Seigel, 1979). Mating behavior was observed whenever possible by surveying canals, ditches, and lagoonal waters inhabited by *Malaclemys*. Observations were made from natural blinds, at irregular intervals from 0700-2400. Shaded air and surface water temperatures were measured with a Schultheis quick-reading thermometer, accurate to ± 0.1 C.

Courtship and mating were observed on 12 occasions, between 26 March and 25 April, only in the small canals and ditches surrounding the lagoons. Terrapins form large breeding aggregations, assembling in the canals in late March and early April. I observed aggregations of 6-75 individuals, but local residents have reported as many as 250 individuals in a single canal 200m² in area. Aggregations probably serve to increase the probability of a successful mating; it would be difficult for turtles to find and secure mates in the extensive, open waters of the lagoons.

All mating occurred during daylight hours, from 1040-1610. Water temperatures ranged from 24.8-27.0 C (\bar{x} = 26.5, N = 12); air temperatures ranged from 22.8-27.0 C (\bar{x} = 25.5, N = 12). Hay

(1904) reported that *M. t. centrata* mates soon after leaving hibernation, usually at night or in the early morning. *Malaclemys* at Merritt Island became active by mid-February, but I noted no evidence of mating until late March, nor did I observe any nocturnal or early morning mating. These apparent differences between the mating habits of *M. t. centrata* and *M. t. tequesta* may be due to intraspecific variation between the two subspecies, or to the lack of detailed observations on their mating behavior.

Although the complete sequence of courtship and mating was never seen, partial observations permit a reasonably complete description. Courtship begins with the female floating at the water's surface; the male approaches from the rear and nuzzles or nudges the female's cloacal region with his snout. If the female remains motionless, the male mounts and copulation occurs immediately, with both individuals floating at the surface of the water. Females which swim away from approaching males are often actively pursued, sometimes for long distances. Pairs were observed for up to 10 min at a time, but the actual mating process is of short duration; the approach phase lasts 30-60 sec, and copulation only 1-2 min.

R. C. Vogt (pers. comm.) noted that in captive *M. t. centrata*, the male sometimes bobs his head rapidly in front of the female prior to copulation, a behavior not observed in my study. Otherwise, the mating behavior of *M. t. centrata* was similar to that of *M. t. tequesta*. This difference in behavior may be due to the captive nature of the individuals involved, or perhaps to variation between the subspecies. However, the extremely turbid water in the canals at Merritt Island (maximum visibility=1m), prevented observations of underwater behavior, and it is possible that interactions such as head bobbing were overlooked if they occurred far below the surface of the water.

Harless (1979) suggested that geographic variation in mating behavior within a species was unlikely, unless there are significant differences in morphology or ecology between populations. Since these observations represent the first report of mating behavior in *M. t. tequesta*, and the first detailed report of mating behavior in any natural population of *Malaclemys*, a determination concerning the degree of intraspecific variation in mating behavior in this species must await more detailed observations on the mating habits of other races of *Malaclemys*.

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