## SEXUAL PROCLIVITY AMONG TRANSLOCATED MALE T.c.carolina

I have accumulating evidence (from my first six years of work on Eastern Box Turtle repatriation in Pennsylvania) which suggests that male box turtles (at least translocated ones) do not detect potential mates at a distance. Before beginning my field observations I simply assumed that some sort of pheromonal communication would bring distant mates together. My hypothesis (now) is that their reproductive interaction relies on chance close-range encounters. Such encounters would be common in a dense population in which males, circulating through their well established home ranges, frequent sites where they have found females in the past. This hypothesis would explain Stickel's (1989) observation of reproductive interaction only among individuals whose home ranges overlap. An important conservation implication of this hypothesis is that thinning a population by specimen/pet collection may diminish reproductive encounters sufficiently to doom the population to extinction.

The first observation that led me to this hypothesis occurred in 1994. Our most sexually active male was sitting close to a female who was obscured from view by vegetation. He was calm, not engaged in any sort of active searching, and apparently oblivious of her proximity. The moment that I removed the visual barrier, he lurched (in obvious recognition of her presence) and then rushed over to her, launching into active courtship (and eventual coitus). I was astonished that such an obviously sexually motivated male seemed unaware that a female (and a receptive one at that) was so close. I have since videotaped this phenomenon (of males' absence/presence of recognition of a proximate female during/after visual-obstruction) many times. On occasion, noises caused by an obscured female walking on the other side of a visual barrier may elicit a male's general investigation (and subsequent courtship once he is able to actually see her). Olfactory cues may well provide an attractant/courtship stimulus at close range, but even then they might not always be necessary because in some trials the male's immediate rush to court, the instant that he simply SEES a female, seems to allow too little time for olfactory stimulation; and dominant males (see my article on Box Turtle Aggression in this issue) often display courtship-like behavior toward other males, who presumably lack female pheromones. Moreover, during trials that I have just started, two dominant males have been coaxed to follow a skeletal T.c.c. carapace (pulled by a string), and even initiate first steps of courtship (climbing atop the carapace or sniffing at it), while a nearby immobile female went unnoticed.

During the past four years I have also accumulated details on the movements through the habitat by all of our males before, during and after periods when all females are confined (6-8 weeks) to one enclosure. I discern no evidence that the males move toward the concentration of females. In 1997 I began a series of more contrived assessments of detection of females by males, and of courtship releasers. I hope to publish results within a couple of years.

In some of our tests I physically carry a male into the close (25 cm) vicinity of a female. In the course of these studies it

has become apparent that (as with almost everything else about box turtles) sexual proclivity varies considerably from individual to individual. Some males seem unfazed by the presence of a human observer, or even by being carried to a female, and almost unfailingly rush to court a female the moment that she is in plain view. Others of our males almost never court and copulate if the human observer does not retreat some distance. Still others have never initiated courtship when a human observer was anywhere near, even when the observer had not handled the male. Yet, we know that at least some of those reticent males are sexually active because some of them have been discovered in the midst of courtship or mating during our routine field surveillance. It has happened that, when some of these more "private" males realize that an observer has arrived during their courtship, they break off the behavior and depart. Their cautiousness echoes Davis' (1981) observations of inhibitory effects of human proximity on other box turtle behaviors.

Courtship, and especially copulation, would seem to increase the male's vulnerability to predators. It's typically a day time activity. However, I once saw one of our dominant males begin to court a female that he happened upon at 19:30 h (EDT) as he was searching for a safe site to settle into for that July evening. When I left at 20:00 h, he was still courting. This seemed like reckless behavior (courtship and mating occupy several, sometimes many, hours) because evening is a time of increased activity by prime predators like skunks and raccoons (and the turtles are generally under protective cover by this time). My observations on box turtle aggression (reported in this issue) suggest that the more dominant/aggressive males are also the more sexually active. I wonder if our more aggressive males exhibit greater sexual proclivity (in the face of threats like human proximity, or impending nightfall) than our less aggressive males because of a better developed sense of being able to dominate threats in their environment. Davis (1981) noted that dominant adults and hatchlings exhibit less fear of human approach and move through their habitat more actively than less aggressive box turtles.

## LITERATURE CITATIONS

Davis, M. (1981) "Aspects of social and spatial experience of eastern box turtles, Terrapene carolina carolina." Ph.D. diss. University of Tennessee, Knoxville.

Stickel, L. F. (1989) "Home range behavior among box turtles (Terrapene c. carolina) of a bottomland forest in Maryland." J. Herpetol. 23:40-44.

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