

Notes on the Courtship of the Turtle, *Terrapene ornata*

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On April 4, 1938, during a field trip in the vicinity of Leavenworth, a pair of ornate box turtles, *Terrapene ornata* (Agassiz), were collected. Although found in the same region apparently neither was aware of the other's presence.

They were kept together in a box throughout the following week, but no activity was observed. The latter part of the week they were placed in the sun for a short time; upon showing signs of distress they were turned loose in a small orchard which was surrounded by a "turtle-proof" fence. A pool of water was available. The female soon discovered the water. She entered and remained partially submerged in the shallow part for fifteen or twenty minutes. She drank for some time; it is assumed that she was drinking, since she held her head under water for a considerable length of time at intervals of a minute or so. Each time she raised her head from the water she wiped the sides of her head and mandibles with the backs of her forelimbs. She fouled the water and immediately climbed from the pool and proceeded to explore the surrounding area.

The male had been quiet during these activities, but upon the retirement of the female he entered the water and repeated the performances of his future mate. While he was in the water he seemed to become aware of the presence of the female for the first time; frequently, while his head was raised, he would stare in the direction of the female.

After leaving the water the male walked rapidly toward the female and proceeded to "nose" about the lower margin of her carapace. When he attempted to place his forelimbs on her back she moved away and he followed in hot pursuit. Every now and then he would overtake her sufficiently to raise himself high on his front legs and hurl the forepart of his plastron against the hind part of her carapace, at the same time emitting a stream of fluid from each nostril which sprayed over the female's back. This ceremony was repeated five or six times in as many minutes.

The striking of the shells together and the squirting of the water has a remarkable counterpart in the shell-tapping of *Kinosternon* and the water "boiling" of *Chelydra*, Taylor (1933, page 271).

The female reached the base of a tree and the "drive" continued around and around, the male attempting to clasp the female during each of several pauses in their journey. It was not noted that the male attempted to bite the carapace of the female. After twenty or twenty-five minutes the male rolled over on his back after an unsuccessful attempt to grasp the female; while he was righting himself she sought shelter in a clump of grass near-by.

When the male regained his feet he quickly overtook the female, for she did not attempt to evade her suitor further. They were observed in copulation for about thirty minutes. The method of clasping was approximately as described by Pope (1939, page 126).

Two hours later the female buried all but her head in the moist soil near the fence; the male was resting quietly in a clump of grass nearby.

On May 9, 1939, while making some observations in a small open woods near Mud creek east of Lawrence, Kan., my attention was attracted to a shallow gully by a peculiar yet familiar thumping and scratching noise. It proved to be four male ornate box turtles pursuing a female.

The female was leading; the four males following in file. Every now and then a male would hurl the fore part of his plastron against the carapace of the preceding male, this latter individual invariably turned and nipped viciously at the carapace of the intruder. These exchanges were observed between several of the males.

When the female finally gained the top of the bank the turtle that had been next to her during the chase of twenty or thirty yards slipped and rolled to the bottom of the gully. While he was regaining his feet his rivals climbed to the top and immediately made a headlong rush for the female. She turned and snapped at each as they came within reach; two of the males retreated at once, but the other persisted in his attempts to get behind the female, but she always met him with a slashing beak. When the unfortunate one who had rolled down the bank arrived, the intruder withdrew a few feet from their immediate vicinity.

The female did not show any antagonism towards this male, but continued to lead the chase a few yards further; during this time the male hurled his raised body against her carapace several times. The other three males apparently had withdrawn from the contest for this pair was left unmolested and were observed in copulation a few minutes later.

The shell-tapping is undoubtedly a part of the usual courtship ceremony. The squirting of the water from the nostrils is not in anyway necessarily connected with the courtship but merely the result of pressure, caused by the plastron hitting the carapace of the female, driving the water from the male's stomach and out through his nostrils.

The snapping and biting at the edges of the carapace, which is so often observed in this species, seems to be a method of sex determination as well as a means of showing preference for a certain member of the opposite sex.

LITERATURE CITED

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- POPE, CLIFFORD H. Turtles of the United States and Canada. Alfred A. Knopf, Inc. 1939.