

Tuning in on Box Turtles

By Chris Swarth

The beeping from the radio receiver hanging on Mike's shoulder suddenly increased in intensity. Our radio-tagged Box Turtle must be right in front of us—but where? The five searchers stared into an impenetrable tangle of greenbriar, grapevine and poison ivy. Hidden from our view was turtle #273. This female was found living in the tidal wetland off the Marsh Boardwalk in early June. She remained there for the next two months, dividing her time between the cattails and the scrub-shrub wetland 10 meters to the east. Clearly, she enjoyed the tidal life. But now she was 100 meters from the marsh and nearly on the lawn near the caretaker's house. Mike plunged gently in to the thicket and in a few minutes announced that he could see the turtle resting quietly on the leaves. Why had she made such a long (for a Box Turtle) journey from marsh to dry hillside? Why was this “terrestrial” reptile living in an aquatic habitat? These are just some questions we hope to answer this summer as we continue our investigation of Box Turtles by using radio telemetry.

Radio telemetry is used to document the movements of individually tagged animals over distances large and small. Ecologists use radio telemetry to follow animals' migration paths, day-to-day movements, use of different habitats and home range size. A battery-powered transmitter with antenna is attached to the animal. Most often the attachment is external, but transmitters can also be implanted internally. (We use strong epoxy to glue transmitters on the left or right rear of the Box Turtle's upper shell.) Transmitters vary greatly in size; they are used on animals as small as tiny bats and as large as migrating gray whales. Satellite receivers now make it possible for researchers to chart the route of sea turtles as they migrate across thousands of miles of ocean.

We began using telemetry in 1998. Our pilot project involved just three turtles, but discoveries made that first year revealed something very interesting: Box Turtles use wetlands. Not just occasionally, but for significant amounts of time. Last year we mounted transmitters on eight females. The map shows where these turtles lived. Five turtles spent from weeks to months living in the wetlands. We found them in herbaceous marshes surrounded by cattails, in stands of Phragmites 50 meters from shore, and in the impenetrable scrub-shrub wetlands north of the



Above: Intern Joe Sage tunes in, listening for box turtles in the marsh.



Right: Main activity areas of radio-tagged female Box Turtles are indicated by dark circles. Five of eight turtles made use of tidal wetlands during summer, 2000.

Railroad Bed. The information is especially exciting because we find little reference to wetland use by these turtles.

In summer 2001, we will place transmitters on ten females. We are focusing on females because their habitat needs are greater than males: they require both foraging and nesting areas. The production of viable eggs may be dependent the female's access to nutritious and abundant food (perhaps in the wetlands), whereas development of the embryo encased in the egg is dependent on suitable nesting

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habitat. In general, there is little information about the nesting habits of Box Turtles. We do know that they prefer excavating the nest cavity in open sunny areas. Yet in ten year's of fieldwork here only a single female has ever been caught in the act of nesting—in the grassy meadow near the Wetlands Center. The single Box Turtle hatchling found at the Sanctuary was discovered in May of this year in the meadow. Radio telemetry will allow us to follow day-to-day movements and document the day nesting takes place. By weighing females before and after they have nested (a clutch of 5 eggs can weigh up to 50 grams or 15% to 20% of total body weight), we can pinpoint the date that the eggs were laid.

If you would like to help us find turtles during our Box Turtle censuses on Thursdays and track the turtles as they move from habitat to habitat, please call the office and sign up with our volunteer coordinator.