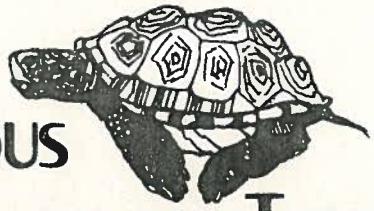
1981

THE MYSTERIOUS MANGROVE TERRAPIN



by Dr. Roger Wood

The story of the mangrove terrapin starts, somewhat improbably, with snails.

In June, 1904, Henry W. Fowler, a naturalist from the Philadelphia Academy of Sciences, sailed to the Florida Keys (back in those days, sailing was the only way to get around in that area) to search for tree snails of the genus Liguus. Incidental to his snail searching, he discovered a small, unobtrusive turtle on one of the tiny islands extending eastward from Key West. Fowler recognized his discovery to be a kind of diamondback terrapin which he felt was sufficiently distinctive that he formally described it shortly there after as a new subspecies, which he christened Malaclemys terrapin terrapin rhizophorarum --- the mangrove terrapin.

This turtle is the southern-most representative of the diamondback terrapin, a species of unique habitat, limited to brackish water coastal salt marshes. The range of the seven recognized subspecies extends along the Atlantic shore from Cape Cod down to the Florida Keys and then around the curve of the Gulf of Mexico to somewhere (as yet not precisely determined) on the coast of Texas or perhaps northern Mexico.

With the exception of the northernmost diamondback subspecies (Malaclemys terrapin terrapin), very little is known about the natural history of this unusual turtle. Of all its subspecies, the least known about is the mangrove terrapin, whose range is restricted to the Florida Keys.

Despite the fact that the better part of a century has passed since Fowler's discovery of the mangrove terrapin, this cryptic creature has continued to exist in virtually total obscurity. As recently as 1978, a faunal survey of Florida's reptiles and amphibians sponsored by the Florida Audubon Society (Rare and Endangered Biota of Florida, Vol.3) accorded mangrove terrapins "rare" status.

The long standing scarcity of knowledge about mangrove terrapins was thoroughly unsatisfactory to me. For some years now I have been studying northern diamondback terrapins, and I was curious to compare the behavior and ecology of this southern-most terrapin subspecies with related populations in New Jersey with which I was already familiar.

Therefore, with the help of funds and volunteer field assistants provided by EARTHWATCH and the Florida Audubon Society, I set out in January of this year to scour the Florida Keys for mangrove terrapins. Foremost among my objectives were:

1.) to locate and assess the abundance of mangrove terrapin populations;

2.) to discover basic information about their natural history;

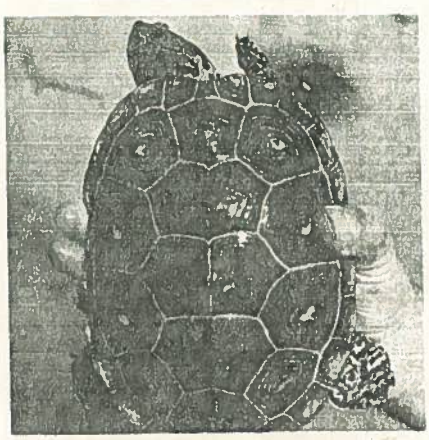
3.) to determine more precisely the distinctive characteristics of this subspecies.

Our first season of field work is now finished and I'm happy to report even greater success in accomplishing these objectives than I could reasonably have expected at the outset.

Our search for the mangrove terrapins started in the southern-most eys, where Fowler had discovered his original specimen. Aboard the Sea Breeze II (a 40 foot, bugeye-rigged Chesapeake Bay skipjack, captained by John Duke), living quarters, and laboratory all combined in one, four successive research teams ventured with me along the entire extent of the Keys in search of our often elusive quarry.

There was nothing fancy about our field work. At each island we visited, teams of two or three persons would wade ashore, slog through

Shell of terrapin [also Bottle Key].



The distinctive "striped pants" of a terrapin (shown upside down) from Florida Bay.

Close-up of a terrapin head [from Bottle Key].

sucking muck, and beat their way over, under, and through dense vegetation in an effort to locate specimens. Every terrapin encountered was marked, measured, and identified by sex. Air, ground, water, and body temperatures were recorded, as was the water's salinity. Morphological characteristics were always noted as well. Periodically, non-lethal stomach content analyses (using a specially designed turtle stomach pump of rather medieval appearance) were performed in order to determine feeding preferences. And the movements of one stoic turtle, to whom a small radio transmitter was affixed, were followed intermittently over a period of months.

When we first visited the island where Fowler found his mangrove terrapin, a striking coincidence occurred. The conclusion of Fowler's brief description of his discovery reads as follows: "This form is known to me only from the above described example, which was collected in a pool among the mangroves . . . together with Natrix [the harmless mangrove water snake]." Shortly after I had stumbled across the first terrapin that our group found on this same island, another member of the research team came flailing through the dense undergrowth happily holding aloft a lovely specimen of Natrix --- a curious instance of history repeating itself. Fortunately, unlike Fowler, we were subsequently able to find many additional terrapin specimens here, as well as elsewhere. In all, we ultimately found over 300 mangrove terrapins on the different keys that we were able to visit.

The results of our field work to far have been most gratifying. The precise distribution of mangrove terrapins is now much more specifically documented than ever before. But within its range, the abundance of this specimen appears to vary strikingly for reasons which as yet aren't clear. In our experience, terrapins are relatively uncommon in the southern Keys (from Key West north to Big Pine Key---if any readers living in this area know where to find terrapins, I'd love to hear from you), and then become common --- at least if you know how to find them --- in Florida Bay.

The subspecific name of the mangrove terrapin - rhizophorarum - refers to the red mangrove trees (Rhisophora mangle) among which Fowler encountered his specimen. We discovered, never-the-less, that mangrove terrapins are equally at home in black mangroves or buried within the soft, muddy bottoms of shallow ponds. To our surprise, the water of the pools and ponds in which we sometimes found terrapins proved to be unusually saline, on occasion being nearly twice as salty as adjacent ocean waters. And, unlike their more northern relatives, mangrove terrapins do not hibernate, instead remaining active throughout the year.

Mangrove terrapins are sexually dimorphic, which simply means that the adult males and females differ in appearance. Males are usually much smaller in size but have rather long, fat tails, whereas females are relatively large (shell length reaching up to seven or eight inches) but have relatively tiny, skinny tails. Moreover, the general appearance of these turtles varies somewhat from one end of the subspecies range to the other. At the southern extreme, the terrapins are generally characterized by uniformly darkish gray skin and a plastron (the underside of the shell) which has bands of black bordering the seams of adjacent scales. At the northern limit up in Florida Bay, however, bands of black bordering the seams of adjacent scales. At the northern limit up in Florida Bay, however, the skin tends to be much lighter and marked by very distinctive "striped pants" between the hind legs. Prominent dark and elongated streaks are typically scattered over and along the head and neck. The plastron, too, differs, often lacking black-bordered scales and instead having roundish dark splotches on the middle of some or all plastral scales. The significance of these variations in color and pattern are unknown.

The success of our initial efforts to learn about the mangrove terrapin have certainly been gratifying. But an enormous amount remains to be learned. Among the questions that still need to be answered are:

1.) How real is the apparent distributional gap between the southern Keys and the Florida Bay terrapin populations?

2.) Are individual terrapins in any sense territorial? To what extent, if any, do they move from one island to another?

3.) Where and how do mangrove terrapins nest? When do hatchlings emerge?

4.) How broad is their dietary range, and do feeding patterns change seasonally or vary by sex?

My attempts to gain insight into the lives of mangrove terrapins have so far been extremely rewarding. I can hardly wait to go back to the Keys to discover more about these intriguing creatures whose story has waited so long to begin unfolding.

Roger Wood is Professor of Zoology at Stockton State College in New Jersey. For the past year, thanks to an award from the National Science Foundation, he has been able to affiliate with the Florida Audubon Society as a visiting research scientist. Along with Florida Audubon's Dr. Peter Pritchard, Dr. Wood is a member of IUCN Freshwater Cheloniun Specialist Group.

WOULD YOU LIKE TO PARTICIPATE IN THIS EXCITING RESEARCH PROJECT?

Dr. Wood plans to continue his studies of mangrove terrapins next year with a series of research cruises (aboard the Sea Breeze II) in January, March, May, and July, 1982. You can join him. For details contact:

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