Florida Diamondback Terrapin Working Group

Organizational Meeting, 5 February 2005 (1:00-5:00 pm)

Chelonian Research Institute (Oviedo, Florida)

Meeting Minutes

In attendance: Joe Butler, Dave Cook, Dana J. Ehret, Nancy Fitzsimmons, George L. Heinrich, Brian Mealey, Greta Mealey, Tony Tucker, Sharon Tyson, Tim Walsh, and Roger Wood (see contact info below)

1:00 pm: Welcome and opening remarks (George L. Heinrich, Heinrich Ecological Services)

1:15 pm: Presentations by researchers on their research/conservation experience and interests in Florida terrapins (What have we done and where are we going?)

Dr. Joseph A. Butler (University of North Florida)

Since 1995, George Heinrich, numerous volunteers, UNF students and I have studied diamondback terrapins in a number of venues around Florida. Most of the work has been in Duval and Nassau counties where we have extensively studied a terrapin nesting beach. We have defined the nesting season, emergence period, and the most important predators. In other studies, we have tested numerous capture techniques and done a year-long radio telemetry study which allowed us to calculate terrapin home range and evaluate their seasonal movements.

For the past three years we have tested bycatch reduction devices (BRDs) on crab pots in six different Florida counties. This year we will complete the study by including two more counties. Our data show that over 73% of terrapins captured in the study could have been prevented from entering pots with BRDs. When this season is complete we intend to approach the FFWCC with a request that all commercial and recreational crab pots in Florida be equipped with BRDs.

Finally, in February, two graduate students and I will begin a study on the nesting beach whereby we will attempt to trap and remove all the raccoons from the island. We hope to trap raccoons until early May when the terrapins begin nesting. We will then monitor nest success for the rest of the season to determine if there are benefits to predator removal.

George L. Heinrich (Heinrich Ecological Services)

In addition to my field research with Joe Butler, I also conduct natural history programming, primarily targeting formal and non-formal educators. The *Natural History and Conservation of Florida Turtles* is now in its thirteenth year and includes a classroom session on diamondback terrapins. The four-day workshops are currently offered at Boyd Hill Nature Park (St. Petersburg), Apalachicola National Estuarine Research Reserve

(Apalachicola) and Guana Tolomato Matanzas National Estuarine Research Reserve (St. Augustine). The latter workshop was initiated in 2003 and includes a field session co-led by Joe Butler and myself at a diamondback terrapin nesting island.

Education is an important component of successful wildlife conservation programs. It is my desire that the Florida Diamondback Terrapin Working Group and the national DTWG include conservation education initiatives in the development of a comprehensive rangewide conservation plan.

Brian Mealey (Institute of Wildlife Sciences)

South Florida has the uniqueness of hosting three subspecies of *Malaclemys terrapin*. *M. t. rhizophorarum* are found in the lower Florida Keys from Marathon through the Marquesas, *M. t. macrospilota* from Florida Bay up the West coast of Florida and *M. t. tequesta* from Biscayne Bay up the east coast of Florida.

M. t. rhizophorarum has been monitored quite extensively in the Key West National Wildlife Refuge by Roger Wood in the early 1980s and by Brian Mealey in the late 1990s through 2002. This work has become a collaboration between Wood and Mealey. The east eye wall of Hurricane Georges (strongest winds) either impacted the terrapin population through a forced dispersal or altered the islands' habitat sufficiently prompting the terrapins to naturally disperse. Subsequent visits to the islands have resulted in an extremely low capture rate. Concern was expressed in reference to the impact that local crab trapping may have on this population.

M. t. macrospilota was also monitored by Roger Wood in the early 1980s and by Mealey since 1995. Even though there is strong site fidelity of this species, there appears to be island movement over a period of time. This population is well protected as it lies within the boundaries of the Everglades National Park. The provision of more fresh water flow into the northeastern end of Florida Bay from the Everglades Restoration Project may have an unknown impact on the terrapin population in the eastern portion of the Bay.

M. t. tequesta has not been surveyed in Biscayne National Park and therefore the population status in this region in unknown. Two live hatchlings were brought to the Miami Museum of Science: one from the Port of Miami/Government Cut in 1986 and one from a local park in 1996. Mealey et al. plan to initiate a survey of Biscayne National Park in the summer and fall of 2005.

Dr. Tony Tucker (Mote Marine Laboratory)

Chris Boykin is finalizing a report on Saint Martins Marsh Aquatic Preserve (Citrus County) based on surveys in 2003-2004. The study used modified crab traps and sampled 369 individuals. Information includes morphometrics and clutch sizes. Status considered stable, density considered greatest he has seen in Florida.

Boykin also conducted a study at Tarpon Key (Tampa Bay) from 1997-2004. The area is a bird rookery so field work occurs in the fall to not overlap with bird nesting. Tarpon Key population (152 marked individuals) was in decline, clearly from raccoon predation.

Chris Lechowicz of Sanibel-Captiva Conservation Foundation located a population on Punta Rassa near mouth of Caloosahatchee River, a site visited separately by Heinrich

and Tucker. Unknown status. Tucker contacted marina owners who are not adverse to any low-key research in the area.

Tucker noted loss of Pineland Field Station in Charlotte Harbor would hamper efforts to conduct diamondback terrapin research based there. Also noted availability of the Mote Summerland Key field station for researchers needing quarters in Keys. Tucker willing to assist others with mark-recapture analysis in MARK.

Kristen Hart is finishing Ph.D. at Duke and will move to St. Petersburg for postdoc with Carole McIvor/USGS. May facilitate her to continue work on Cape Sable/Everglades study.

Dr. Roger Wood (The Wetlands Institute)

In 1906, H.W. Fowler described a single female specimen as the type of a new subspecies of diamondback terrapin, *Malaclemys terrapin rhizophorarum*, the mangrove terrapin. This turtle was found on one of the islands that is now included within the boundaries of Key West National Wildlife Refuge. Fowler's discovery was of particular interest because it indicated that there was no significant distributional gap between Gulf of Mexico and Atlantic coast populations of terrapins, as had previously been thought, thus indicating that all diamondback terrapins belong to a single species.

No further scientific research was carried out on mangrove terrapins until the early 1980s, when intensive field studies were undertaken. Mangrove terrapins are a morphologically distinct subspecies limited to the southern Florida Keys (= south of Marathon Key). They are only found on certain islands within Key West National Wildlife Refuge and in relatively small numbers. A few scattered reports indicate that some mangrove terrapins may survive on some of the islands between Marathon and Key West, but I have not been able to document any such specimens personally.

Mangrove terrapins do not hibernate, as do their more northern counterparts. They spend a considerable amount of time partly buried in mud among the pneumatophores of black mangroves. The sex ratio appears to be strongly skewed in favor of females. There does not appear to be much movement of mangrove terrapins from one island to another where they are known to occur.

Diamondback terrapins also occur in the upper part of the Florida Keys. For the better part of a century, these have also been referred to as mangrove terrapins. However, they are distinct in appearance from true mangrove terrapins and may represent a previously unrecognized new subspecies.

Upper Keys terrapins are more abundant than the mangrove terrapins of the Lower Keys. They have been intensively studied on many of the small islands of Florida Bay, within the boundaries of Everglades National Park. Like their Lower Keys counterparts, the terrapins in Florida Bay seem to spend most of the day buried partly to entirely in mud. Often, the only evidence of their presence will be trails plowed through the mud of shallow ponds, which often occur in the interior of these islands. This behavior is likely to be a strategy to avoid thermal stress during the heat of the day, especially during the hotter months of the year.

The only known natural predator on terrapins of the Florida Keys is the bald eagle (*Haliaeetus leucocephalus*), which selectively preys on sub-adult females and adult males (which are considerably smaller than fully-grown female terrapins).

2:15 pm: Information Needs and Conservation Plans for Diamondback Terrapins of the Florida Fish and Wildlife Conservation Commission (David G. Cook, Florida Fish and Wildlife Conservation Commission)

The Commission is interested in determining the diamondback terrapin's distribution and abundance statewide. A statewide survey has been talked about for years, but has yet to be implemented. Such a survey would complement the ongoing and past research done in Florida by Butler and Heinrich, Wood, Mealey and Parks, Boykin, and Seigel. There are implicit problems surveying terrapins in different habitats around the state and different survey techniques will need to be employed depending on the circumstances. Ideally, a "how-to" guide for surveying terrapins could be developed that provides standardized protocols for the variety of methods that could be applied as appropriate to a given population. The methods covered would include head counts, basking surveys, nesting beach surveys, under-substrate probing, netting, trapping, mark/recapture, and other techniques used by researchers. Different techniques may measure different components of a population, but, if standardized, could provide valuable comparative data between sites and trend data for the same site.

Although dedicated funding for terrapin conservation is not in place, it seems appropriate for the Commission to serve as a clearinghouse for survey and monitoring data collected across the state, as well as for any other information pertinent to terrapin conservation. The Commission administers two funding programs that could be used to support terrapin research. The Nongame Grants has supported previous research by Butler and Heinrich; information on this program is at http://wld.fwc.state.fl.us/cptps/. State Wildlife Grants are available to support Florida's new Comprehensive Wildlife Conservation Strategy; information on this program is at http://wildflorida.org/SWG/.

The Commission's Division of Marine Fisheries Management is involved with regulation of the blue crab fishery. The Commission recently accepted an effort management plan recommended by the Blue Crab Advisory Board which would create a limited access fishery by restricting the total number of participants, with an equal number of traps issued to each qualifier. It is not clear how this program may impact the incidental take of terrapins. More information is available at http://myfwc.com/commission/2005/Feb/BLUE_CRAB_EFFORT_MANAGEMENT_PROGRAM_FEB05.pdf.

In 2003, the Commission implemented a rule entitled Trap Retrieval and Trap Debris Retrieval (Chapter 68B-55 of Florida Administrative Code; page 440 of http://myfwc.com/codebook/2003/Codebook.pdf). Implementation of this "derelict trap rule" proceeded last year with an organized cleanup of "ghost traps" along the Gulf Coast between the Suwannee River and the Alabama state line. Recently a cleanup was completed in Tampa Bay, another was scheduled for Biscayne Bay in February 2005, and another for Charlotte Harbor later in the year. Juli Dodson is the coordinator of this program, which utilizes interested volunteers.

2:30 pm: Break

2:45 pm: Discussion on status and conservation needs of terrapins in Florida (based on status survey forms); facilitated by Joe Butler

1) reviewed ranking of threats

2) reviewed conservation needs

a) statewide population surveys (group expressed an interest in further discussing this need)

b) identification of critical habitats

c) address predation issues (raccoons and rats)

d) address crab pot issues (develop a multi-pronged approach to deliver to FWC)

e) support aquatic preserves regarding management efforts

3:45 pm: Discussion on feasible short and long-term projects of the Florida DTWG based on identified threats and conservation needs; facilitated by George L. Heinrich

1) get terrapins on the radar screen of biologists, land managers, conservationists, educators and the general public (short-term and long-term)

2) develop a brochure or flier on terrapins and FL DTWG (hardcopy and electronic; short-term)

3) prepare a letter to NWR, USGS, NPS, and NOAA introducing DTWG (should be done on a national level; short-term)

4) prepare a letter of support to aquatic preserves expressing need to consider terrapins in management efforts (draft to be prepared by Sharon Tyson; short-term)

5) change of regulations to require BRDs on all crab pots used in Florida waters (short-term)

6) compile information on survey techniques for FWC (requested by Dave Cook; short-term)

7) initiate statewide population survey (potential joint project of FL DTWG members; long-term)

8) develop statewide conservation plan (long-term)

4:45 pm: Wrap-up including decision on next meeting host, location and date

next meeting: Saturday, 4 February 2006 at Mote Marine Laboratory (Sarasota; local host: Tony Tucker)

invite coastal aquatic land managers, marine science educators (LEEF, FMSEA and marine science centers), Bill Teehan and Juli Dodson (FWC), and NPS employees

5:00 pm: Meeting adjourned

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