

Countless Ways to Use LAKEWATCH Data

A Turtle Hero

Congratulations are certainly in order for Matt Aresco, FSU doctoral student and wildlife biologist, who has taken it upon himself to research and write the only dissertation (that we know of) about turtle population dynamics and habitat distribution in the state of Florida.¹ For his Ph.D. research, Matt spent the last four years collecting data from a total of 17 lakes in the Leon County area, six of which are LAKEWATCH lakes (e.g., Iamonia, Meginnis Arm, Moore, Piney Z, Tom John and Trout Pond).

Matt says the water chemistry data played an important role in determining the trophic state of each lake and learning how various types of lakes support turtle populations. While his main focus is on Florida cooters (*Pseudemys floridana*) and yellow-bellied sliders (*Trachemys scripta*), he also collected data on a number of turtle species and on alligators, to learn more about aquatic resources and predation. (Kudos to the Florida Fish and Wildlife Conservation Commission for funding part of this research!) As a result of his efforts, Matt documented some rather interesting relationships:

- There seems to be a strong correlation between lake trophic state and turtle abundance. In other words, the more productive a lake is (i.e., the more plants and algae it has), the more it is likely to support large numbers of turtles.

He did note a few exceptions. Lakes with large alligator populations seemed to have smaller numbers of turtles, especially sliders, even in lakes that are considered to be extremely productive. Also, he found that yellow-bellied sliders were more abundant in eutrophic lakes, whereas Florida cooters were more abundant in oligotrophic lakes, especially those located in the northern part of Leon County.

¹ "Ecological relationships, abundance, and competitive interactions of the Florida cooter (*Pseudemys floridana*) and the yellow-bellied slider (*Trachemys scripta*) and their role in aquatic food webs in lakes of northern Florida."



Matt Aresco releases one of 8,100 turtles that he and volunteers saved since February 2000.

In some of the more productive large lakes such as Lake Jackson — a lake with abundant macrophytes and relatively low numbers of large alligators — there is an equal abundance of sliders and cooters.

- After studying the digestive tracts of over 200 turtles, he was amazed to learn just how much algae is consumed by yellow-bellied sliders and Florida cooters. (They are especially fond of green filamentous algae.) In fact, he says the digestive system of these herbivorous turtles seems to be specially designed for such a diet, especially Florida cooters which have longer intestines for digesting plants — similar to a cow.

- In his lake food web studies, Matt found that these turtle species provide an important function in lake ecosystems by consuming large amounts of algae and aquatic plants, including invasive species such as Hydrilla. They are also important scavengers of dead or dying fish. And, contrary to popular belief, these turtles cannot capture healthy live fish; they simply aren't fast enough.

Saving Turtles

If that isn't enough of a contribution, Matt Aresco has sealed his fate as the "turtle guy" by taking the lead on saving more than 8,100 freshwater turtles in the Tallahassee area since February 2000.

It all started with the drought of 1999 and the resulting drop in water level that occurred on Lake Jackson, a 4000-acre lake just north of Tallahassee. In February of 2000, a pre-existing sinkhole within the lake

(aka Porter Sink) opened up and drained the lake like a bathtub. Needless to say, this caused a few problems for wildlife. Desperately in need of water, a mass exodus of turtles and other creatures began to head west for nearby Little Lake Jackson.

There was only one problem: US Hwy 27 happened to be in their direct path. (Little Lake Jackson was, in fact, created when the four-lane highway was constructed right through the middle of the northwest portion of Lake Jackson.) With a daily average of 21,500 vehicles traveling along that highway stretch, it constitutes an impassable barrier to turtles and other wildlife. During one particularly bad 40-day period in the Spring of 2000, an estimated 439 turtles were killed.

In order to prevent further mortality, Matt and a group of volunteers constructed a temporary fence that directs turtles into a small culvert under the road. Ever since then, Matt and friends have monitored the area at least twice a day to identify and measure the turtles, transport them across the highway and release them back into the water. For the time being, a 3,000-foot fence has been erected along the north side of Hwy 27 along with a 2,000-foot fence on the south side (i.e., to intercept turtles attempting to migrate back across the road now that Lake Jackson is full.

According to Matt and other wildlife advocates in the area, the fence is only a temporary solution; the fencing material is degrading rapidly and daily patrols of the area are becoming increasingly difficult for volunteers to maintain. Their goal is to work with Leon County, the Florida Department of Transportation, and other agencies to construct a permanent eco-passage — a concrete guide wall and culvert system — to prevent future mortality of turtles and other wildlife. The Florida Department of Transportation and other agencies are in full support of this project.

To find out more about the project or to volunteer, contact:

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