

Photo by Greg Czarnecki

**Red-bellied turtles, from page 11**

and female red-bellied turtles use over the course of an entire year, from breeding season in the spring through brumation, which is when turtles dig into the soft mud on the bottom of ponds and streams to survive the winter. Do they stay in the refuge or do they move into the larger Delaware River, where the oil refineries and airport are? This information will help the Pennsylvania Fish and Boat Commission and other agencies determine what types of areas need to be conserved to protect this species as redevelopment for tourism, industry and commerce occurs along urban, coastal rivers.

In April 2008, red-bellied turtles were captured in basking traps, measured and had radio-transmitters attached by a team led by Dr. Anne Bower, Associate Professor of Environmental and Conservation Biology at Philadelphia University, and Tessa Bickhart and Mike Torocco of Herpetological Associates. Turtles were tracked by boat and on foot twice weekly until they entered their winter dormancy period (brumation) at the end of October and again in the spring as they reemerged.

Initial results show that some of the red-bellied turtles travel over 4 miles outside of the refuge and into the Delaware River. The turtles used a wide array of habitats, including highly polluted streams, seasonal wetlands, fishing ponds, industrial areas and a marina. GIS maps of home range and habitat use are being constructed for males versus females and large versus small turtles, to describe patterns of land use for different seasons of the year.

The project would not have been possible without the amazing support in time and effort by Brenda Lee Phillips (wildlife biologist) and Gary Stolz (refuge manager) from John Heinz National Wildlife Refuge. Tom Trotman and others from the Conoco-Phillips Trainer Refinery constructed telemetry boxes and mounted equipment and solar panels on utility poles for radiotracking. Funding was provided by grants from NASA SCRIBE #NNX06AG66G and the Wild Resources Conservation Program. Equipment was donated by West Marine.

Together with the field research, the second goal of the project was to communicate results to teachers and environmental educators, so the instructors could immediately use the information about turtle conservation with their students. Philadelphia University partnered with the Education and Wildlife Rehabilita-



Photo courtesy Dr. Anne Bower, Philadelphia University



*Above, Dr. Anne Bower and assistants retrieve a red-bellied turtle captured at a basking platform trap. At left, Environmental and Conservation Biology major Kelly Stark measures a red-bellied turtle. Right, distinguishing characteristics of Pennsylvania's threatened red-bellied turtle (left in photo) and the invasive red-eared slider (right in photo) include the color and markings of its belly. Never release unwanted pet red-eared sliders into the wild, where they will compete with native turtles. Below, Dr. Anne Bower uses telemetry equipment for tracking red-bellied turtles.*

Photo courtesy Dr. Anne Bower, Philadelphia University



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tion Departments of the Schuylkill Center for Environmental Education (<http://www.schuylkillcenter.org/>) to develop and test educational materials about threats to turtle conservation, under the direction of Karen Foster.

The Eastern Red-bellied Turtle Curriculum Guide was created to supplement existing materials from the Pennsylvania (continued on page 13)