

# The Economic Cost of Large Constrictor Snakes



photo: Lori Oberhofer, National Park Service



*An American alligator and a Burmese python are locked in a struggle to prevail in Everglades National Park. This python appears to be losing, but snakes in similar situations have apparently escaped unharmed, and in other situations pythons have eaten alligators.*

The U.S. Fish and Wildlife Service (Service), in partnership with many organizations, has spent more than \$6 million since 2005 finding and applying solutions to the growing problem of Burmese pythons and other large invasive constrictor snakes in Florida.

Controlling and eradicating these invasive snakes are critically important because they can cause major economic losses and expenditures. One study reported that nationwide, economic damages associated with nonnative invasive species effects and their control amount to about \$120 billion per year in the United States (Pimentel 2005).

Agencies such as the National Park Service, U.S. Department of Agriculture (USDA), South Florida Water Management District (District), U.S. Geological Survey (USGS), Florida Fish and Wildlife Conservation Commission, University of Florida, county governments and nongovernmental organizations work with the Service to combat the spread of invasive species throughout Florida and the rest of the United States. These actions include capture and removal; public education and awareness; spatial ecology and movement studies using

radio telemetry, satellite, and GPS technology; diet (stomach content analysis); thermal biology (implanted data loggers); trap development and trials; impacts analysis; pilot studies for genetics and salinity tolerance; potential use of unmanned aerial vehicles with thermal infrared cameras to detect large constrictor snakes in the field; and training dogs to find nonnative constrictor snakes.

The Service and its partners have spent an average of about \$720,000 annually on these efforts since 2005. The specific breakdown of these expenditures is as follows:

- The Service spent \$604,656 over a three-year period (2007 to 2009) to design python traps, deploy and maintain them, and to educate the public in the Florida Keys to prevent the potential extinction of the endangered Key Largo woodrat and other vulnerable endangered species.
- The District spent \$334,000 between 2005 and 2009 and anticipates spending \$156,600 more on research, salaries, and vehicles in the next several years. An additional \$300,000 will go to

the USDA's Wildlife Services for nonnative large constrictor snake control activities.

- The USDA Wildlife Research Center (Gainesville, Fla., Field Station) spent \$15,800 in 2008-2009 on salaries, travel and supplies to research snake control technologies.
- The USGS, in conjunction with the University of Florida, spent more than \$1.5 million on research; radio telemetry; and the development, testing and implementation of nonnative constrictor snake traps.
- Miami-Dade County Parks and Recreation Department, Natural Areas Management and Department of Environmental Resources Management spent \$60,875 annually on constrictor snake issues including removal from urban areas.
- The National Park Service has spent \$317,000 annually on various programs related to constrictor snake issues, such as researching snake biology for removal purposes in Everglades National Park.

These costs are incurred partly to prevent the extinction of species already endangered, two of which have been found as prey in Burmese python stomachs. From 1999 to 2009, Federal and State agencies spent \$1.4 million on Key Largo woodrat recovery and \$101.2 million on wood stork recovery. Puerto Rican parrots, although not found as prey yet, have cost Federal and State agencies \$17.2 million during that period. In addition to these three examples, many other endangered species are found in Florida and other States and territories that would be threatened by large constrictor snakes. Reducing or eliminating this threat will support the valiant efforts completed so far to recover these species.