Reptilian Pathogens of the Florida Everglades: The Associated Costs of Burmese Pythons

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Abstract
The predation activity of the invasive Burmese python (Python molurus bivitattus) was evaluated using probability and the economic costs associated with current federal and state values for endangered species. The objective was to provide a realistic valuation of the associated costs of Burmese python predation in southern Florida ecosystems for use as both a policy and management tool. Once valuation estimates were generated, the paper offers certain policy and enforcement recommendations to help address this growing problem.

Key Words: invasive species, economic valuation, Burmese python, Bayesian probability

Introduction
Exotic invasive Burmese pythons (Python molurus bivitattus) have severely disrupted trophic level interactions in South Florida ecosystems (Meshaka et al. 2000; Meshaka et al. 2004; Snow et al. 2006; Snow et al. 2007). Concomitantly, recent media attention has alluded to some of the damages these exotic invasive reptiles can cause. However, the real impact of these snakes in the South Florida region might better be measured by quantifying the economic impacts of predation. Similar studies have been conducted in the past focusing on the impacts of feral swine (Sus scrofa) (Engeman et al. 2004a; 2004b) in wetlands, general pest management (Engeman et al. 2004a), opportunistic predation (Engeman et al. 2002) of endangered species, damages to canals and levees in the Greater Everglades caused by green iguana (Iguana iguana) burrowing (Sementelli, et. al, in press), and even wildlife road-kills in public trust lands (Smith et al. 2003; Shwiff et al. 2007).

As one of many exotic invasive species introduced in Florida, particularly in southern Florida (Meshaka et al., 2004; Meshaka, 2006), Burmese pythons create very different problems than those presented by feral hogs and other pest species; some of which reach astounding population densities in Florida managed natural areas (Engeman et al. 2004b; Smith & Engeman 2002; Smith et al. 2007a; Smith et al. 2007b). Specifically, Burmese pythons have been identified as exotic invasive pests (see Chap. 39 F.A.C.), with specific risks (Reed 2005; Stohlgren, & Schnase 2006) and associated costs from fines borne by those who introduce these invasive herpetofauna into the environment. What is missing is a practical measure of the reptile’s economic impact and a