

# Assessing dietary shifts in Burmese python (*Python bivittatus*) within southern Florida

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## Introduction

The Burmese python (*Python bivittatus*) is a well-known and established invasive species in southern Florida that is affecting biodiversity. Here we will focus on two areas from our study: Southwest Florida and southern Everglades National Park. Burmese pythons are relative newcomers in Southwest Florida, becoming established roughly 15 years ago. In comparison, the Everglades National Park population has been established since the mid 1980's and has been linked to severe mammal declines.<sup>1</sup> Due to these changes in available prey species in older, more established regions, we expected to find temporal and spatial shifts in prey species composition within python diet samples.

## Study Area



**Figure 1.** Map showing individual capture points for all 714 pythons. Yellow dots indicate pythons that were not used in our comparisons. Teal and orange dots indicate pythons collected from Southwest Florida and southern Everglades, respectively, shown in Figures 3 & 4.



**Figure 2.** Deer (*Odocoileus virginianus*) remains in the gut contents of a necropsied Burmese python.

## Methods

Burmese pythons were collected from the southern end of Everglades National Park, north, to southwest Naples. Individuals were necropsied by various researchers across several universities, government agencies, and non-government agencies. Diet contents from these necropsies were then sent to UF for further identification. Species identification was achieved by visual confirmation of species by contents such as hair, bone, tooth, and feather.

Data include prey items from 714 individual pythons collected from 2009-2016 (Figure 1)

- 21 species of mammals, 27 species of birds, and 1 species of reptile
- Prey species range from Hispid cotton rats (*Sigmodon hispidus*) to Bobcats (*Lynx rufus*)
- Snout-vent lengths range from 49.2cm to 498cm, weights range from 63g to 60,800g
- We selected these two locations for our comparisons based on data availability

## Discussion

- These two regions should have shared the same native prey species
- Loss of mammal biodiversity in Everglades National Park (Figure 3)
- Recent python population in Southwest Florida demonstrates a greater composition of prey species
- Higher prey diversity in Southwest Florida shows an ecosystem less affected by pythons
- Decline in rabbit prey in Southwest Florida similar to declines historically seen within Everglades National Park (Figure 4)
- Loss of prey species such as rabbits can cause cascading effects on ecosystems<sup>2</sup>
- Knowing how pythons affect prey diversity is essential to management of all species within Florida

## Further Research

- Diversity indices of prey across multiple regions
- Continued identification of prey species from diet samples across entire invasive range
- Collaboration across research cooperators to target specific regions for diet samples

## Acknowledgments

There are many people that have contributed to this research project who we'd like to thank. Identification of samples was performed by Eric Suarez<sup>6</sup>, Diego Juárez-Sánchez<sup>1</sup>, and Carla Dove<sup>2</sup>. Researchers that have provided diet samples, organizational help, or their expertise include Ian A. Bartoszek<sup>4</sup>, Paul T. Andreadis<sup>5</sup>, Robert Reed<sup>3</sup>, Bryan Faulk<sup>3</sup>, Brian Smith<sup>3</sup>, and Arianna Paul<sup>1</sup>. Romagosa lab for their continuous support

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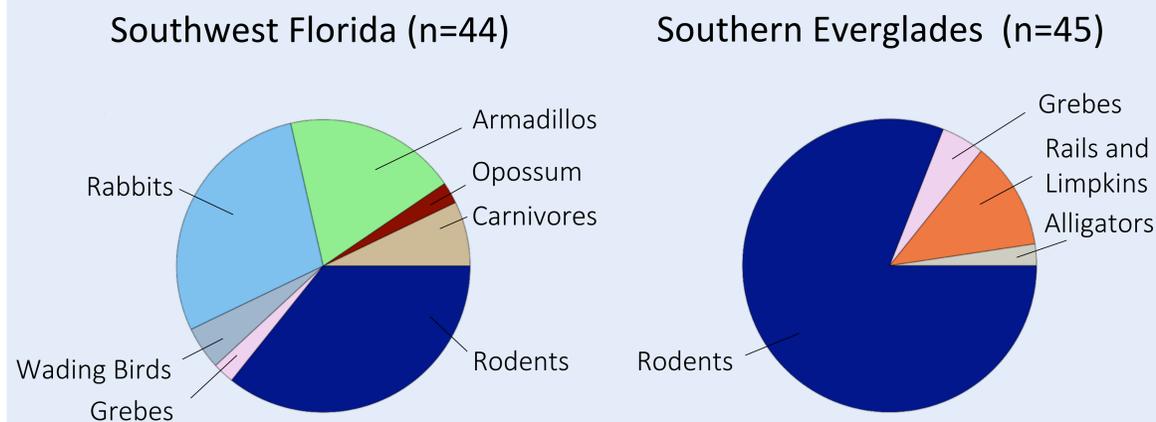
1) Dorcas, M. E., et al. (2012). Severe mammal declines coincide with proliferation of invasive Burmese pythons in Everglades National Park. *Proceedings of the National Academy of Sciences*, 109: 2418-2422.

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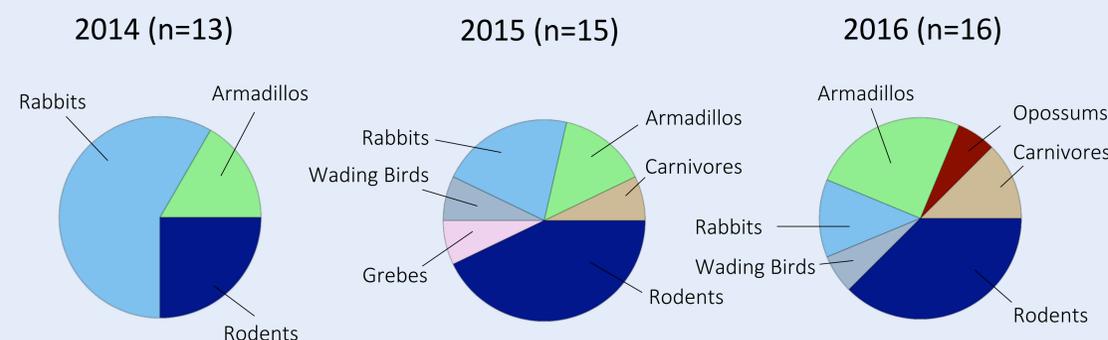
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## Results



**Figure 3.** Prey composition of python diet from both Southwest Florida and Southern Everglades region for 2014-2016. Figure 1 gives a reference map for these regions.

## Southwest Florida



**Figure 4.** Prey composition of python diet from Southwest Florida region, samples by year.