

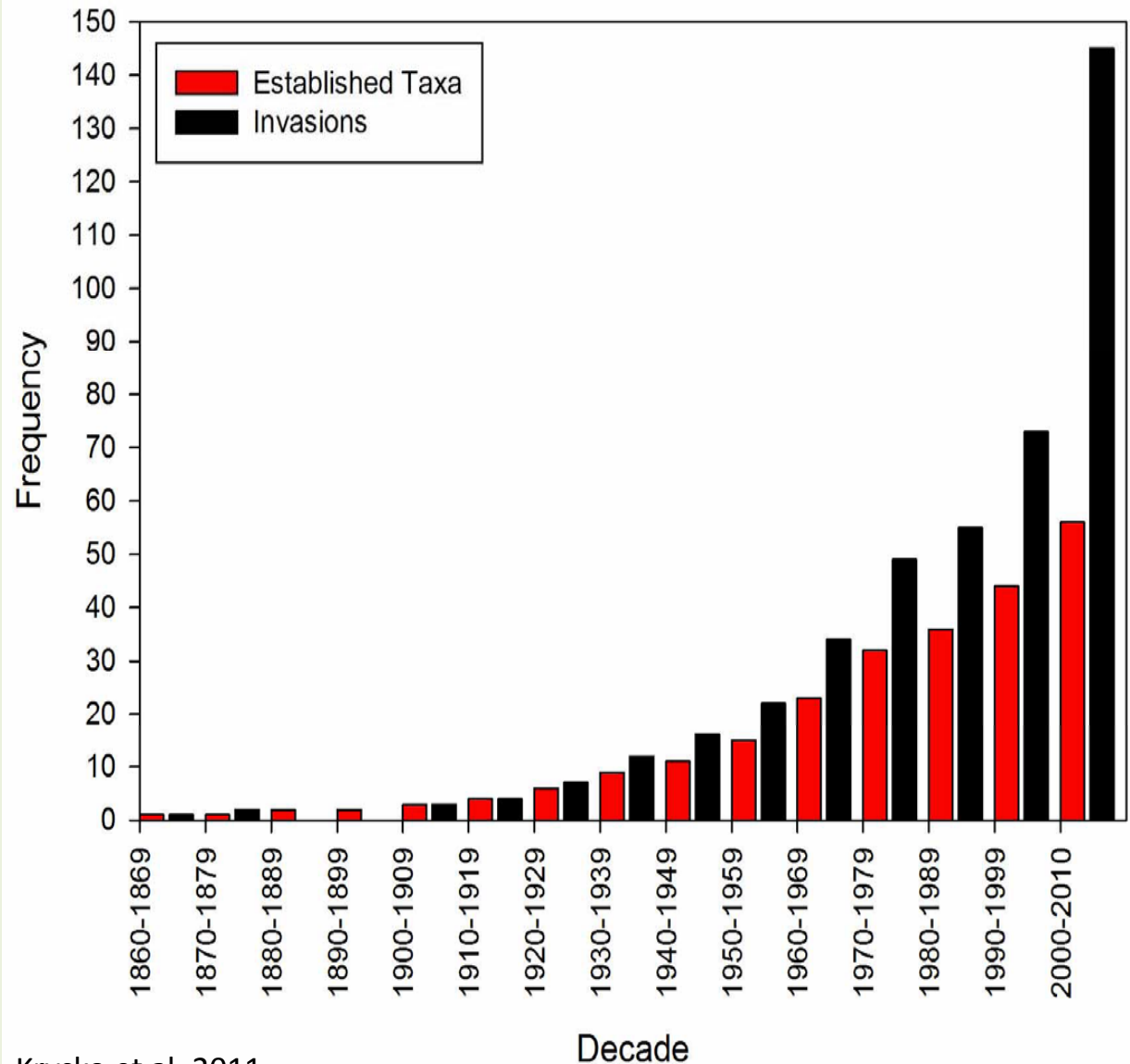
# Everglades Invasive Reptile and Amphibian Monitoring Program (EIRAMP)

Michael R. Rochford and Frank J. Mazzotti



# Introduction

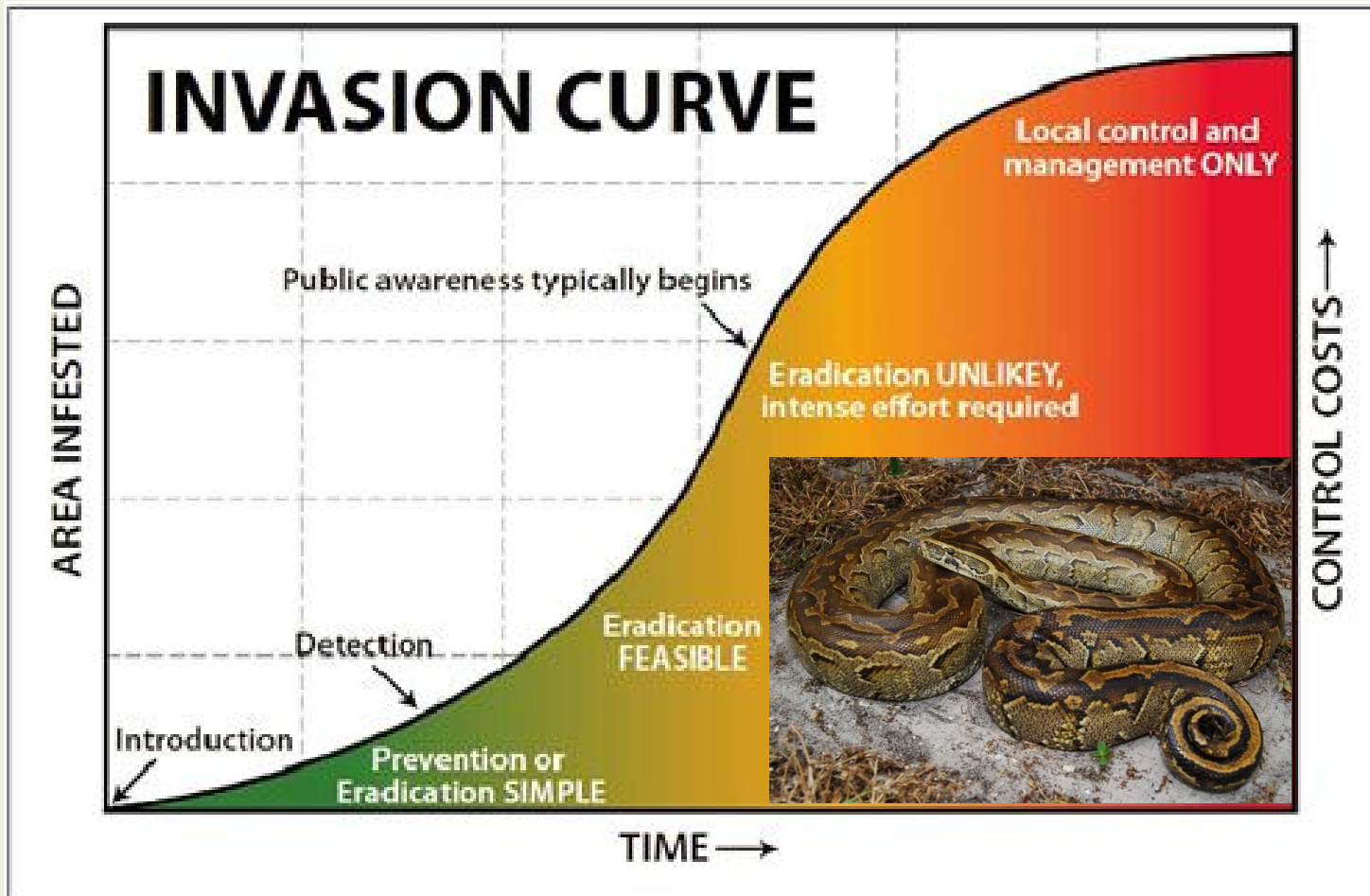
- Southern Florida vulnerable
  - Climate, ports, reptile dealers
- # introduced species ↑



Krysko et al. 2011.

# Introduction

- **Early Detection & Rapid Response (EDRR)**
  - Efficient, cost effective, most successful
- **EIRAMP - EDRR & Monitoring**





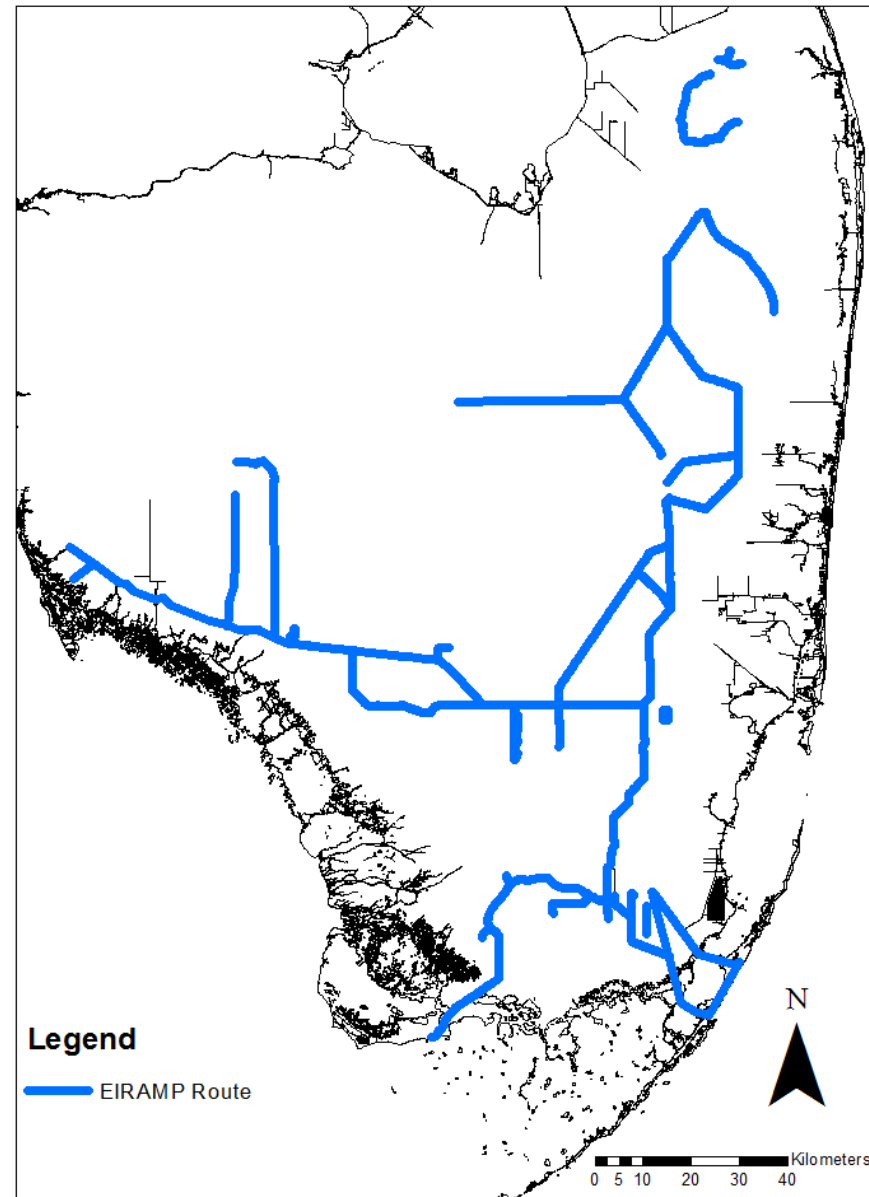
# Objectives of EIRAMP

- EDRR
  - Individual introductions
  - New populations
    - New species
    - Old species in new locations
- **Monitor status & distribution of nonnative and native reptiles, amphibians, and mammals**
  - Where? When? Frequency?
- **Determine impact**
  - Native species ↓ when nonnatives ↑?
- Synthesize in an adaptive management framework

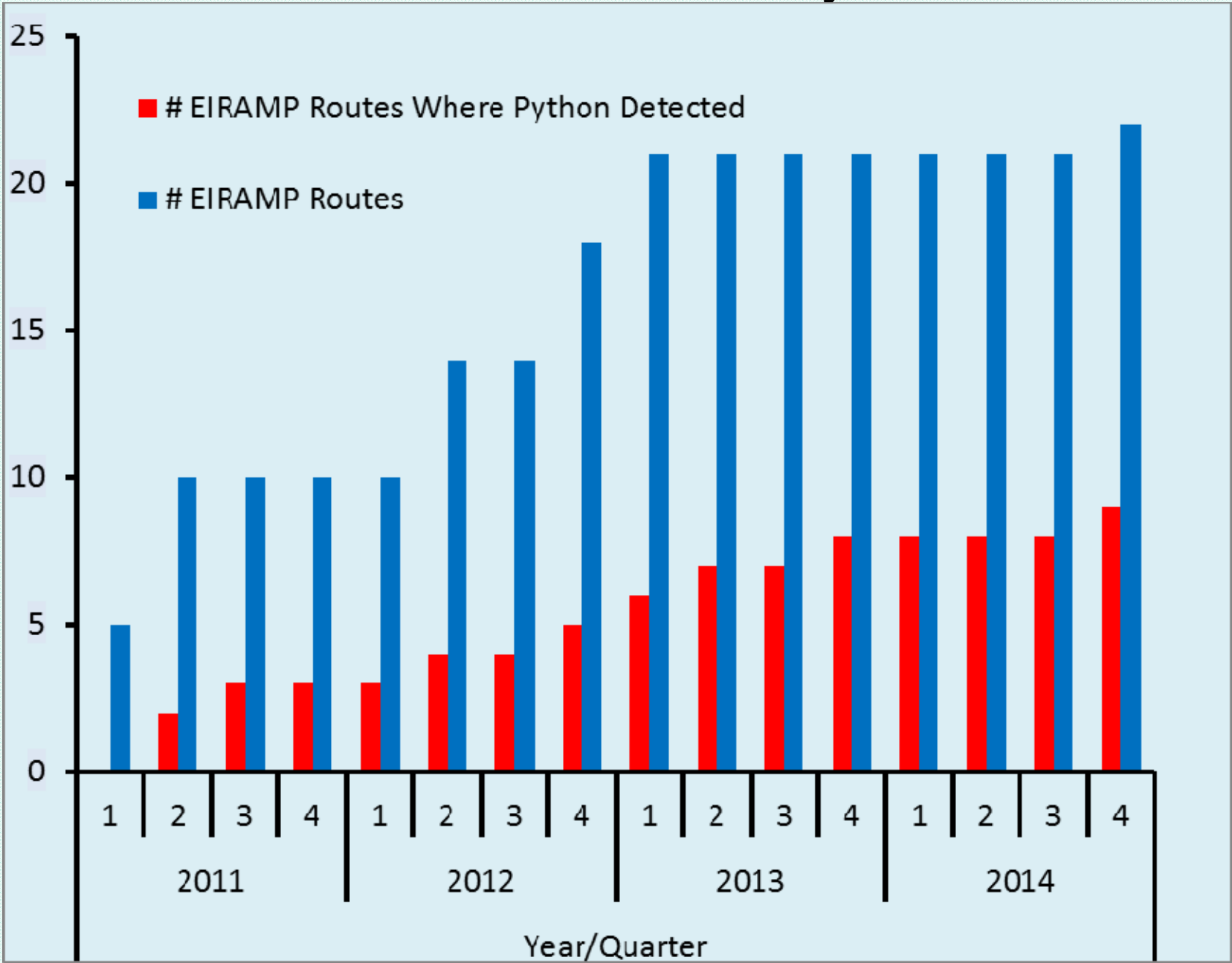


# Methods

- Road Cruise Surveys
  - Originally for large constrictors
  - Auditory Surveys
  - Visual Encounter Surveys
- Record GPS position and tracks
  - Effort/encounter rate
- Calculate Encounter Rates
  - Examples: pythons/km or pythons/hr

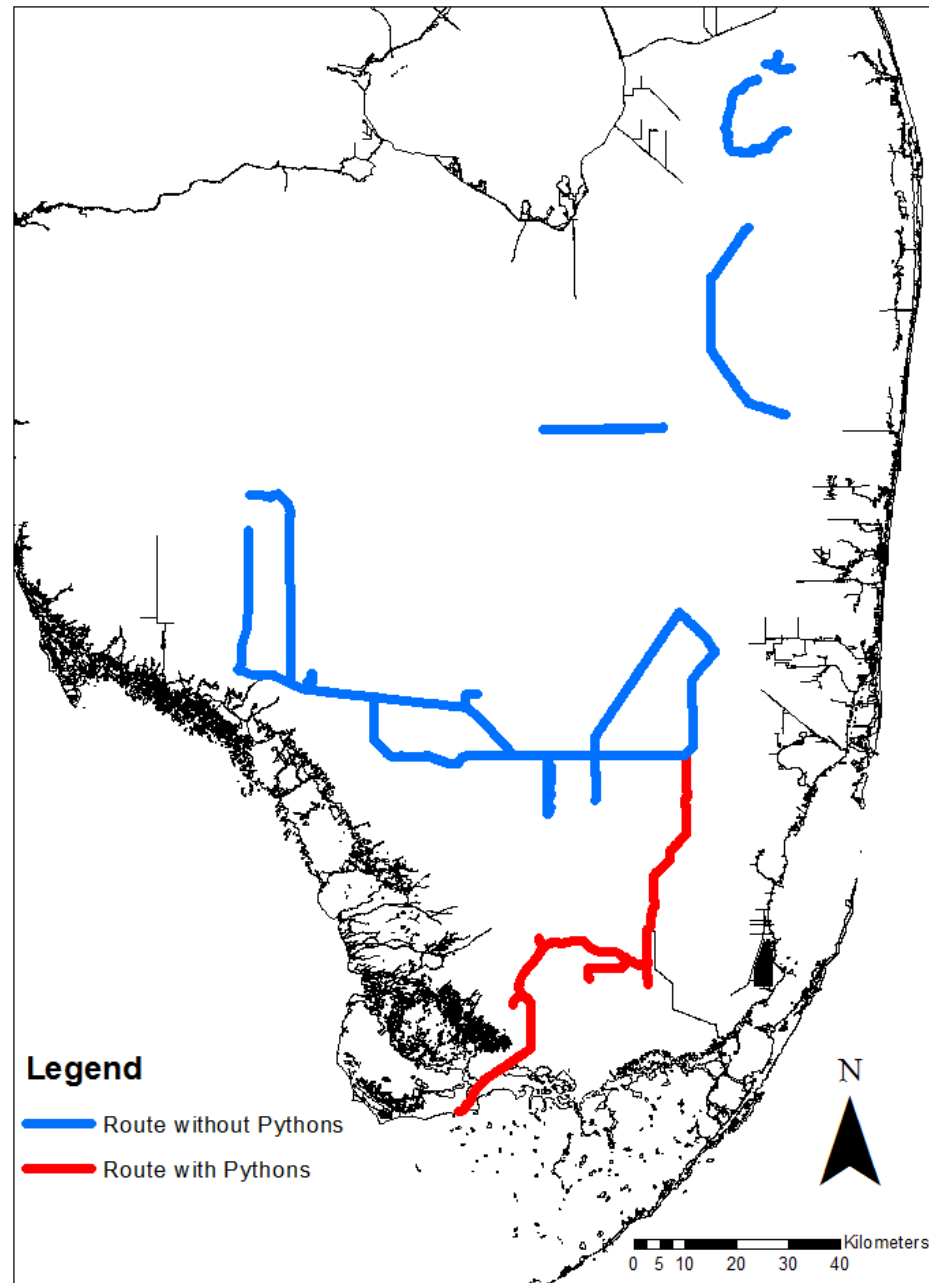


# EIRAMP Routes with Pythons



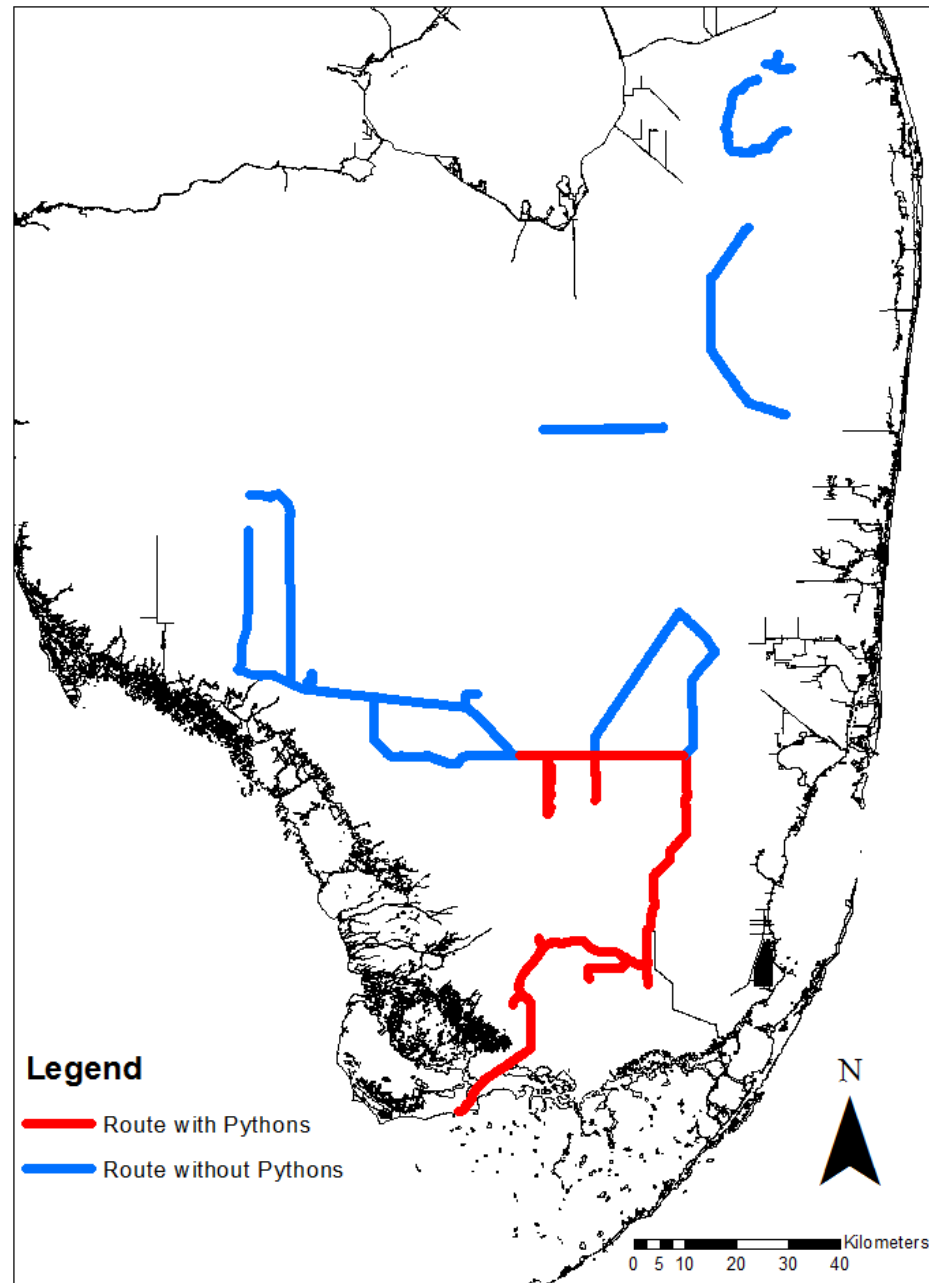


2011  
Q 2



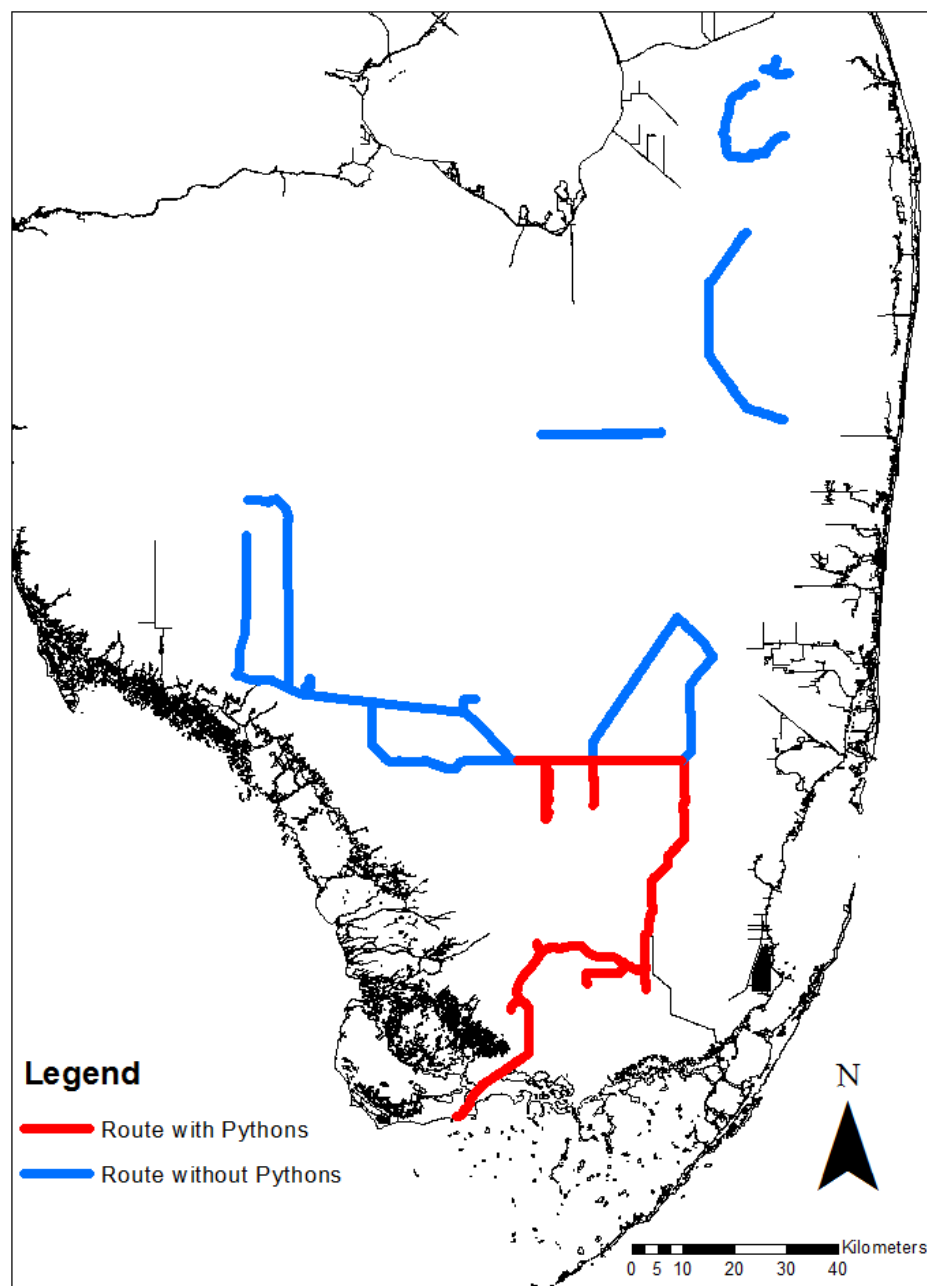


2011  
Q 3

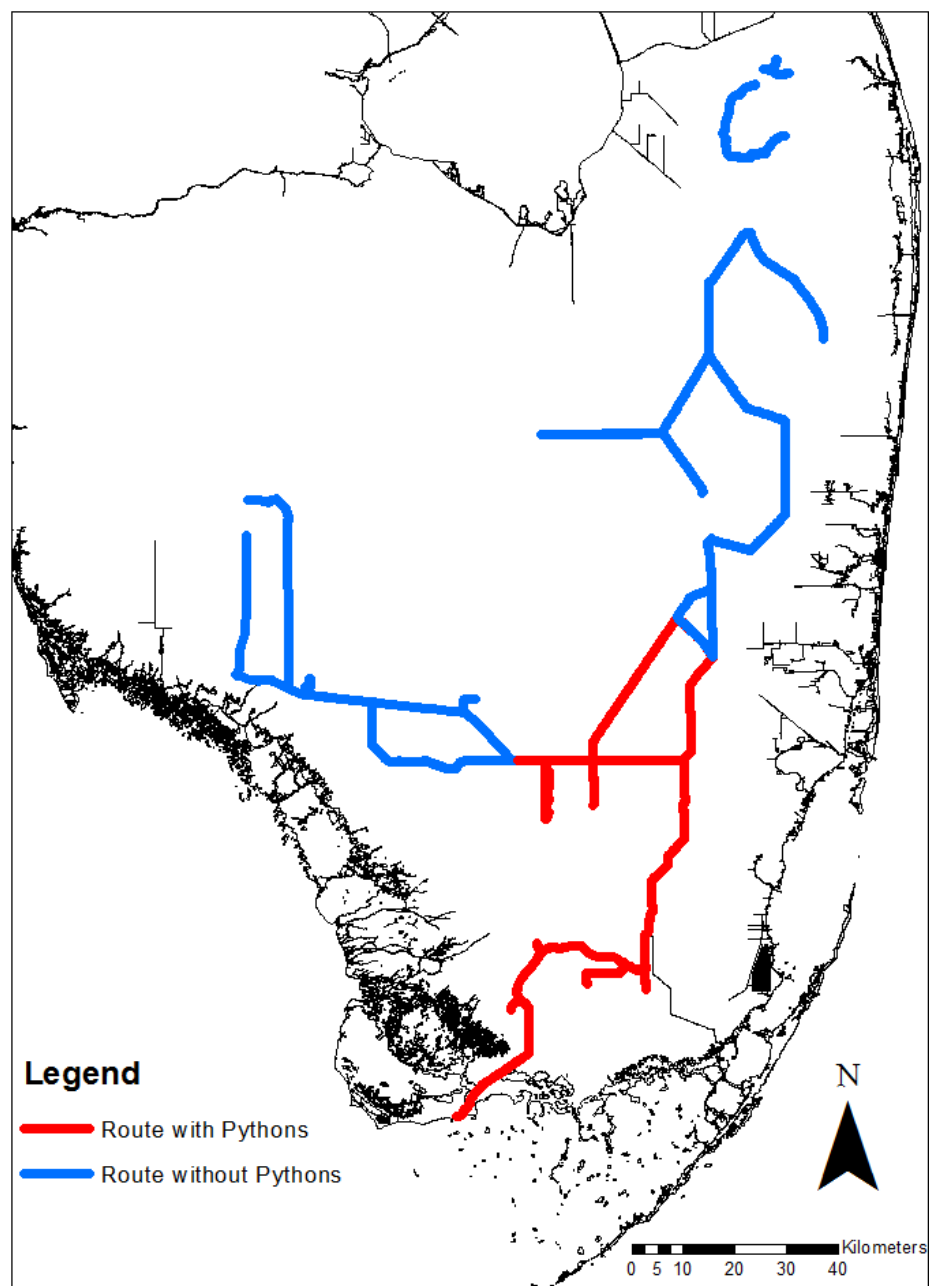




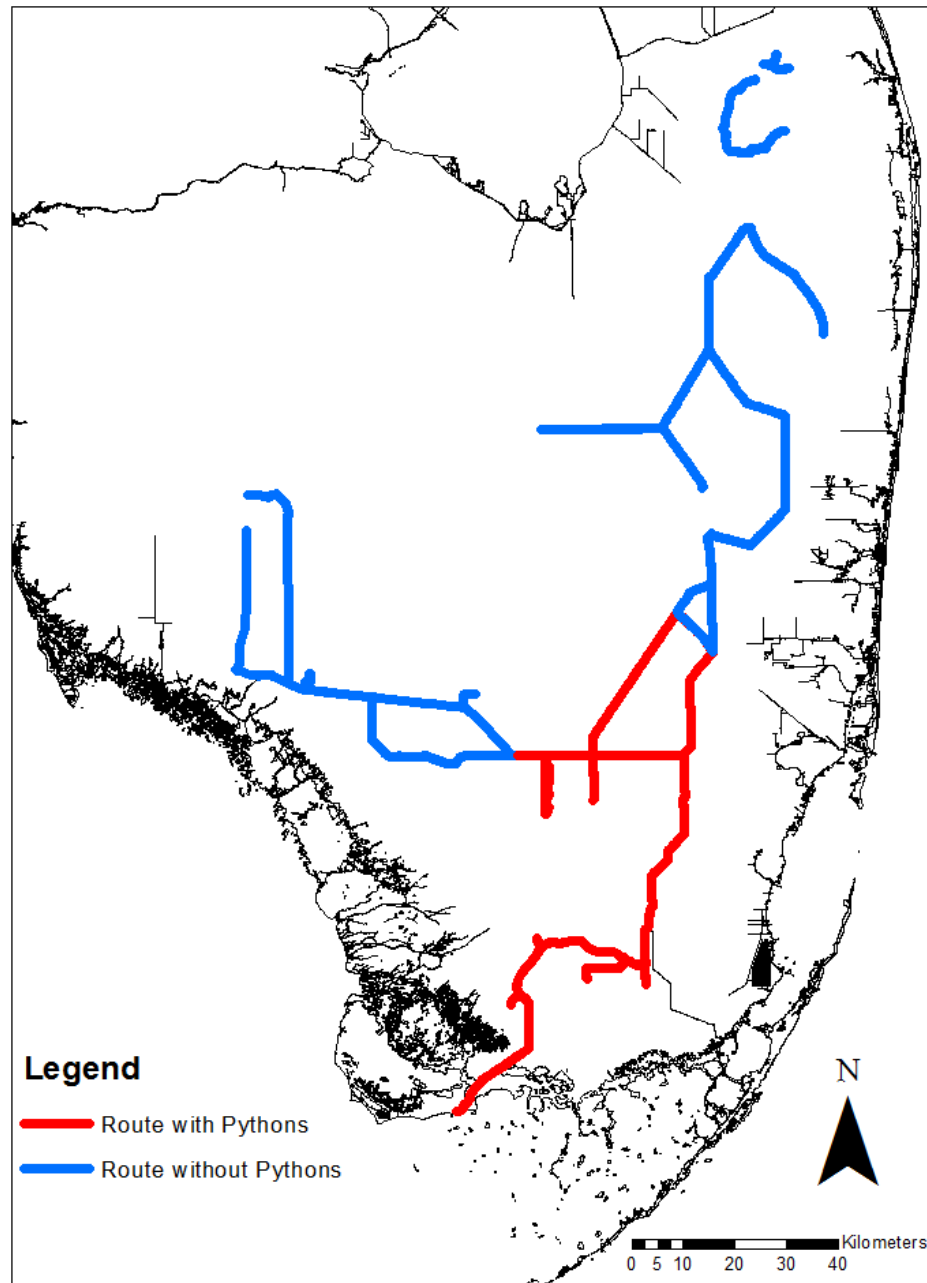
2012  
Q 1



2012  
Q 2

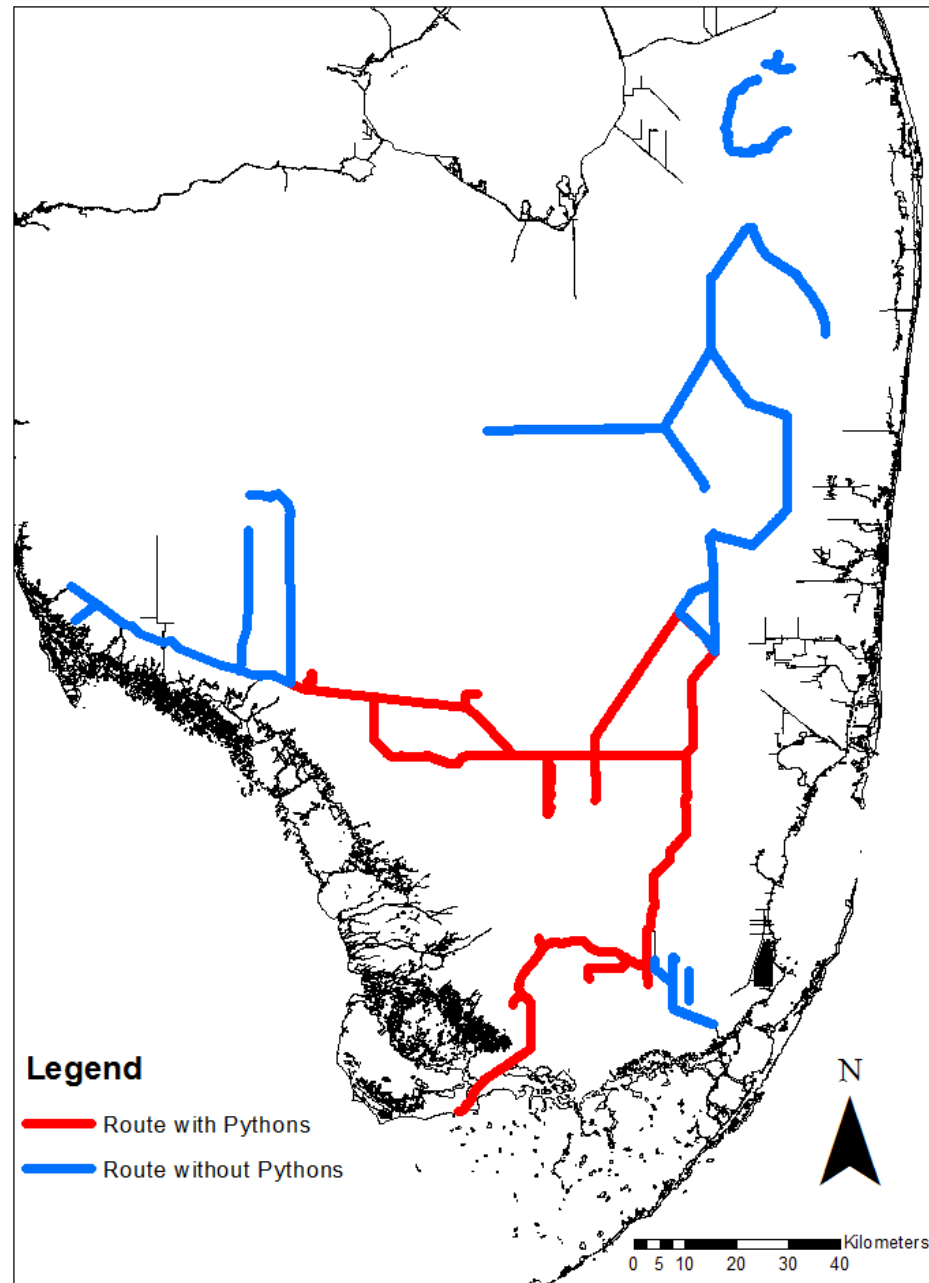


2012  
Q 3

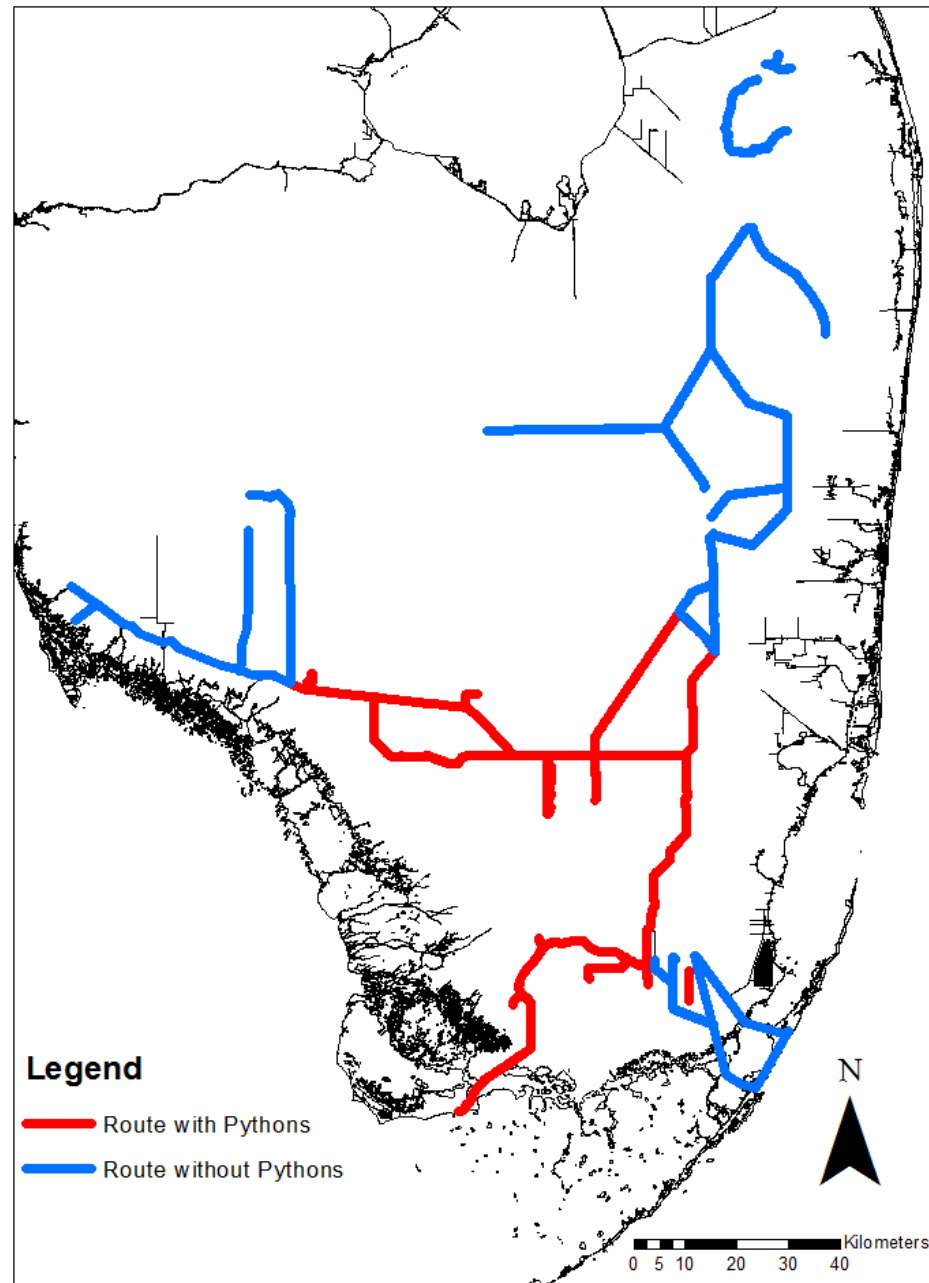




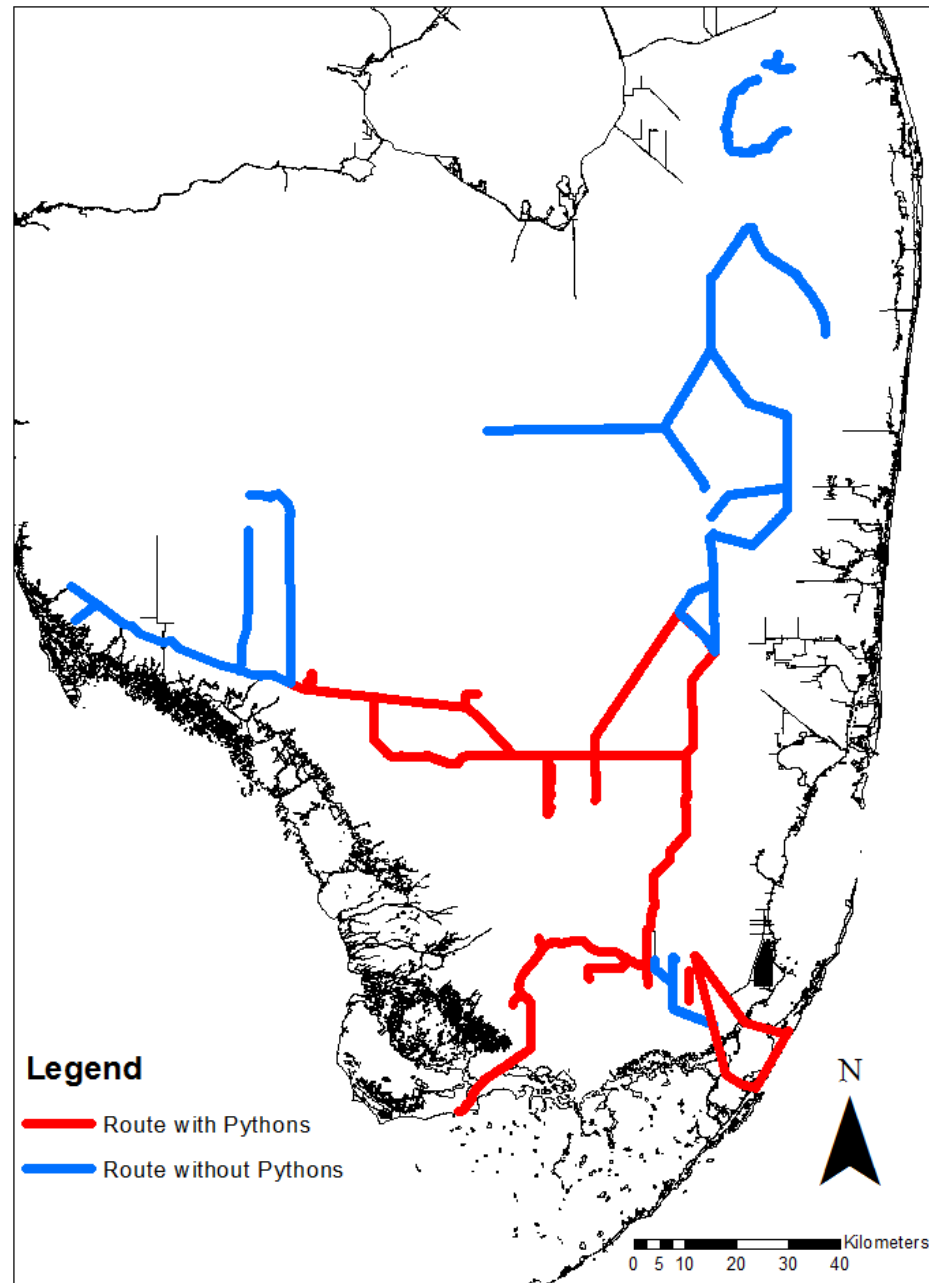
2012  
Q 4



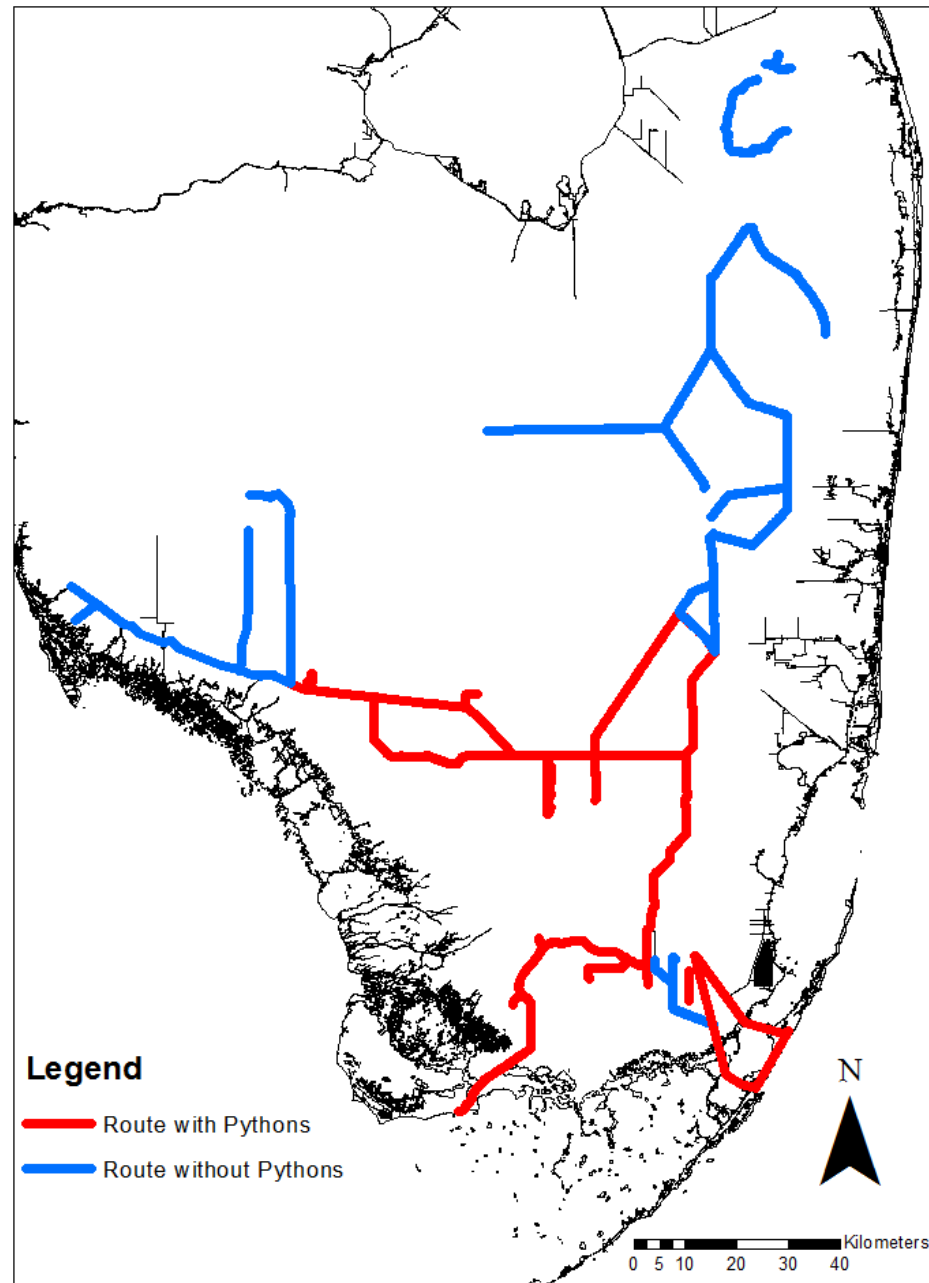
2013  
Q 1



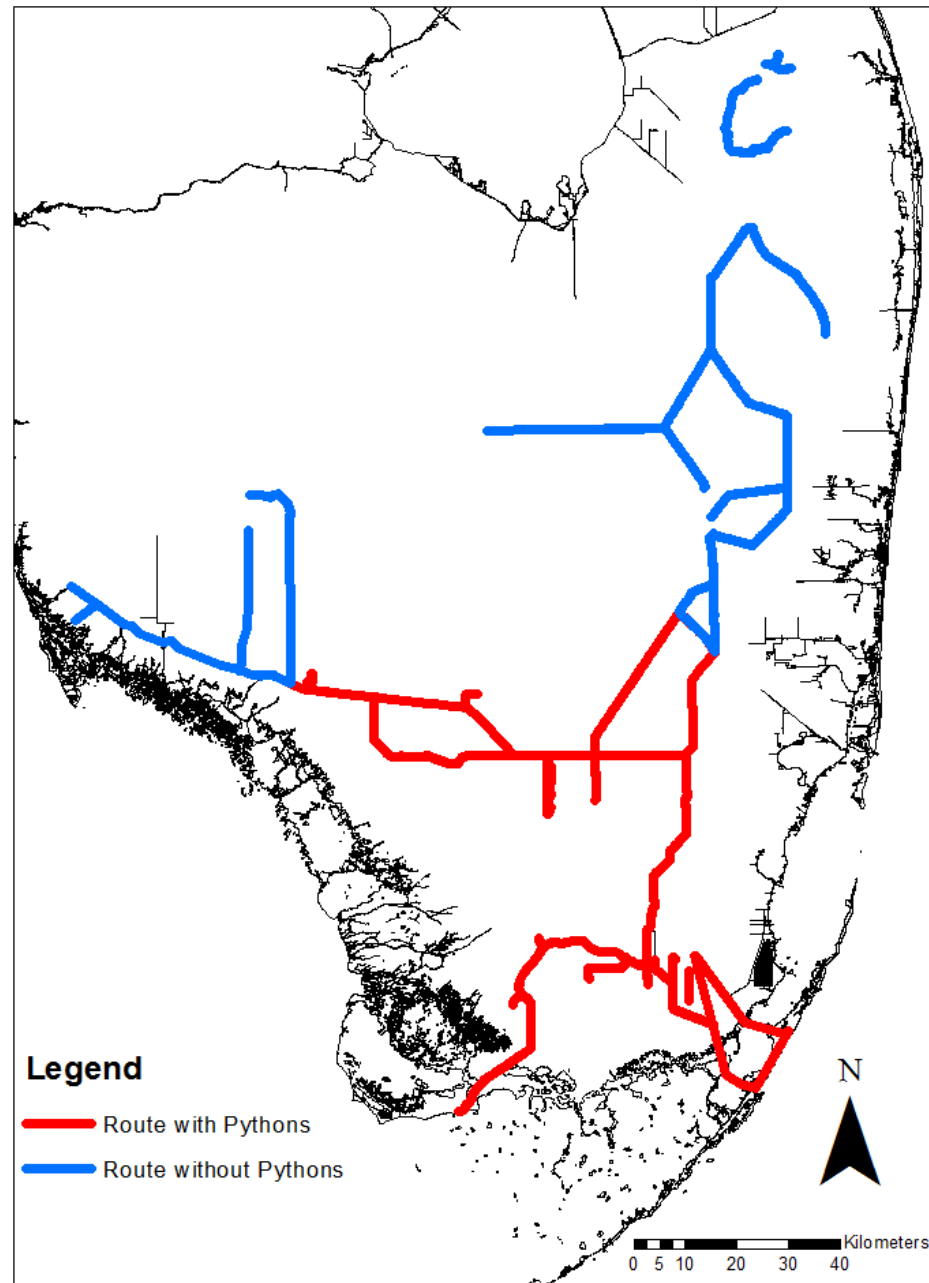
2013  
Q 2



2013  
Q 3

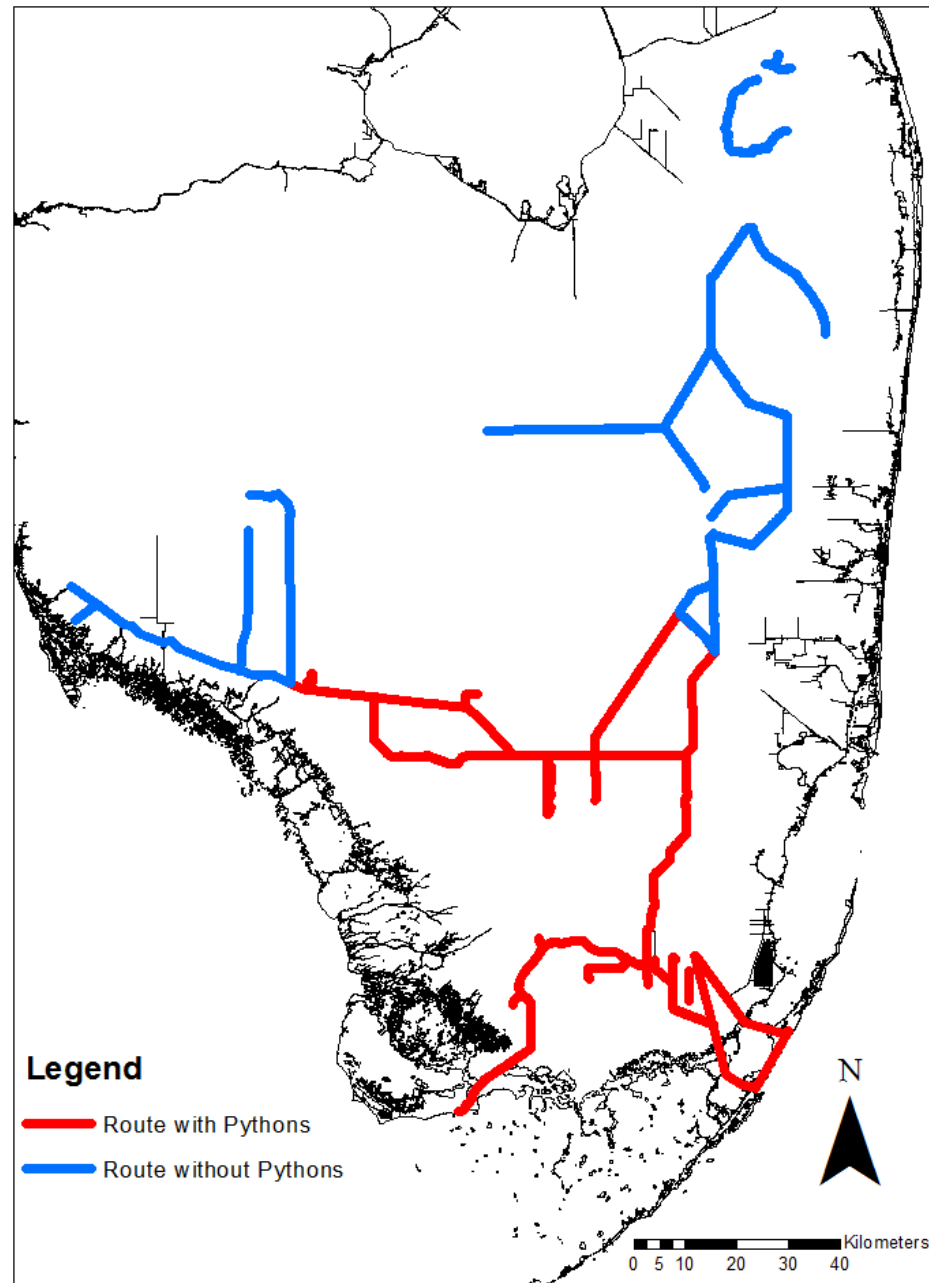


2013  
Q 4

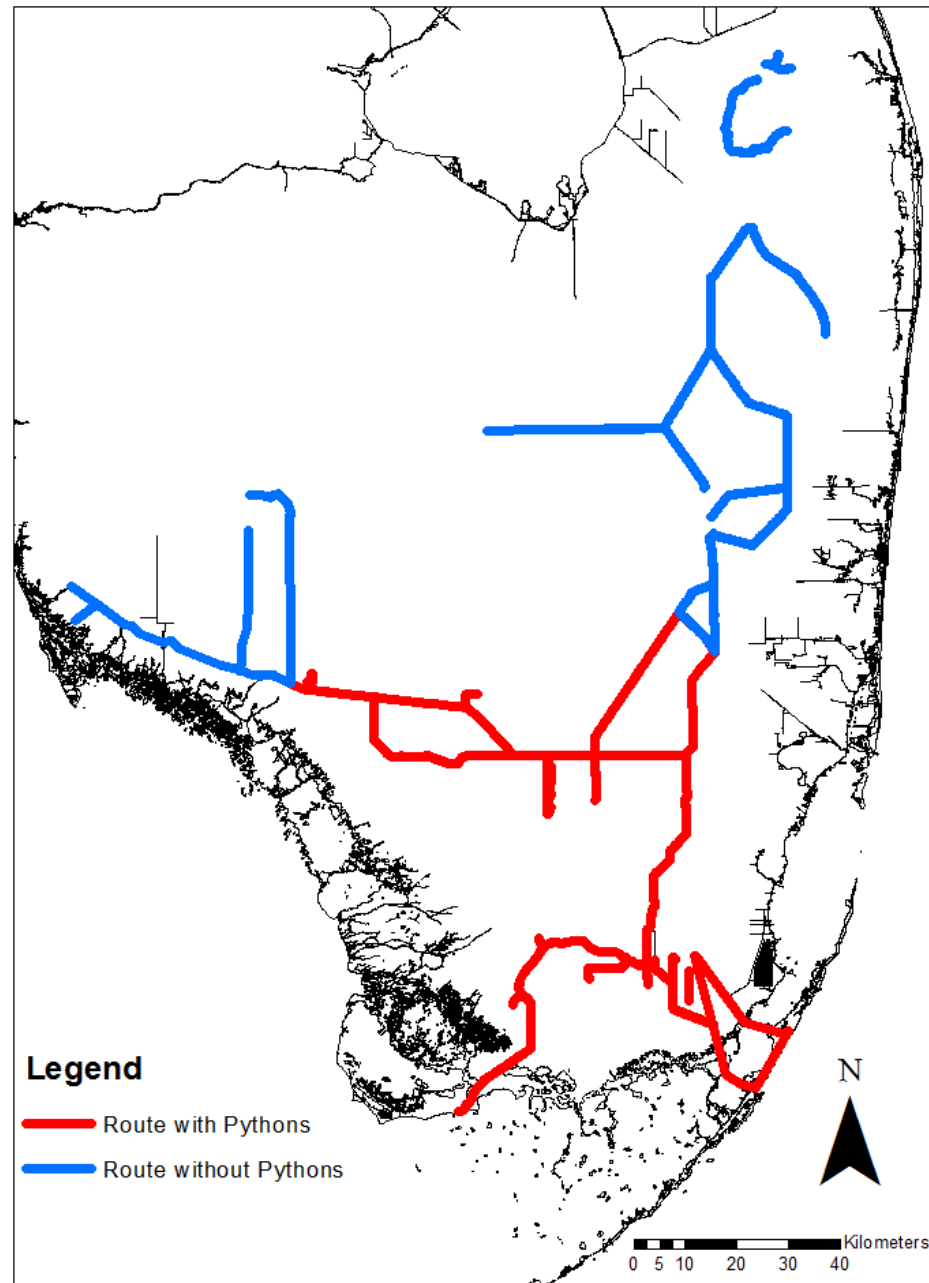




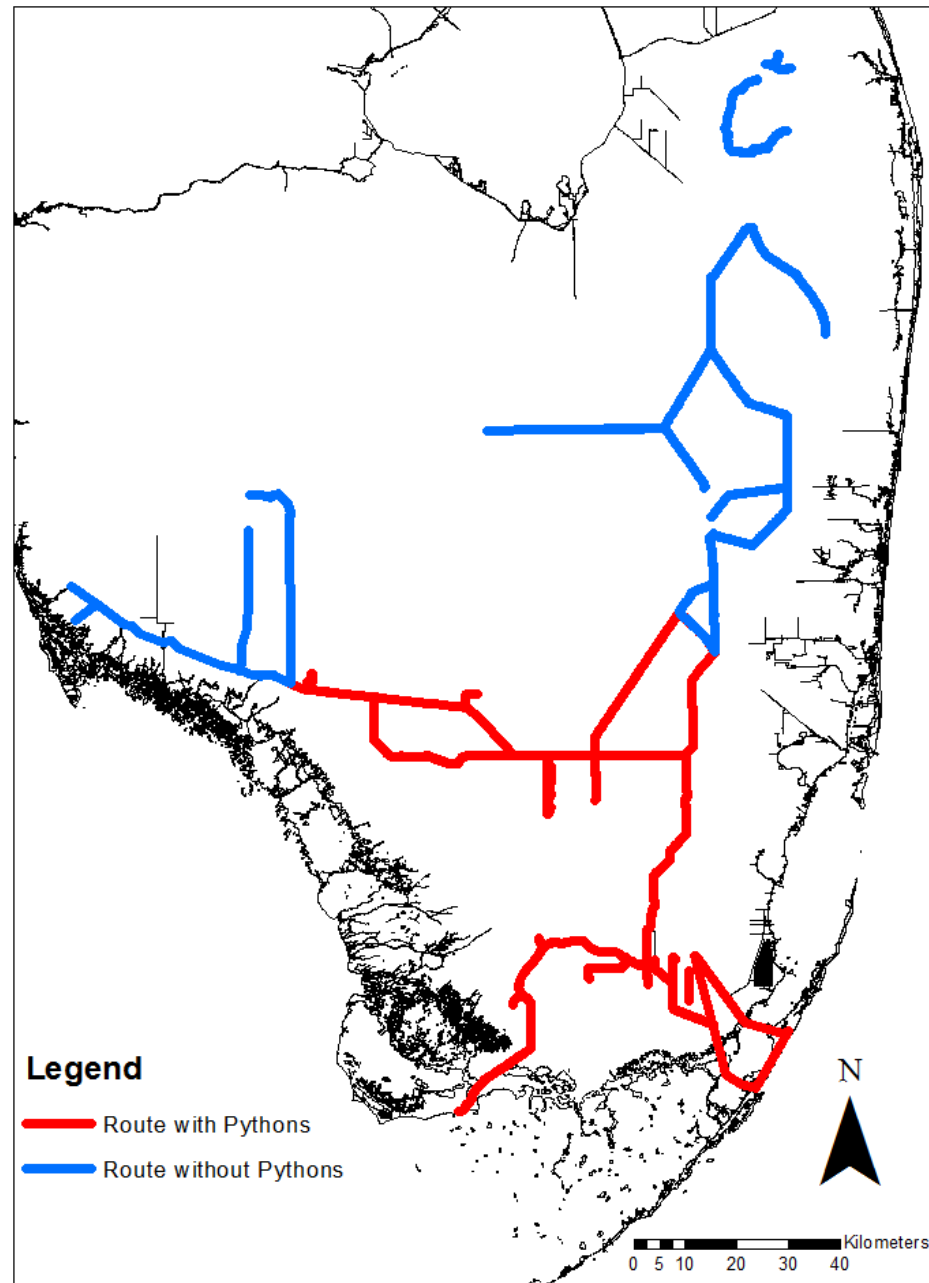
2014  
Q 1



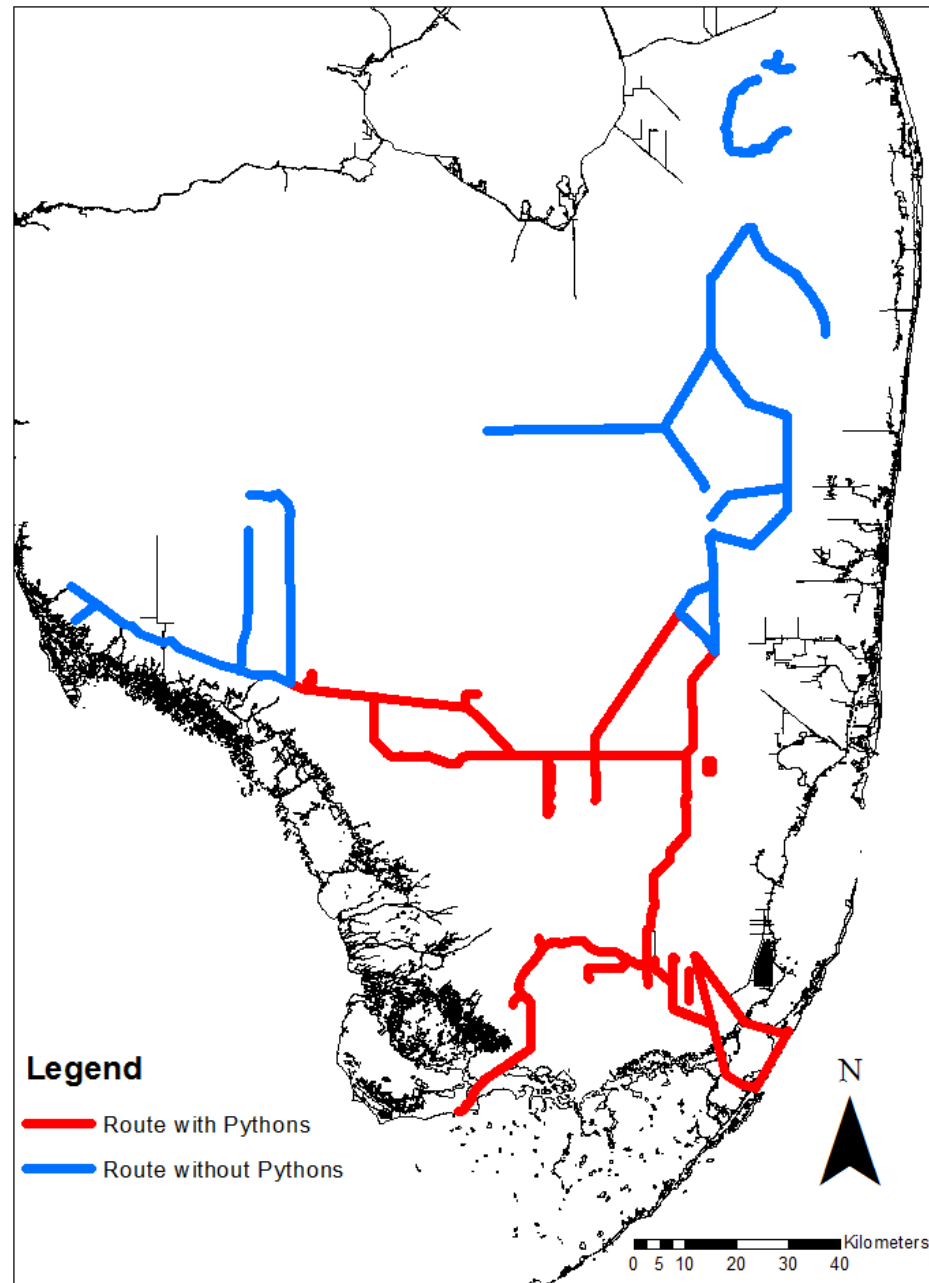
2014  
Q 2



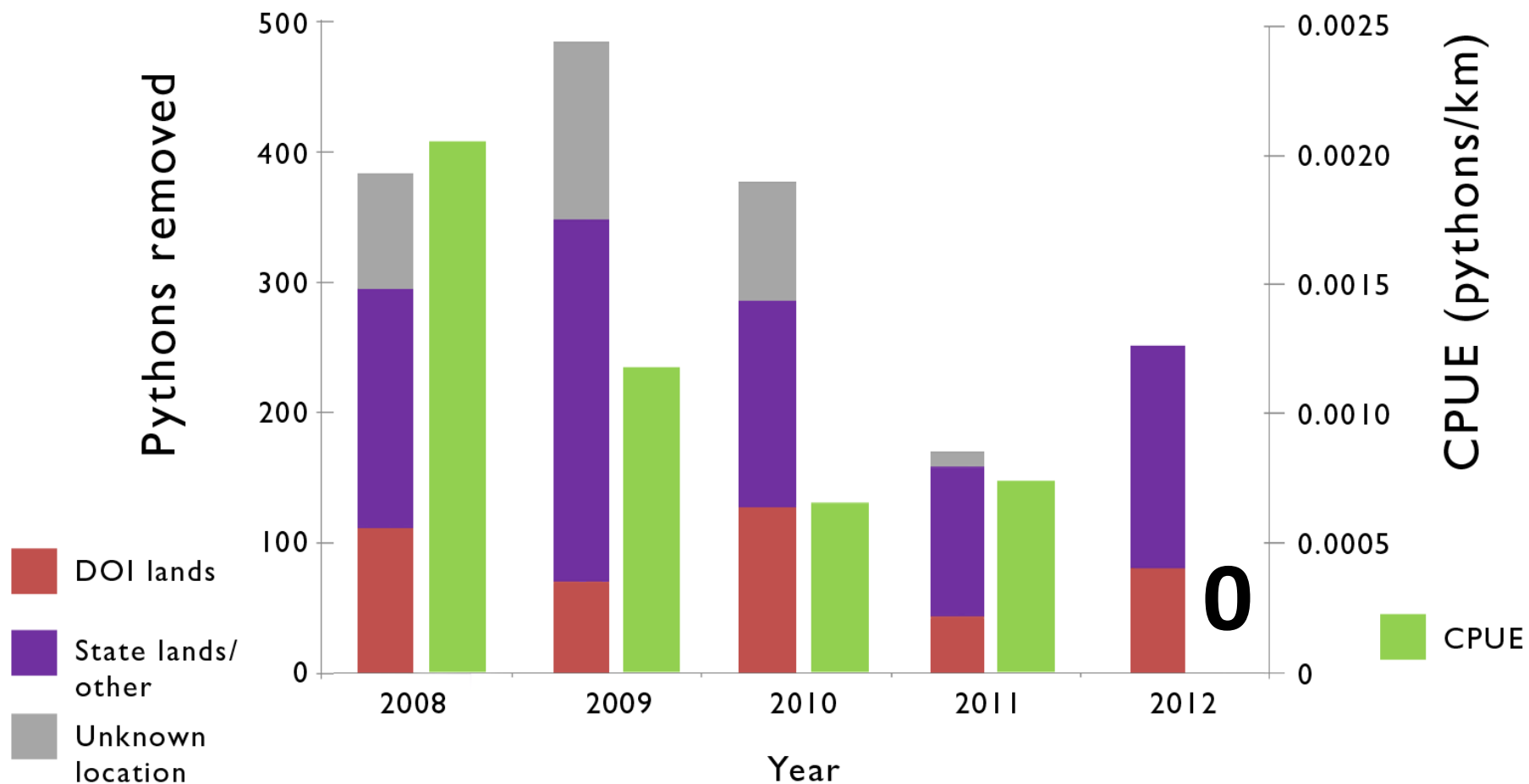
2014  
Q 3



2014  
Q 4



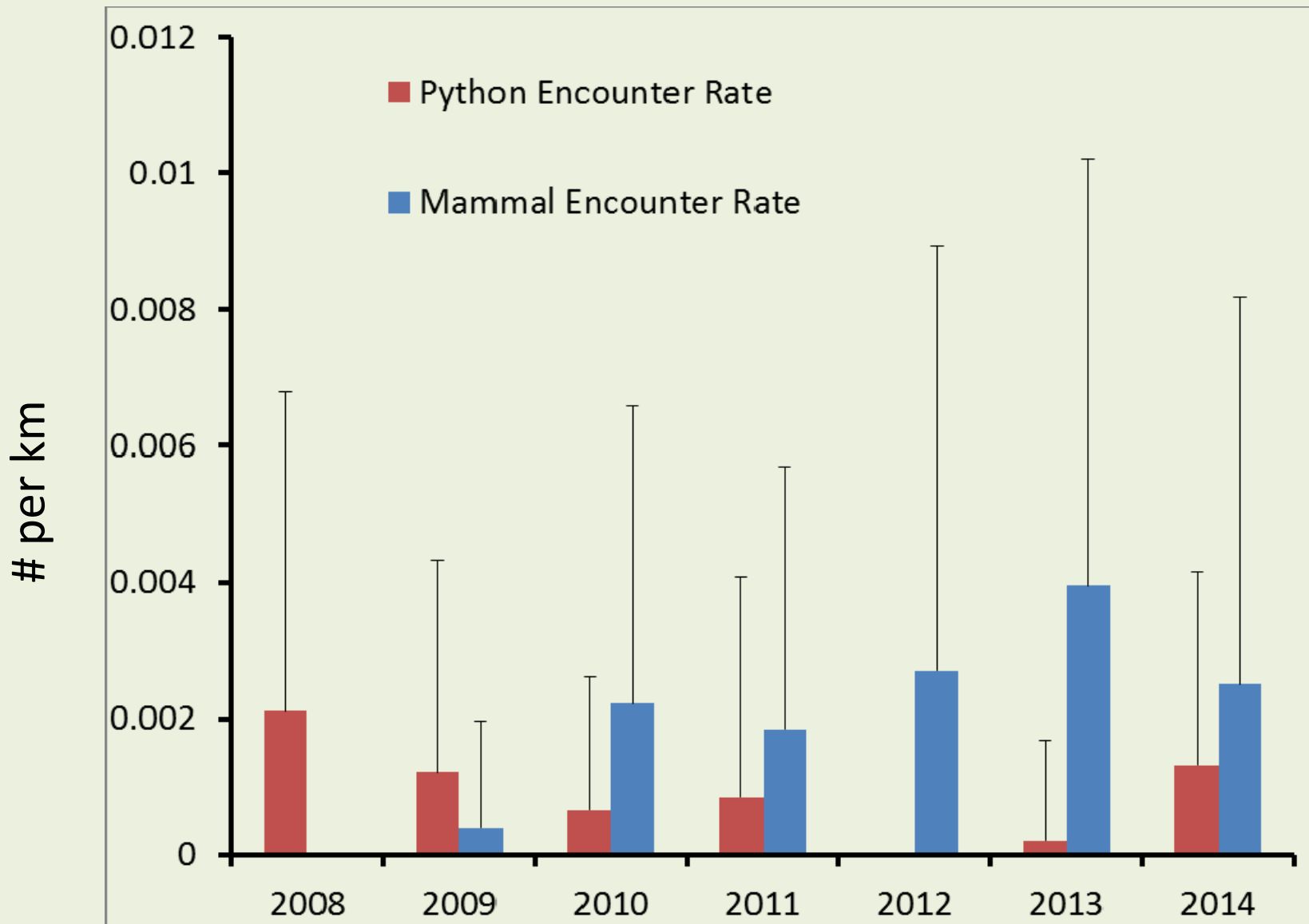
## PYTHONS REMOVED AND CATCH PER UNIT EFFORT





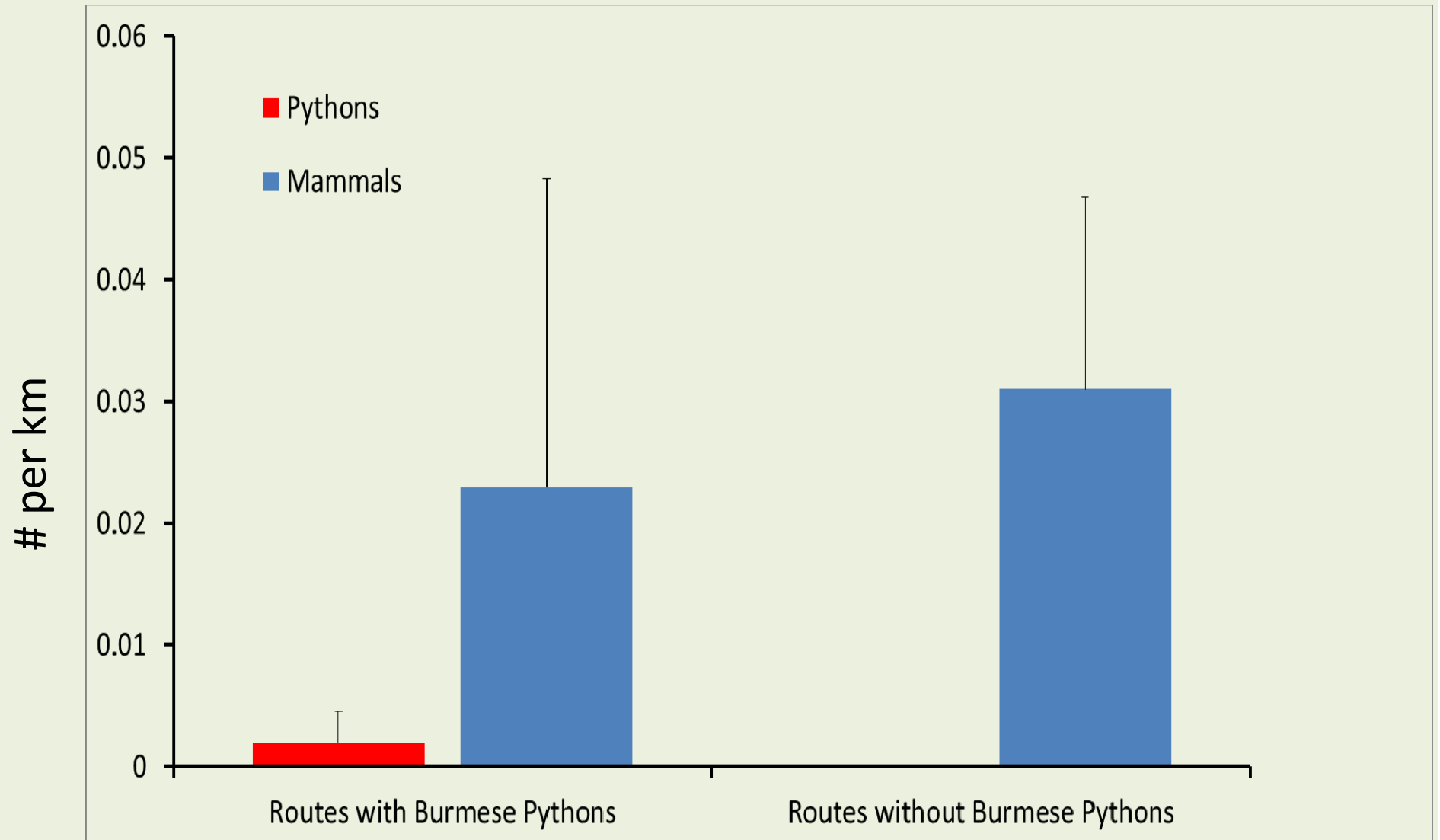
# Results

All mammals vs. pythons (ENP Main Park Road Only)

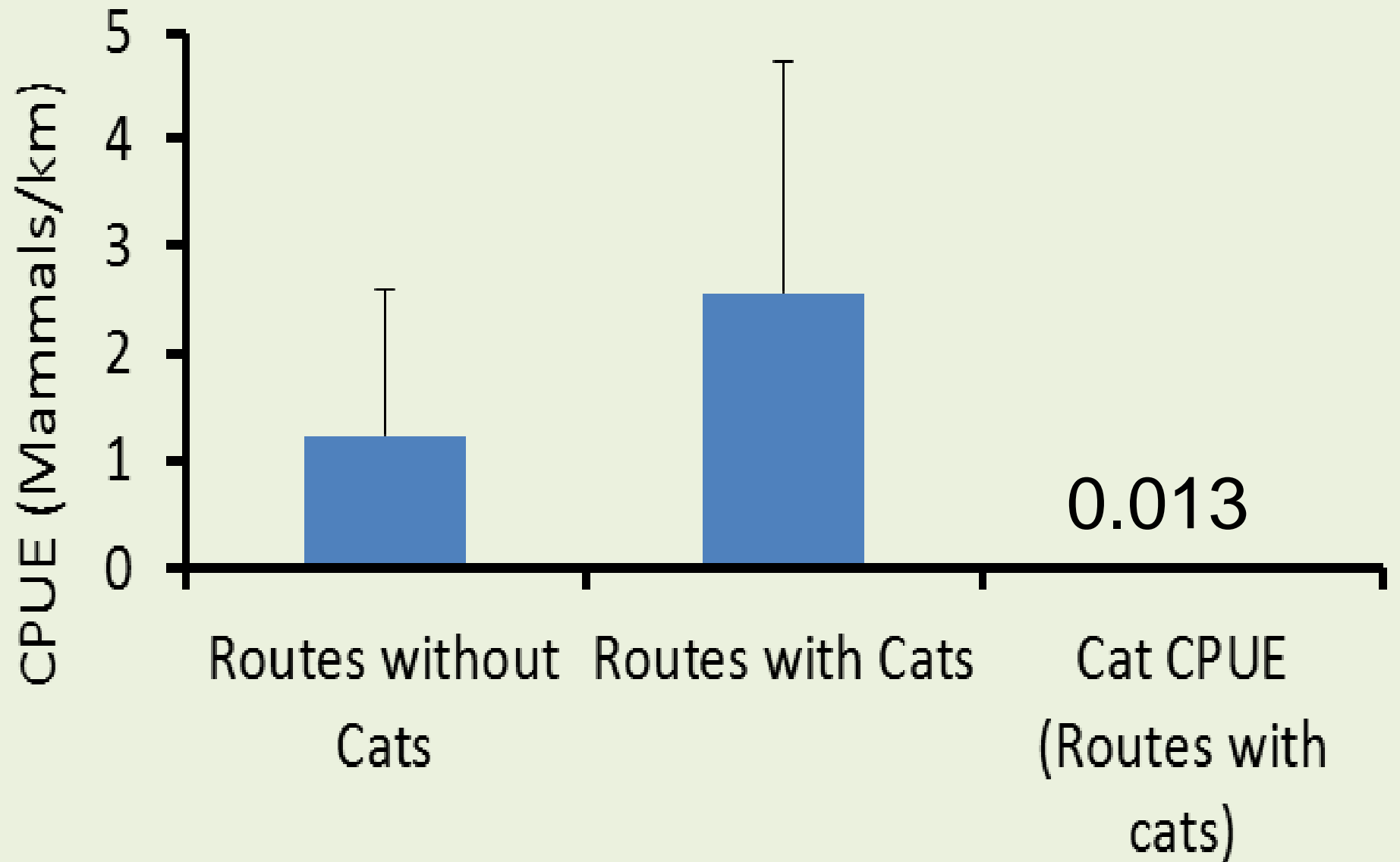


# Results

## Encounter Rates (All EIRAMP Routes)



# Mammal CPUE on EIRAMP routes

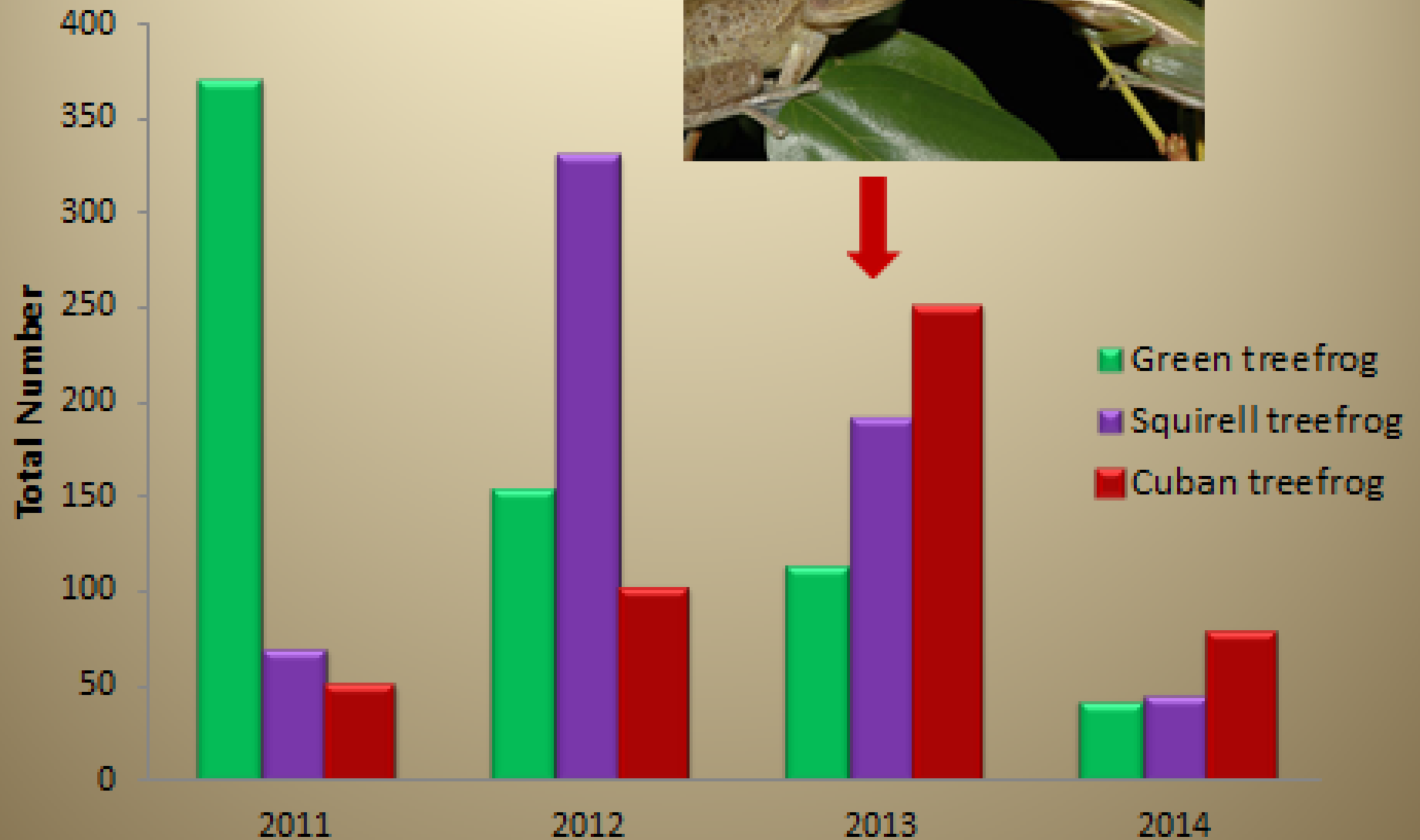
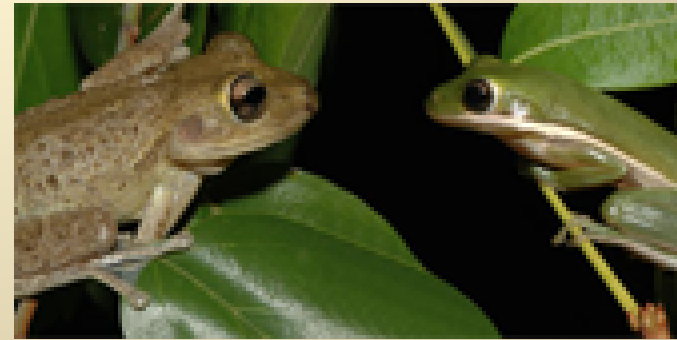


# Amphibians

- Start, end, & checkpoints
  - Auditory survey
  - Visual encounter survey



# Effects of Cuban treefrogs on Native treefrogs





# Summary

- We can monitor occurrence and spread of pythons
- We can assess impacts of nonnative species
  - Pythons and mammals
  - Cats and mammals
  - Amphibians
- Future...
  - Continue surveys
  - New species
  - New locations
  - Better job estimating probability of detection



# Acknowledgements

- South Florida Water Management District
  - LeRoy Rodgers, Bobby Hill
- Florida Fish and Wildlife Conservation Commission
  - Jennifer Eckles, Jake Edwards
- University of Florida
  - Current and former staff

