



University of Puerto Rico  
Mayaguez Campus  
Biology Department



Preliminary data on movements and macrohabitat  
use of the invasive snake (*Boa constrictor*)  
in Puerto Rico

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# *Boa constrictor*

- Family: Boidae
- 9 subspecies
- Sexual dimorphism
- Grow up to 13 feet
- Sexual maturity: 1.5 m
- Neonates: 24-60

(Reed & Rodda 2009)



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# Distribution

Neotropics:

South-western  
Mexico

Central America

South America

Adjacent Islands



# Recently seen ...



# Invasive species

“ Animals, plants or other organisms introduced by man into places out of their natural range of distribution, where they become established and disperse, generating a negative impact on the local ecosystem and species.”  
(Invasive Species Specialist Group)



# How they got to the island?

Published data suggests that the population of the *B. constrictor* in the island of Puerto Rico have genetics of individuals used in zoos, captivity or used for breeding (Reynolds et.al 2013).



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# *Boa constrictor* in Puerto Rico



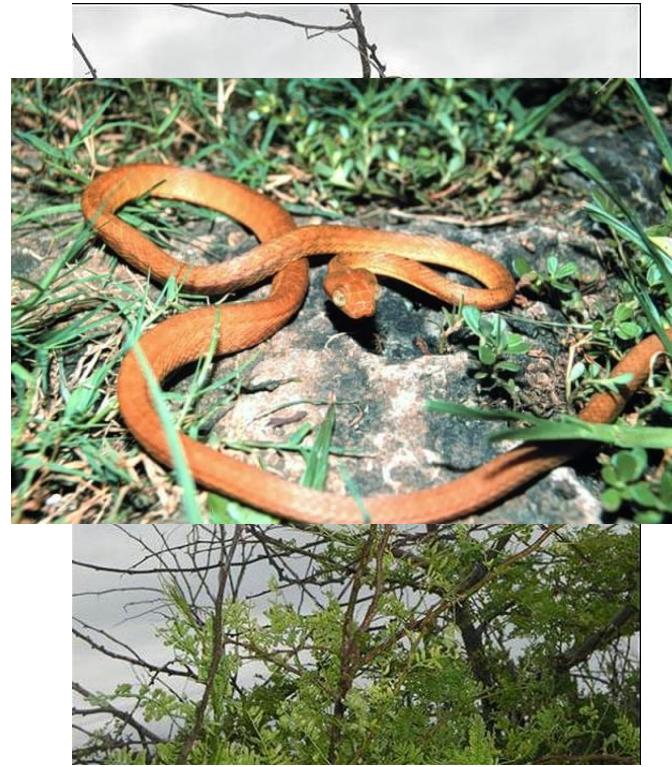
Mayaguez  
Hormigueros  
Cabo Rojo  
Añasco  
Aguada  
Lajas

Camuy  
Toa Alta  
Carolina  
Arecibo  
Barceloneta  
Aguadilla

San Germán  
Guánica  
Vaga Alta  
Las Marías  
Vega Baja  
Camuy

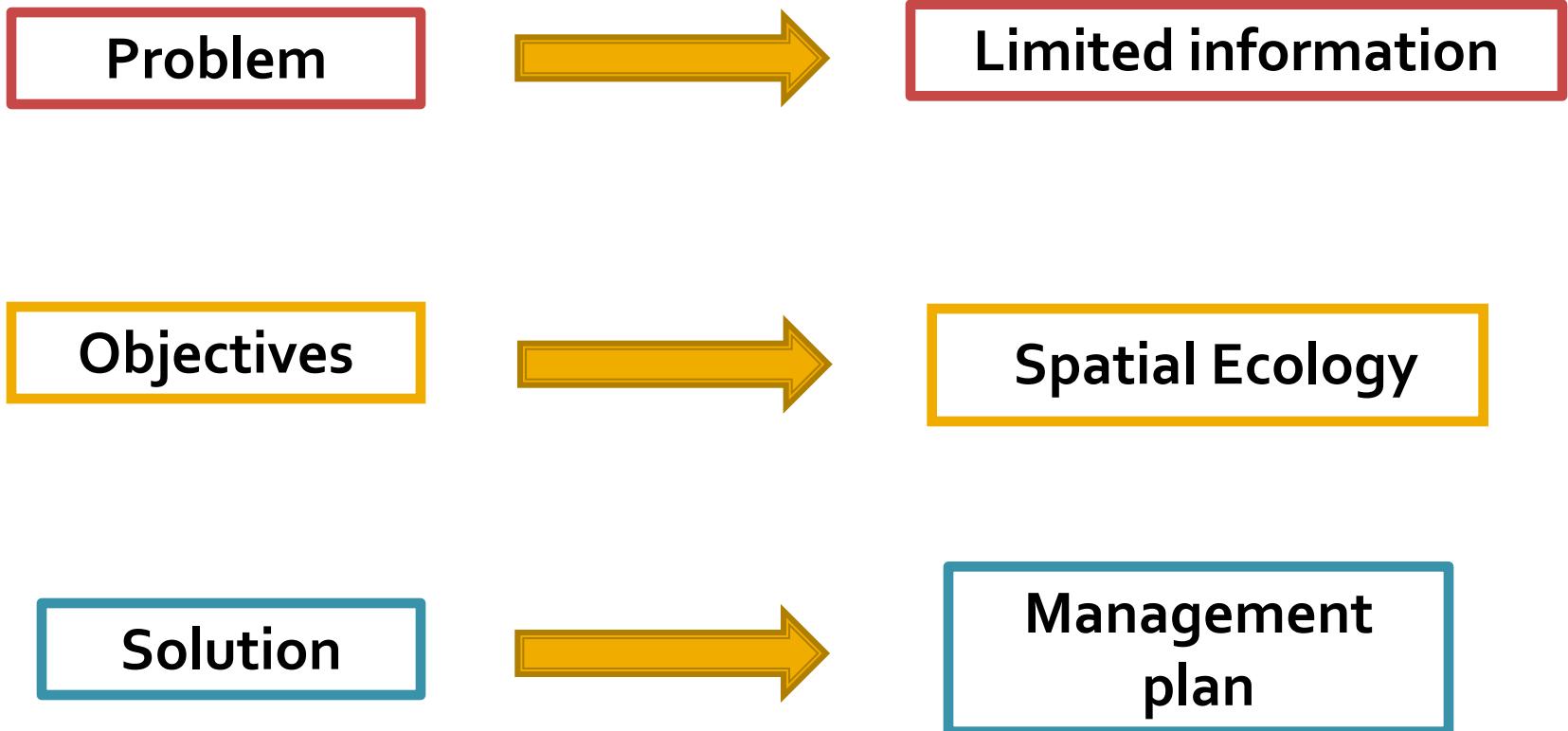
# Effects of Invasive snakes out of their natural distribution.

- *B.constrictor* in Cozumel
  - Population decline: native birds and mammals
- Effects of *B. constrictor* in Aruba
  - Population decline: birds
- Guam and the brown tree snake (*Boiga irregularis*)
  - Population declines on birds, mammals and lizards



# Concerns in Puerto Rico

- Competition among other species
  - Puerto Rican Boa (*Chilabothrus inornatus*)
- Loss of biodeversity
  - Diet
- Safety of people



# Study Area

Mayaguez, P.R.



# Materials and Methods

- Opportunistically captures
- Radio-tagged 6 boas
- Relocation: 48 hours
- GPS: coordinates
- July – September 2014



# Materials and Methods

- Image of the study area on false infrared
- ArcGIS 10
- Coordinates

## Distances measurements

- Total distance
- Daily distances
- Relocation distances

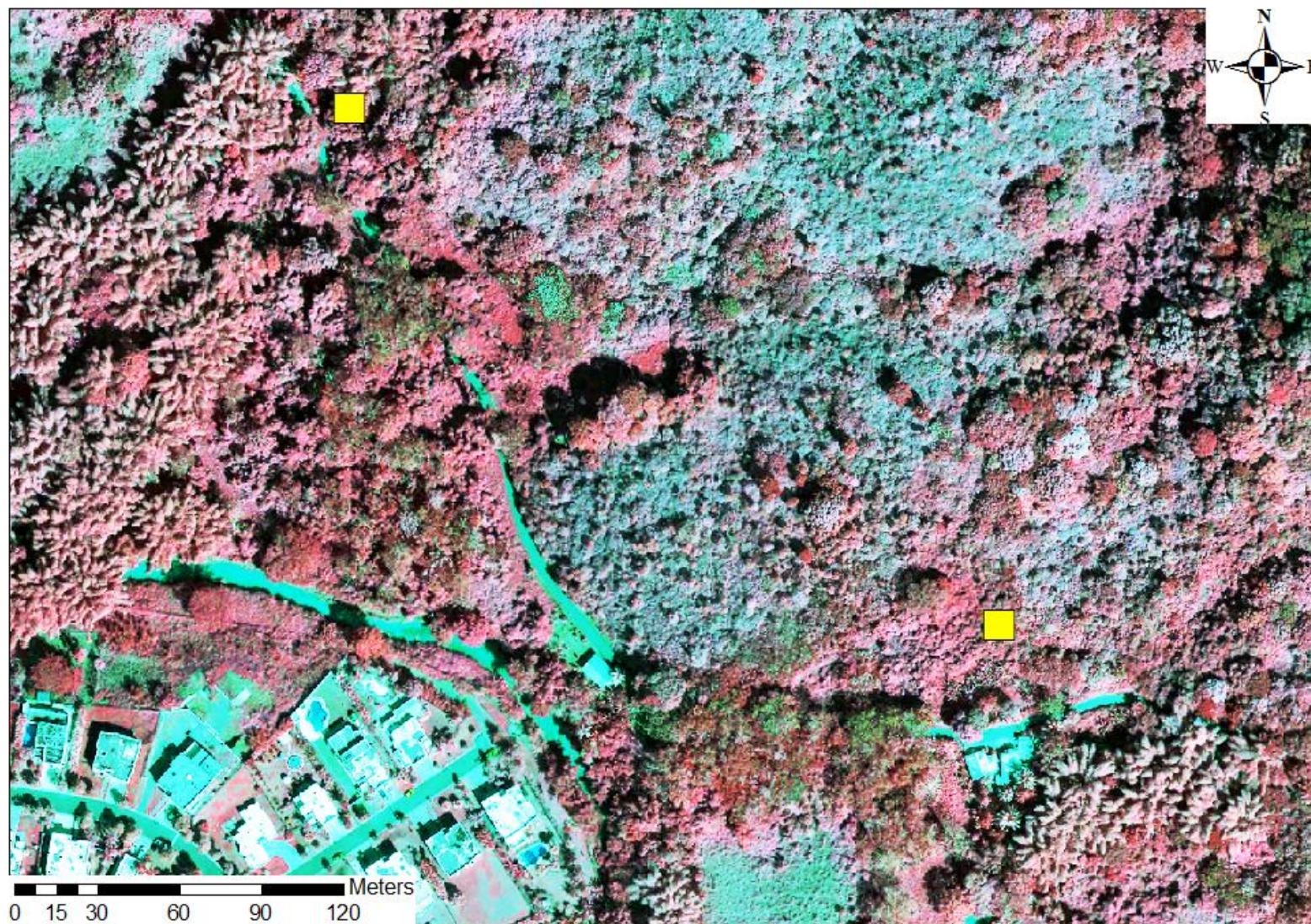
## Macrohabitat preferences

- Forest edge (15 m)
- Forest (> 15m)

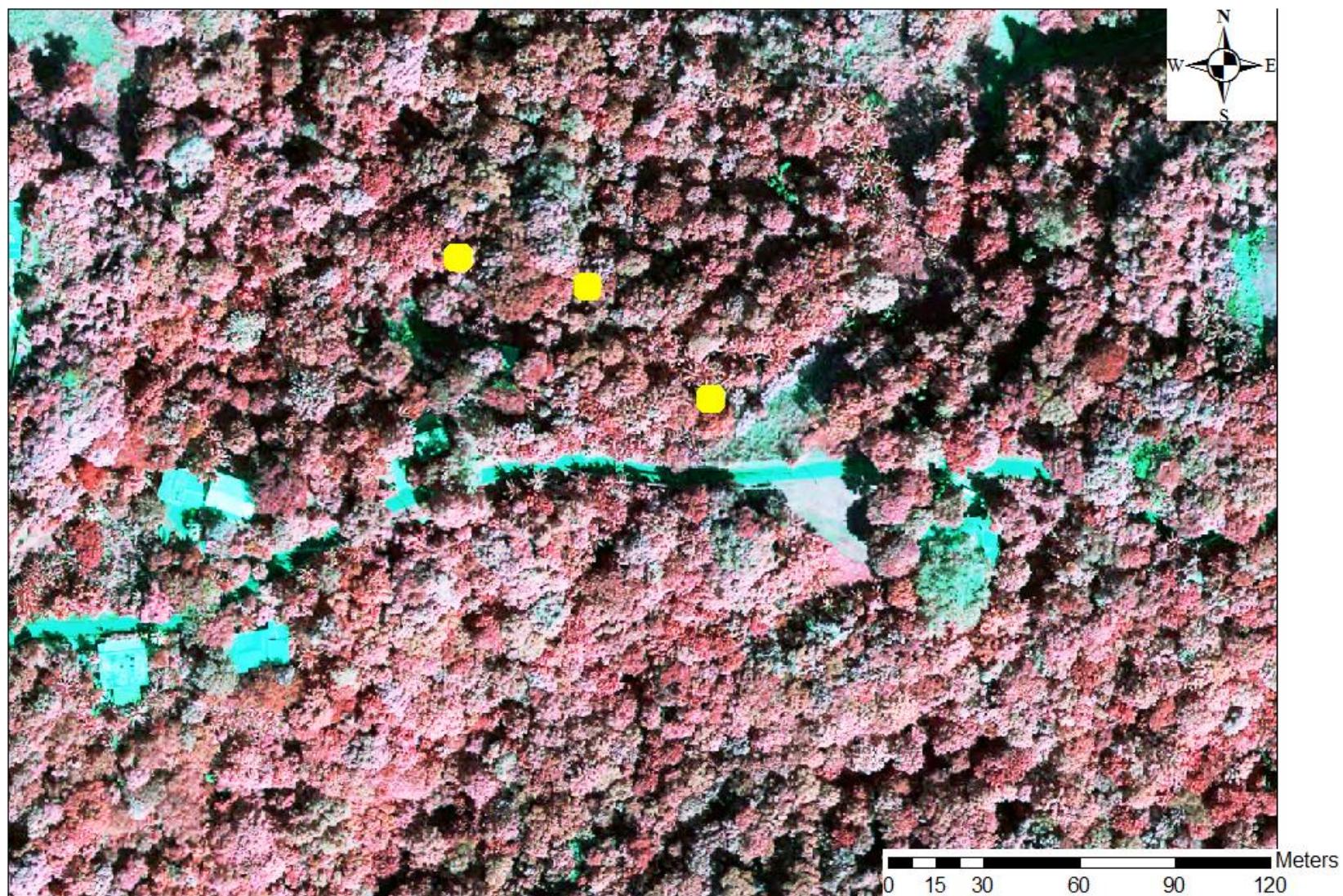
\* Formula's used as described on Wunderle and Mercado (2004).

# Results: Images

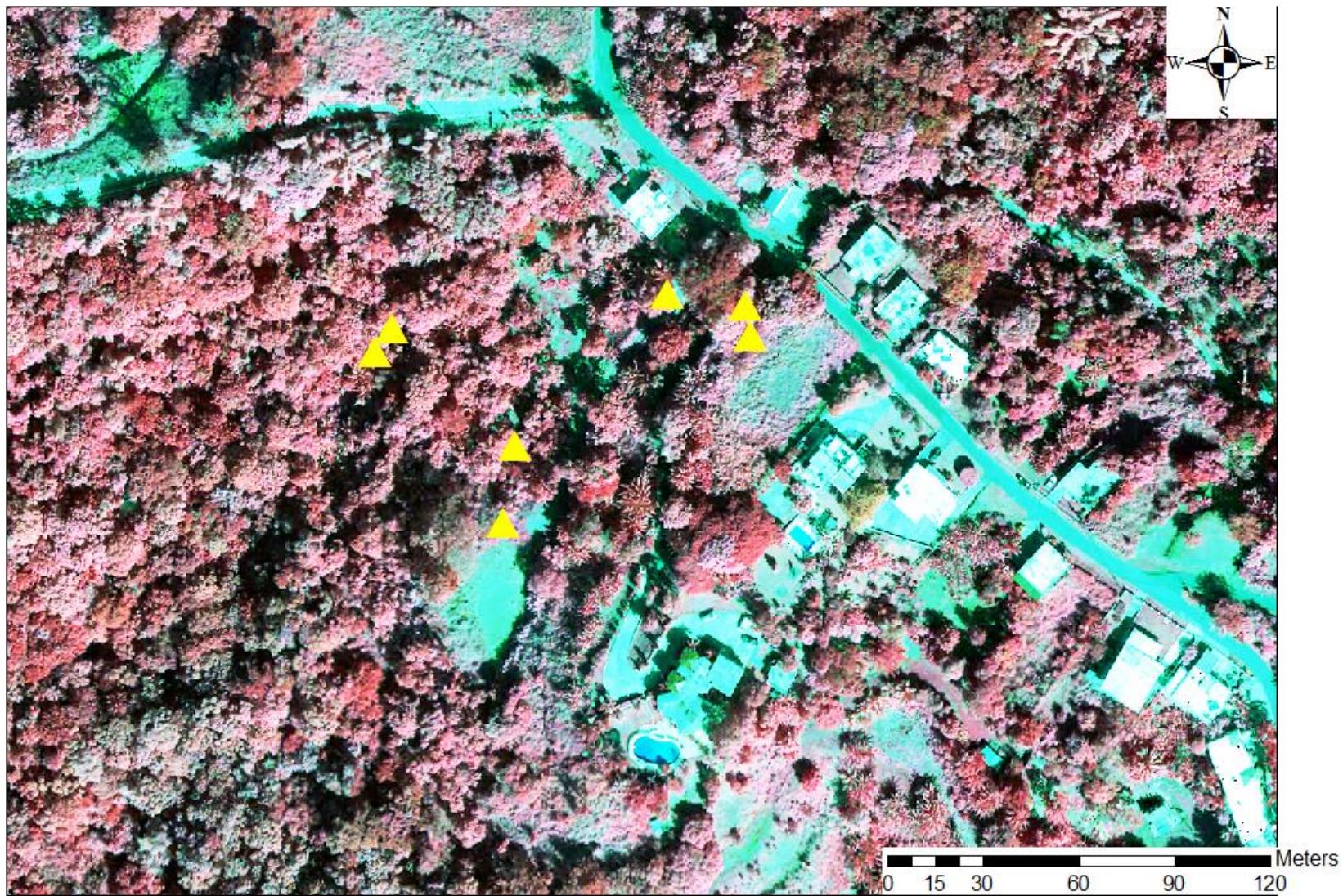
*Boa constrictor I: Resecadora Road*



*Boa constrictor II: Italiano Road*



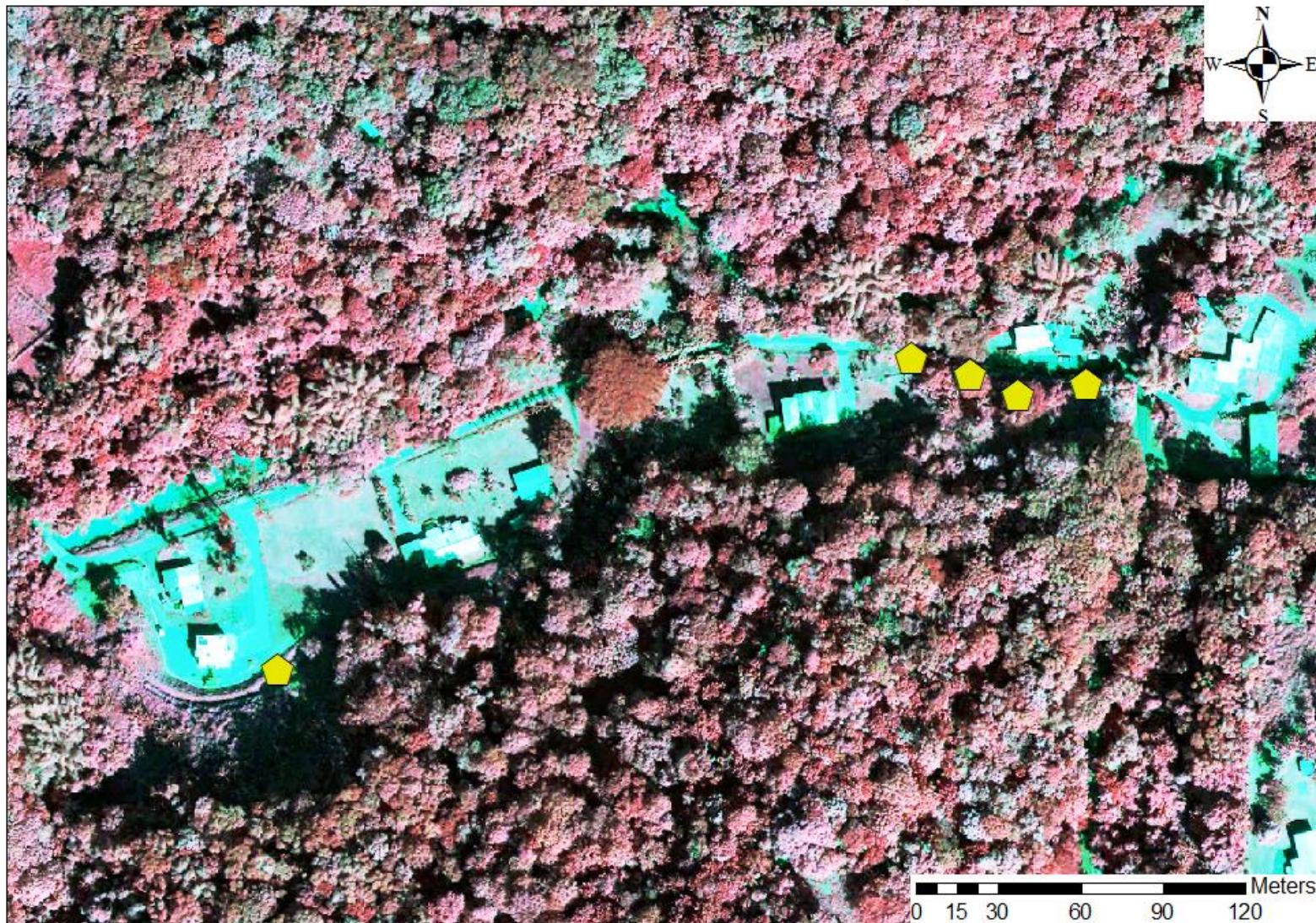
*Boa constrictor III: Italiano Road*



*Boa constrictor VI: Near Biology Department, UPR-Mayaguez*



*Boa constrictor V: Padrón Community*



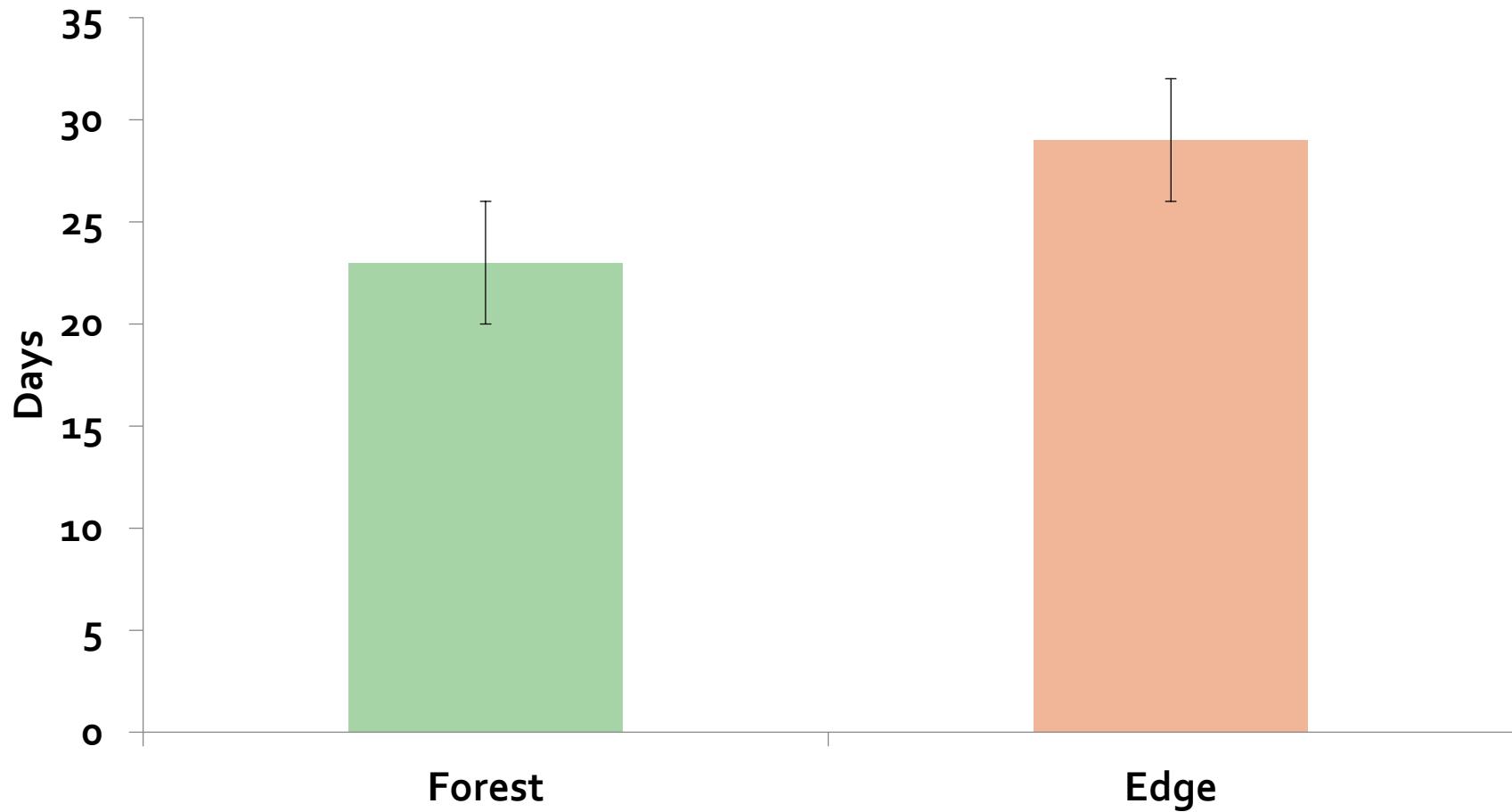
# **Results:**

## **Distance moved and macrohabitat use**

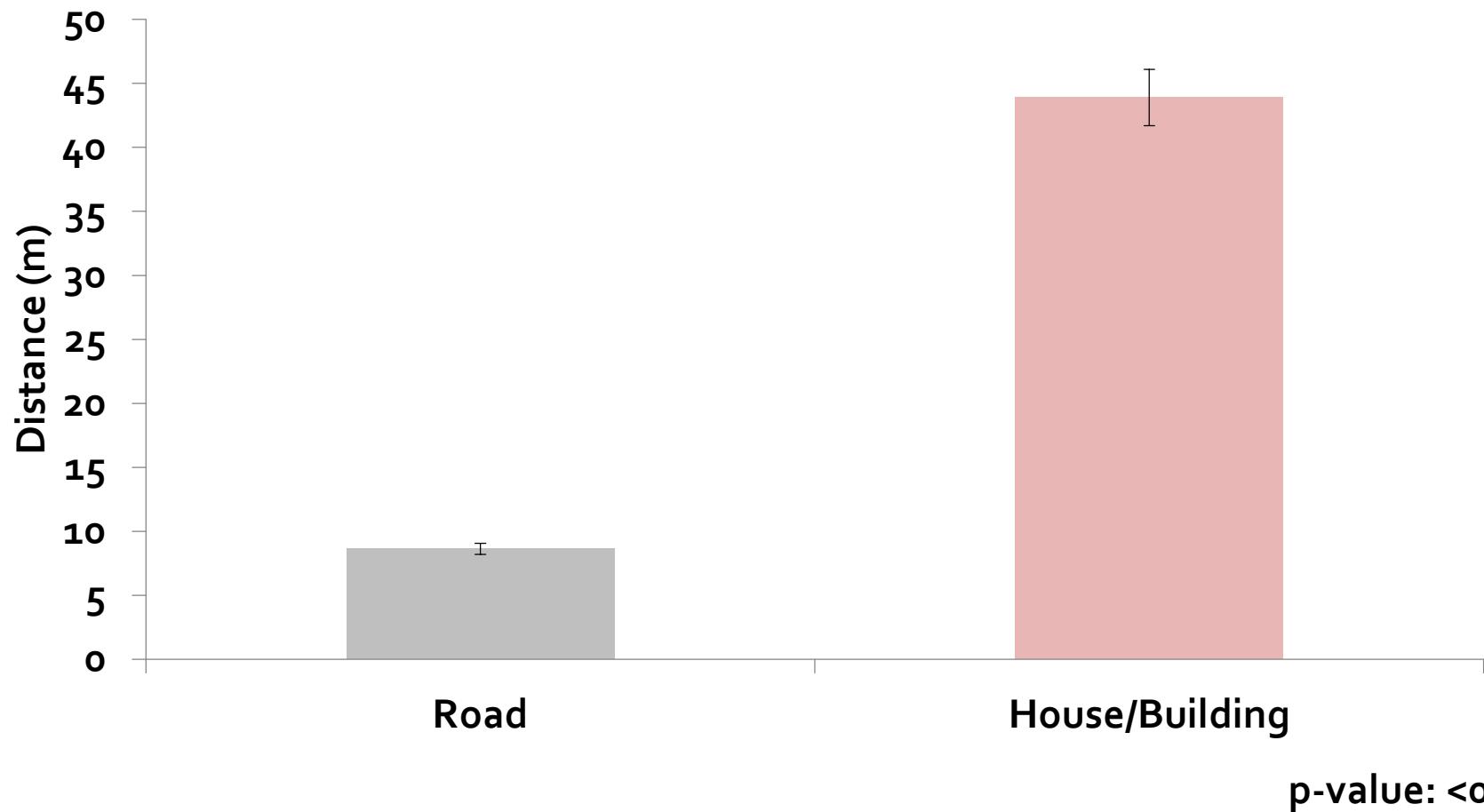
# **Distances moved**

<i>Boa constrictor</i> ID	Total Distance Moved	Mean daily movement per fix	Mean daily movement per move
BOCO 1	303.6	<b>16.87</b>	<b>75.9</b>
BOCO 2	93.71	3.62	16.69
BOCO 3	325.04	2.69	10.21
BOCO 4	303.3	5.73	8.89
BOCO 5	<b>378.54</b>	11.13	13.99

## Proportion of days snakes found on forest or forest edge



## **Mean Distance of *B. constrictor* to roads and house/building**



# Discussion

# Discussion

Boa constrictor	Mean distance per move (m)
<i>B. constrictor</i> in P.R. (unpublished data)	<b>78.22</b>
<i>B. c. occidentalis</i> in Nicaragua (Holtzman et.al 2007)	*R: 73

- Similar distances to residential *B.c. occidentalis* in Nicaragua

# Preference to roads

- Edges favor thermal behavior.
  - Simultaneous open habitat and shaded areas.  
(Blouin-Demers and Weatherhead 2002)
- Use of forest edge near roads
  - Higher mammal/bird abundance  
(Fahrig and Rytwinski 2009)

# Acknowledgements

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- Volunteers
- UPR-Mayaguez



# References

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# Questions?



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