Everglades Cooperative Invasive Species Management Area

THE INVASION OF THE NEW GUINEA FLATWORM IN PROTECTED TROPICAL HARDWOOD HAMMOCKS OF SOUTHEAST FLORIDA AND THE FLORIDA KEYS

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[3]Florida International University, Miami, FL
[4]Stantec, Environmental Department, Coral Gables, FL
[5]Florida Fish and Wildlife Conservation Commission, Tallahassee, FL
[6]Big Cypress National Preserve, Ochopee, FL

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21st Annual Summit

Outline

I. The New Guinea Flatworm (NGF), *Platydemus manokwari*

II. NGF in the Miami Rock Ridge Hammocks

III. NGF in Big Cypress National Preserve Hammocks

IV. NGF in Everglades National Park Hammocks

V. NGF in the Florida Keys Hammocks

VI. NGF Sources

VII. NGF Controls

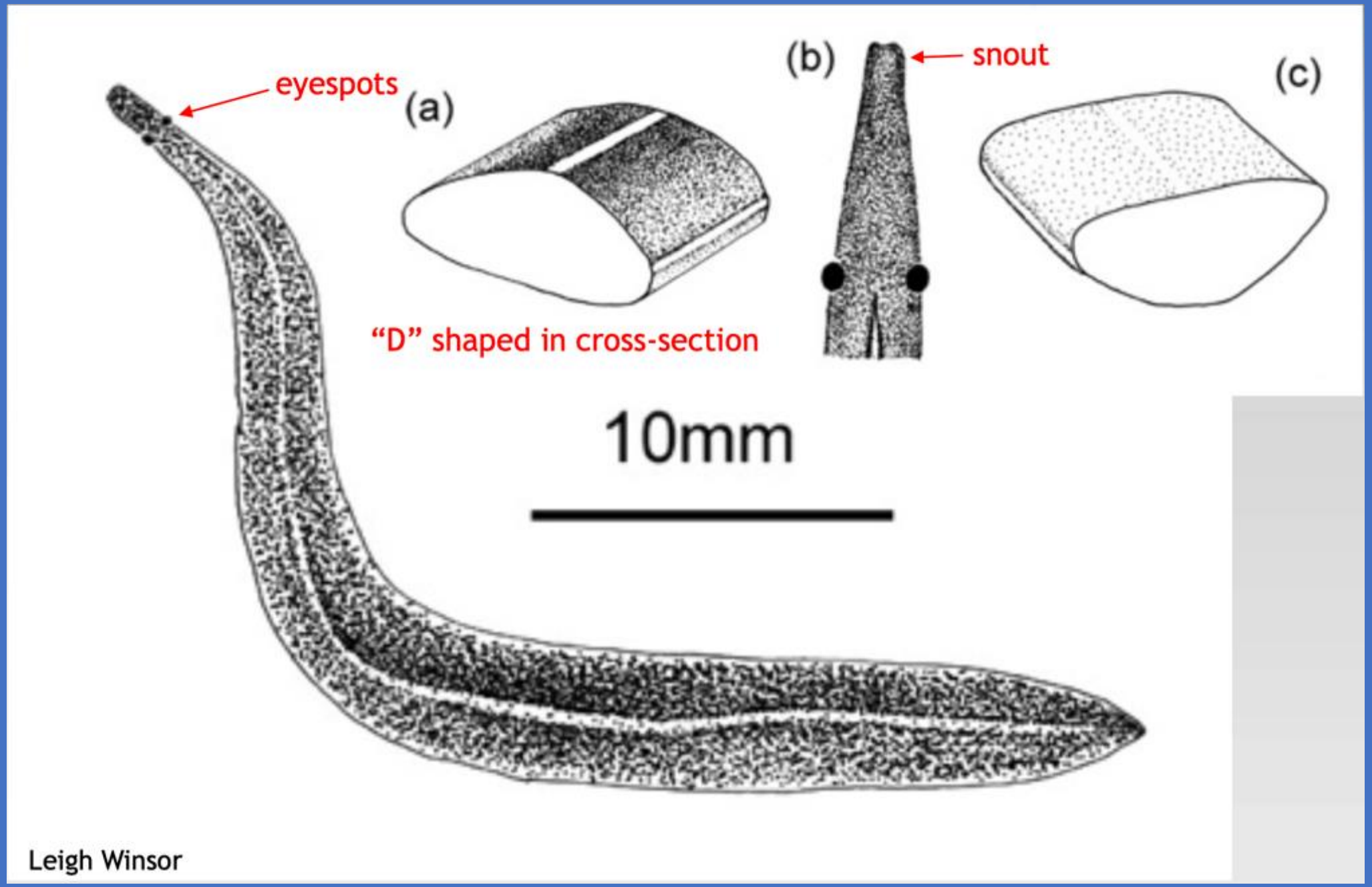
VIII. NGF vs. Other Potential Invasive Land Planarians and Nemertean

IX. Conclusions

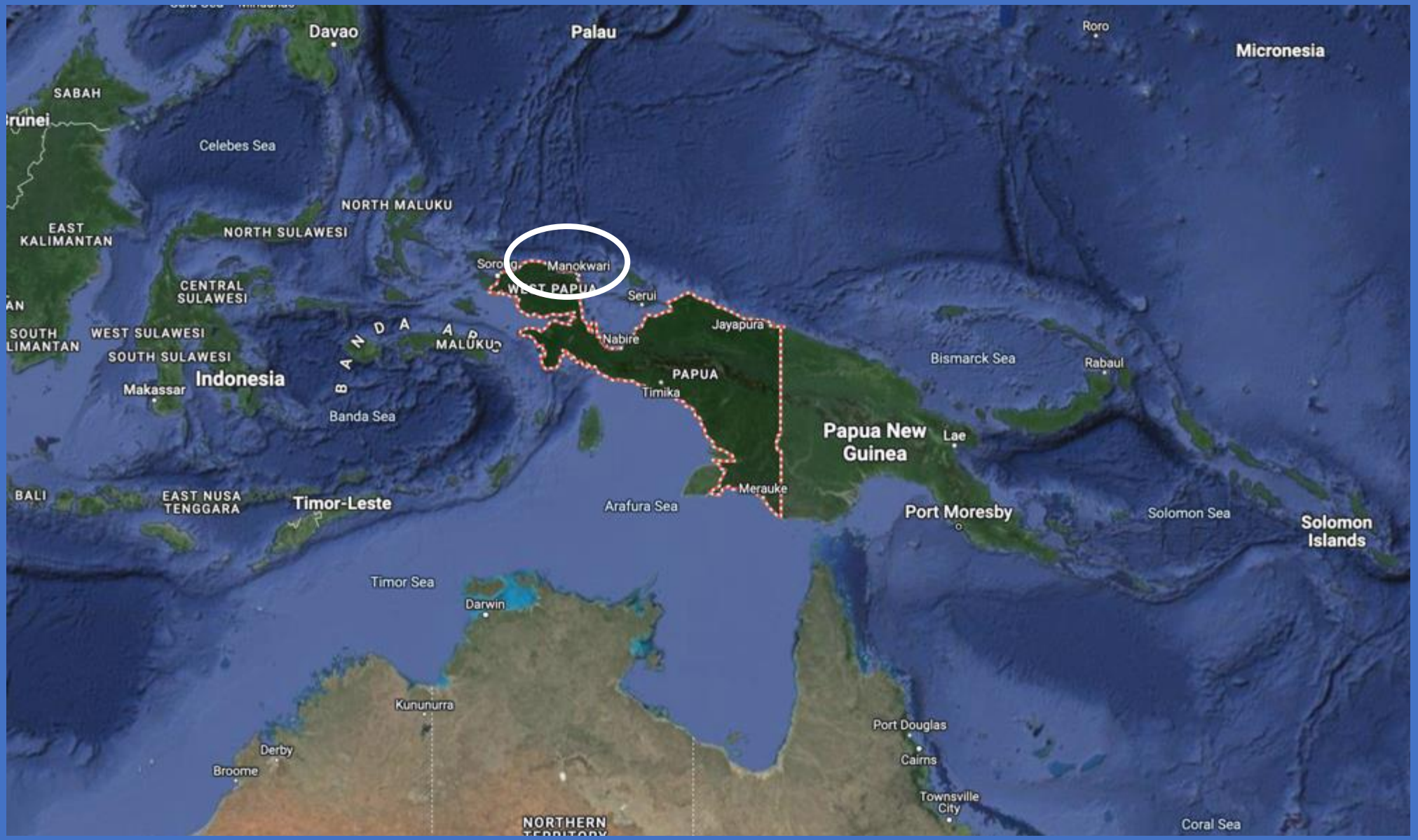
I. The New Guinea Flatworm, *Platydemus manokwari*

What is *Platydemus manokwari*?

I. The New Guinea Flatworm, *Platydemus manokwari*



I. The New Guinea Flatworm, *Platydemus manokwari*



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I. The New Guinea Flatworm, *Platydemus manokwari*

Photo: Lawrence Lopez, Loveland Hamock

Photo: Lawrence Lopez, Matheson, Florida Keys

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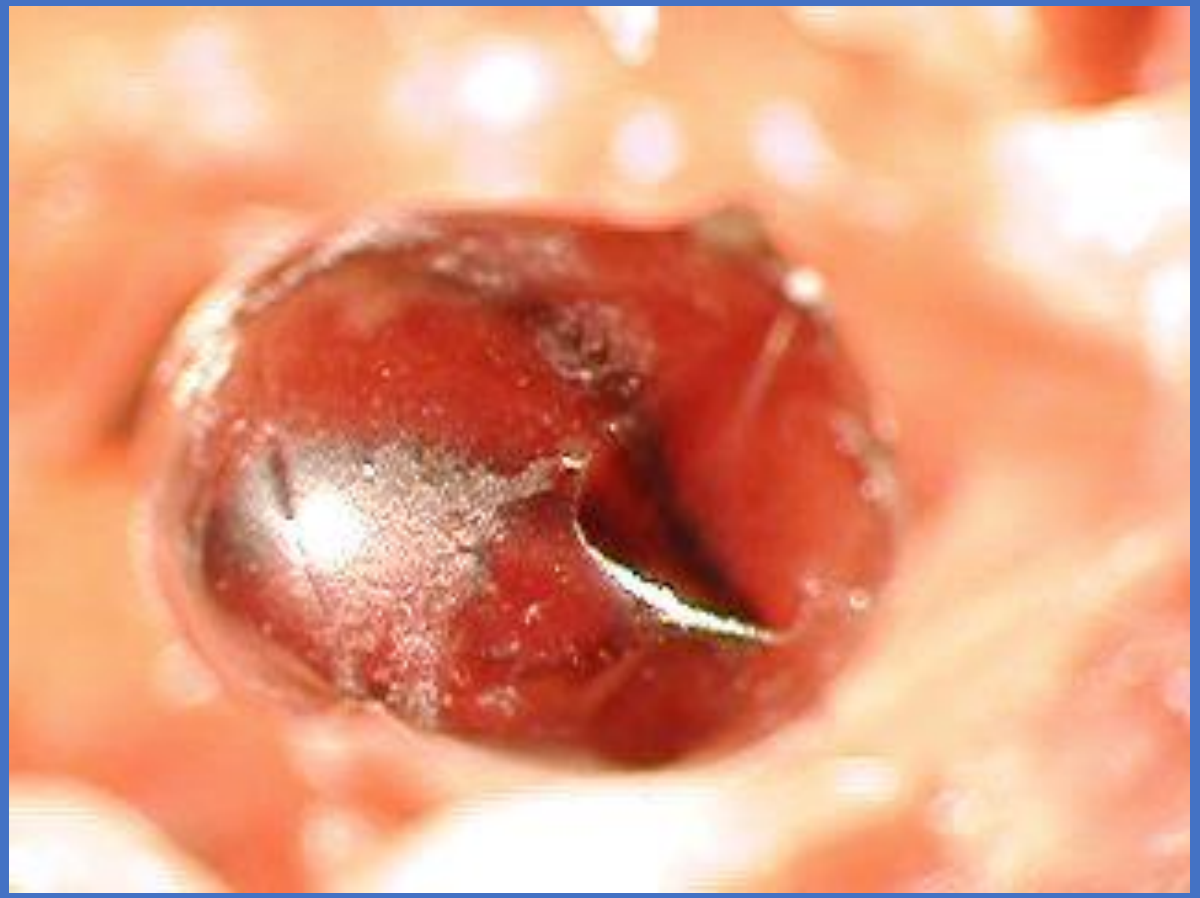
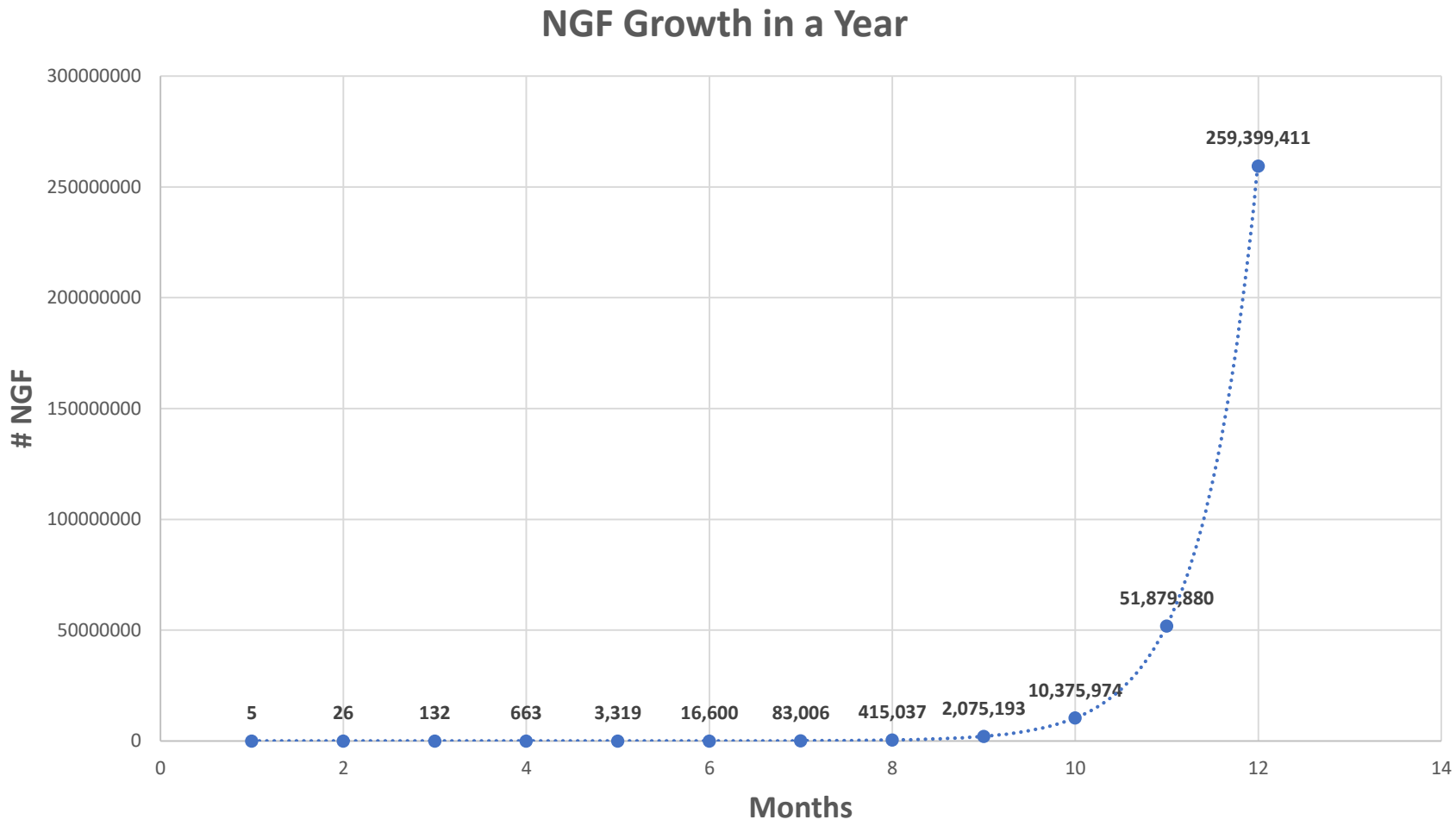
I. The New Guinea Flatworm, *Platydemus manokwari*

Justine et al. Peer J. 2015. New Caledonia. Leigh Winsor cocoon photo

I. The New Guinea Flatworm, *Platydemus manokwari*



I. The New Guinea Flatworm, *Platydemus manokwari*

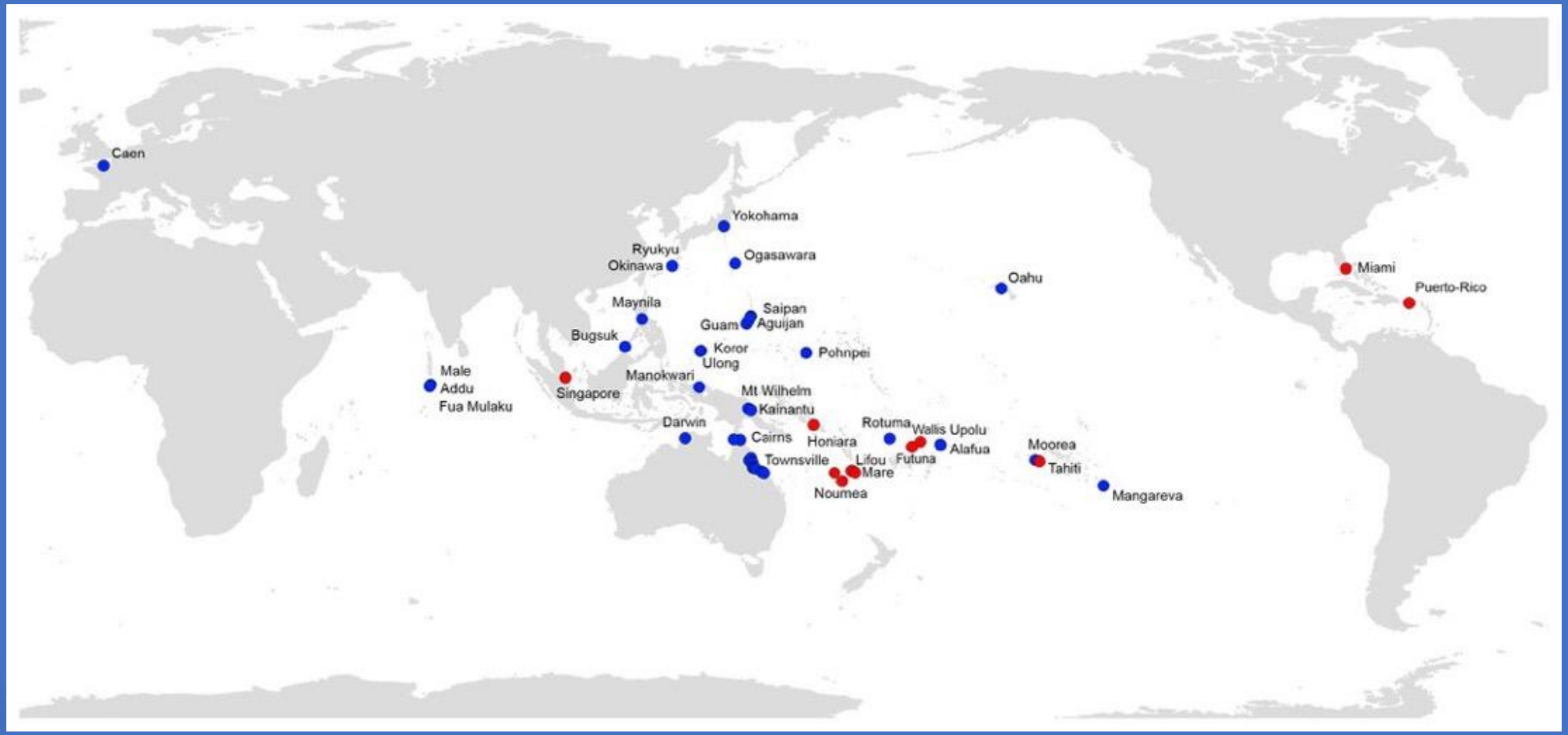


NGF Biotic Potential

I. The New Guinea Flatworm, *Platydemus manokwari*

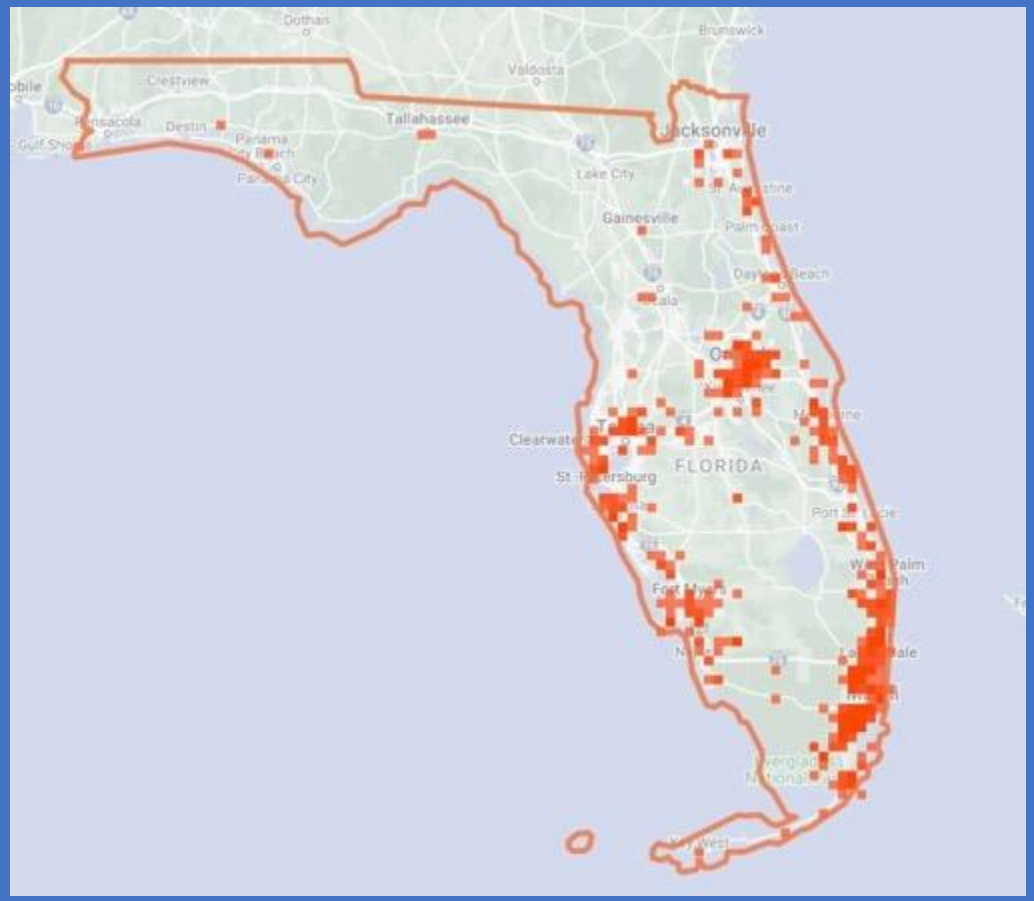
Justine et al. Peer J. 2014.

I. The New Guinea Flatworm, *Platydemus manokwari*



Justine et. al., 2015. Red Dots = New Colonization Sites. Earliest Record in Florida: 2012

I. The New Guinea Flatworm, *Platydemus manokwari*



iNaturalist, May 2024.

EDDMapS, May 2024.

I. The New Guinea Flatworm, *Platydemus manokwari*

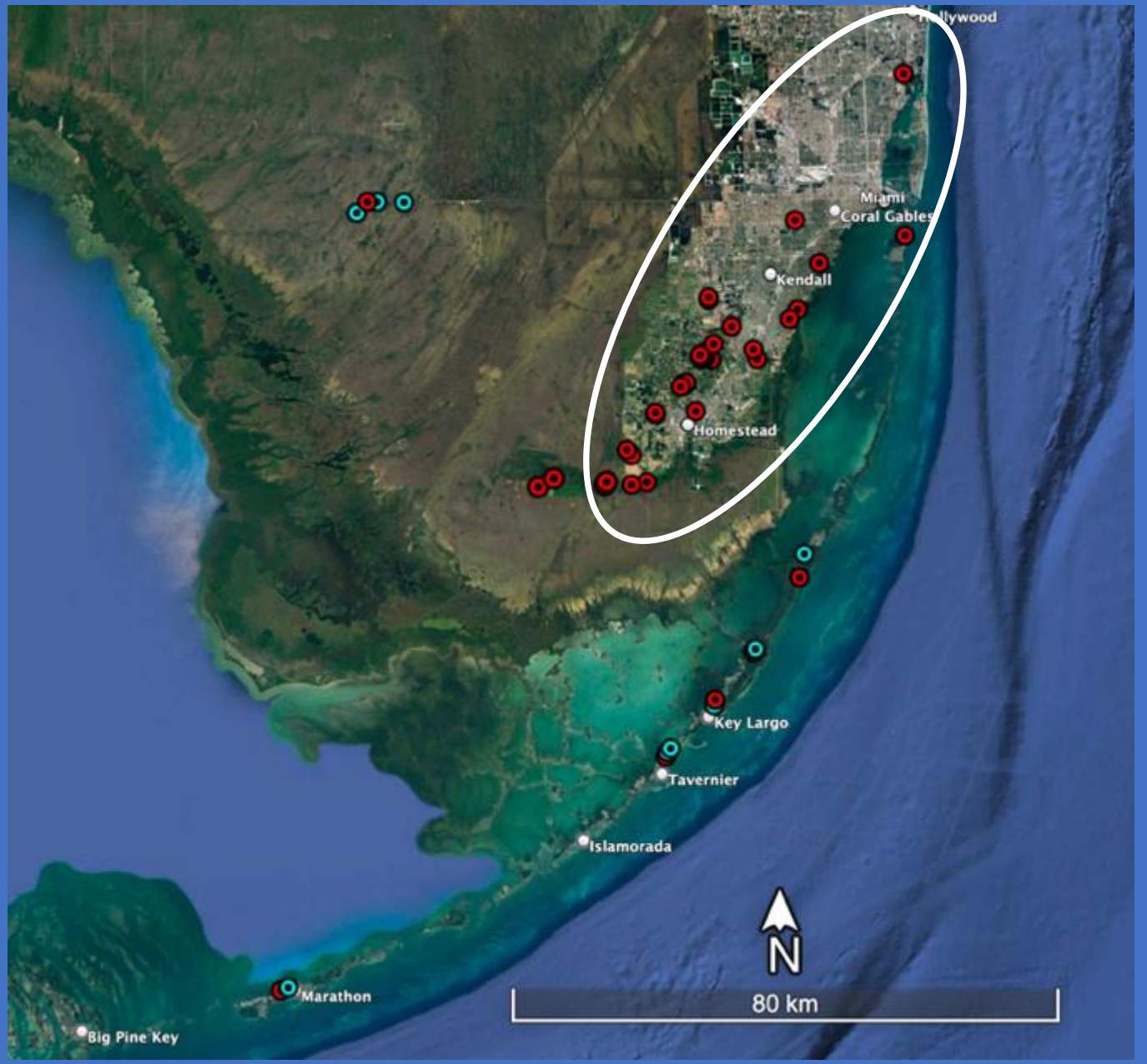
Photo: Lawrence Lopez, Holiday Hammock.

Photo: Tiffany Melvin, Black Creek Hammock

II. NGF in the Miami Rock Ridge Hammocks

Red Dots =
NGF Positive

Light Blue Dots =
NGF Negative

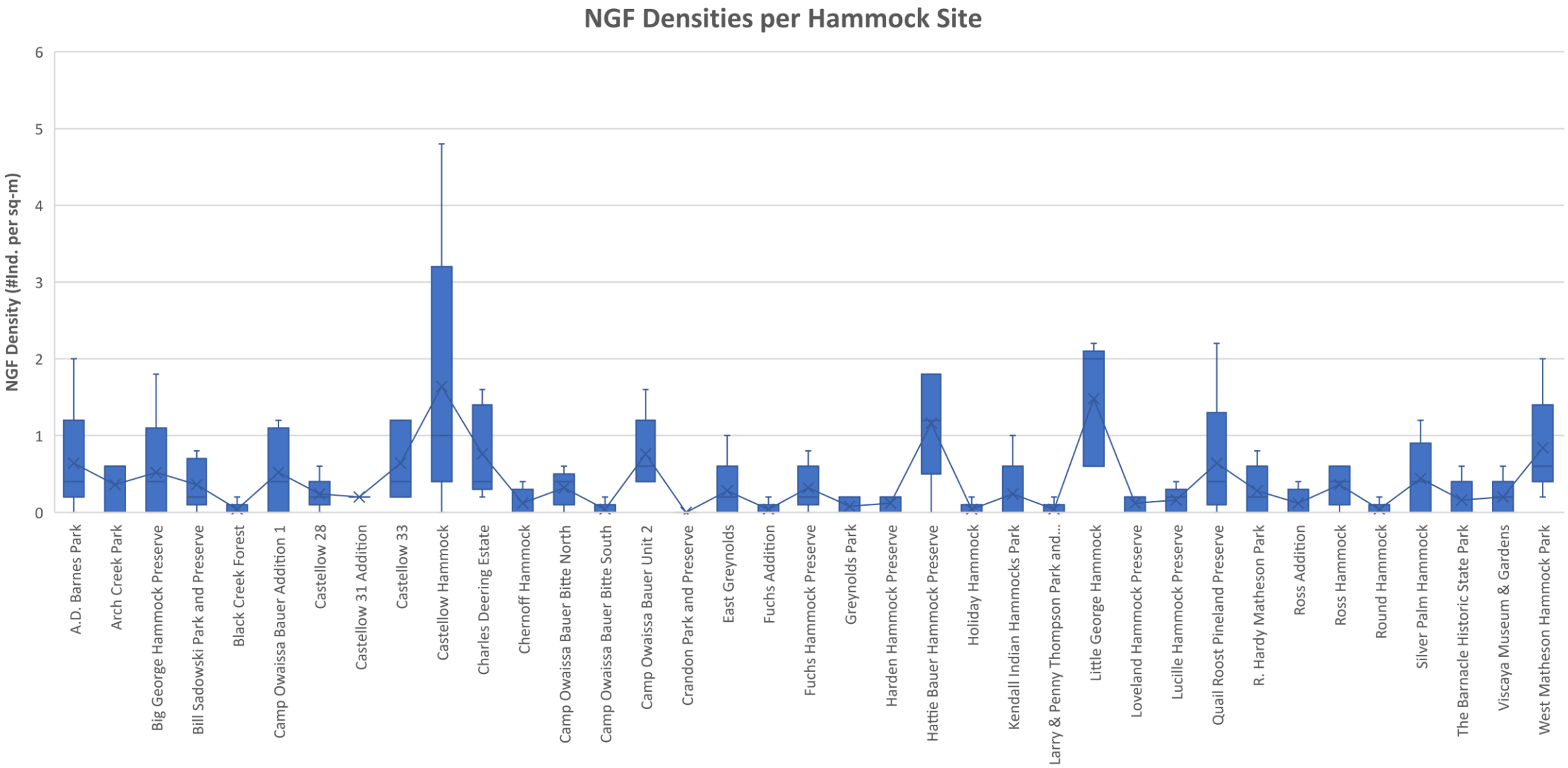


II. NGF in the Miami Rock Ridge Hammocks

Found in 100% of 38 conserved Hardwood Hammocks

Red Dots = NGF Positive

II. NGF in the Miami Rock Ridge Hammocks



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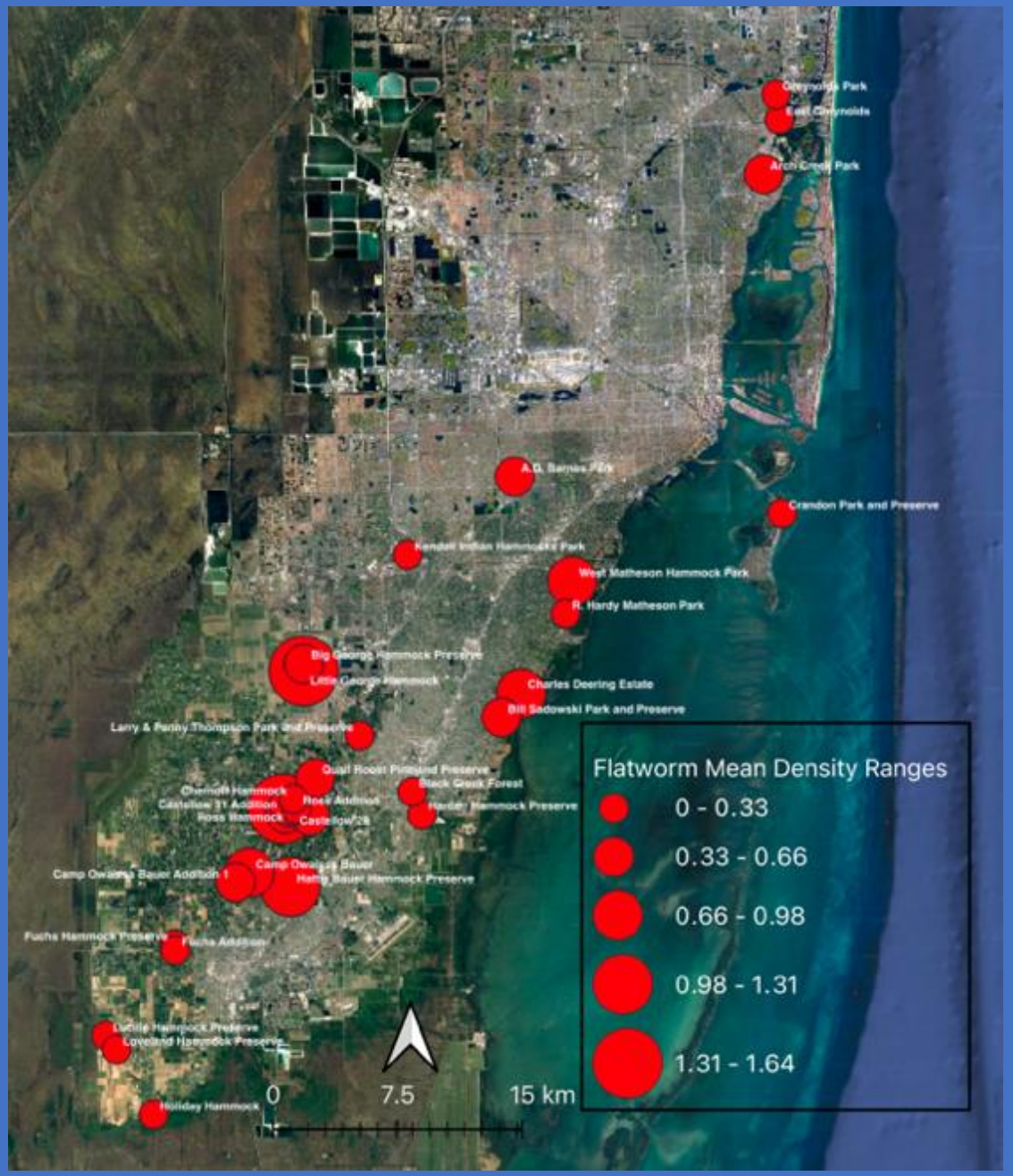
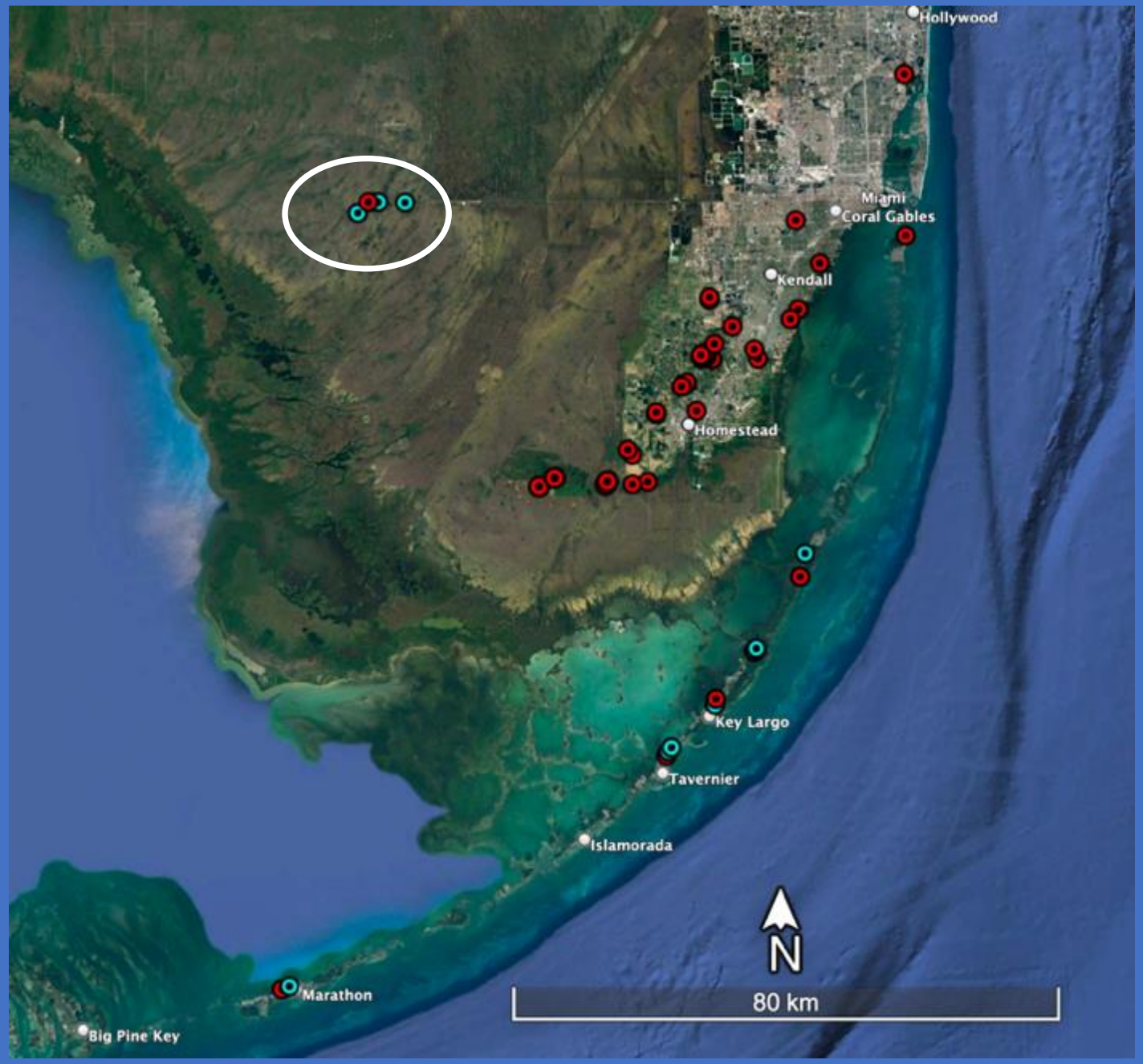


III. NGF in Big Cypress Preserve Hammocks

Red Dots = NGF Positive

Light Blue Dots = NGF Negative



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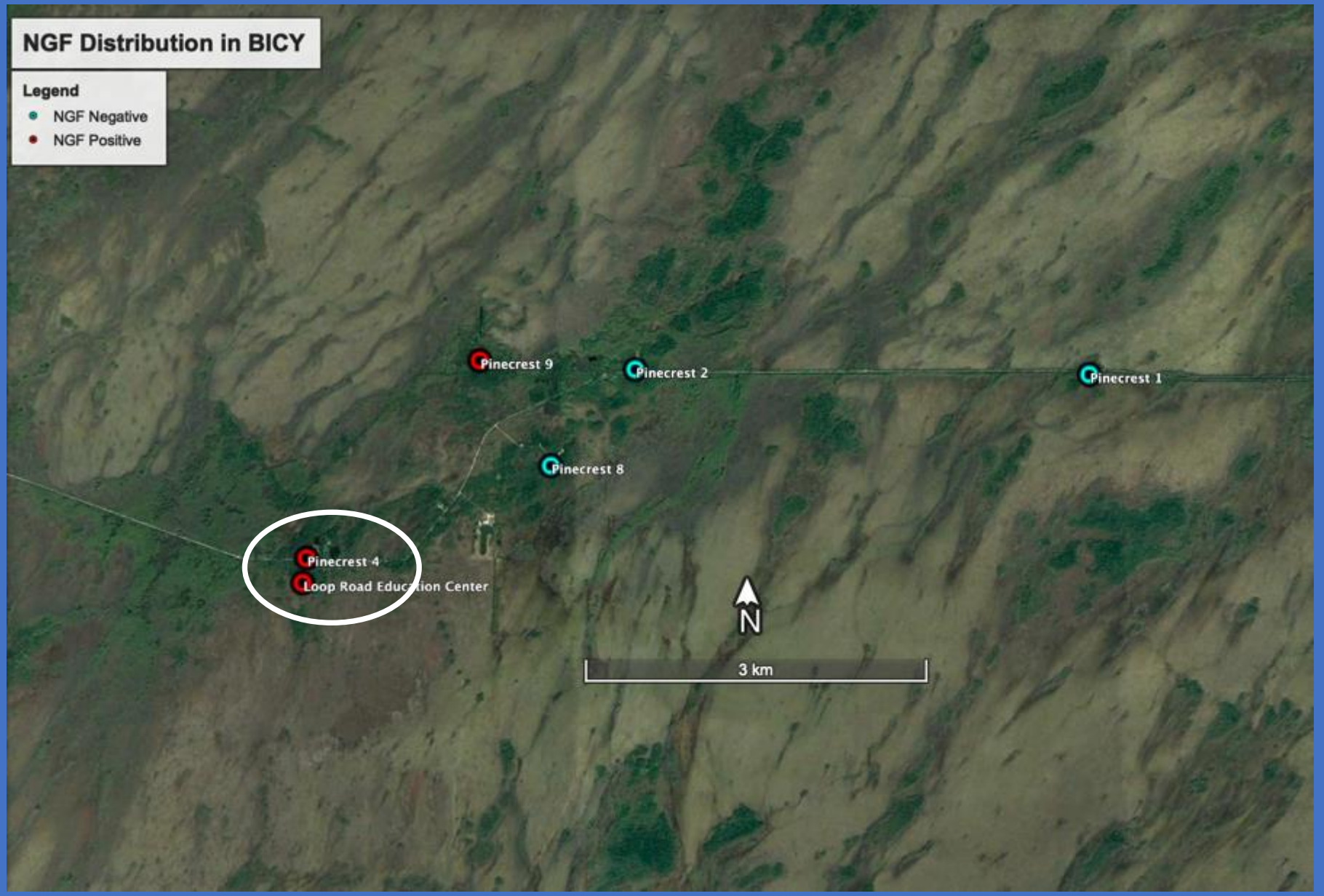
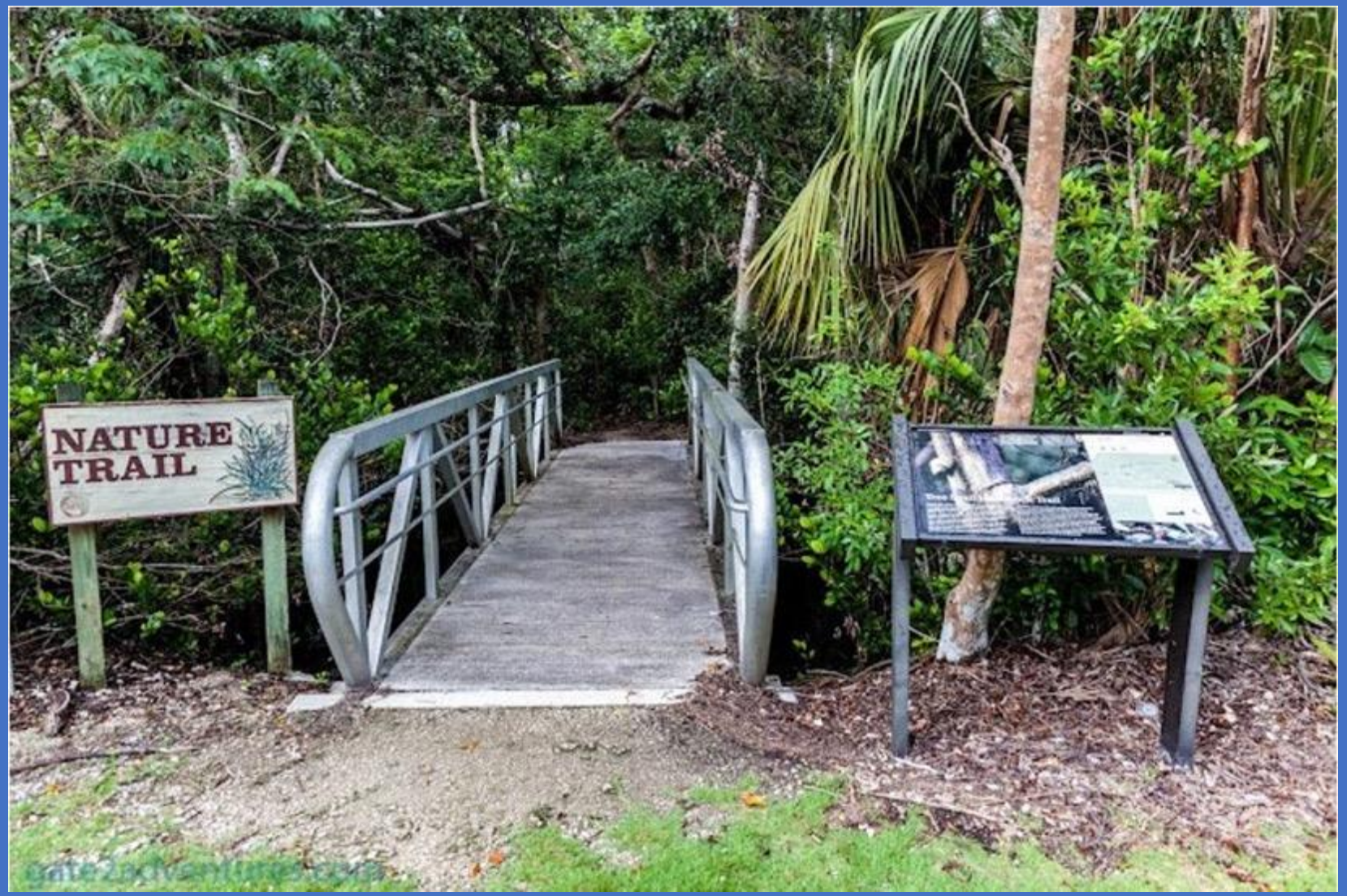


III. NGF in Big Cypress Preserve Hammocks



Tree Snail Nature Trail Photo: L. Lopez

III. NGF in Big Cypress Preserve Hammocks

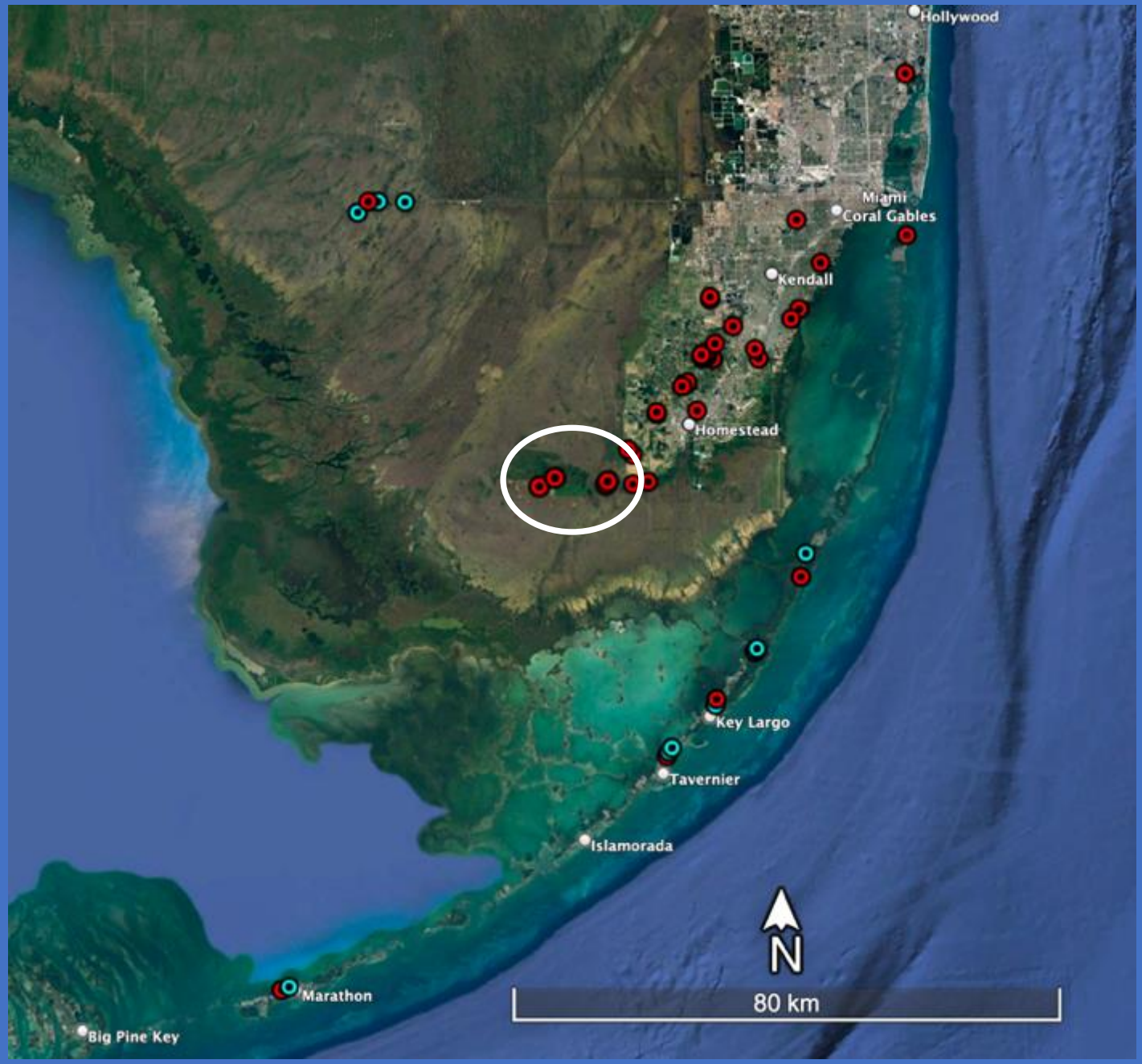
Liguus fasciatus var. roseatus predated by NGF. Photo: L. Lopez

Orthalicus floridensis predated by NGF. Photo: L. Lopez

IV. NGF in Everglades National Park Hammocks

Red Dots = NGF Positive

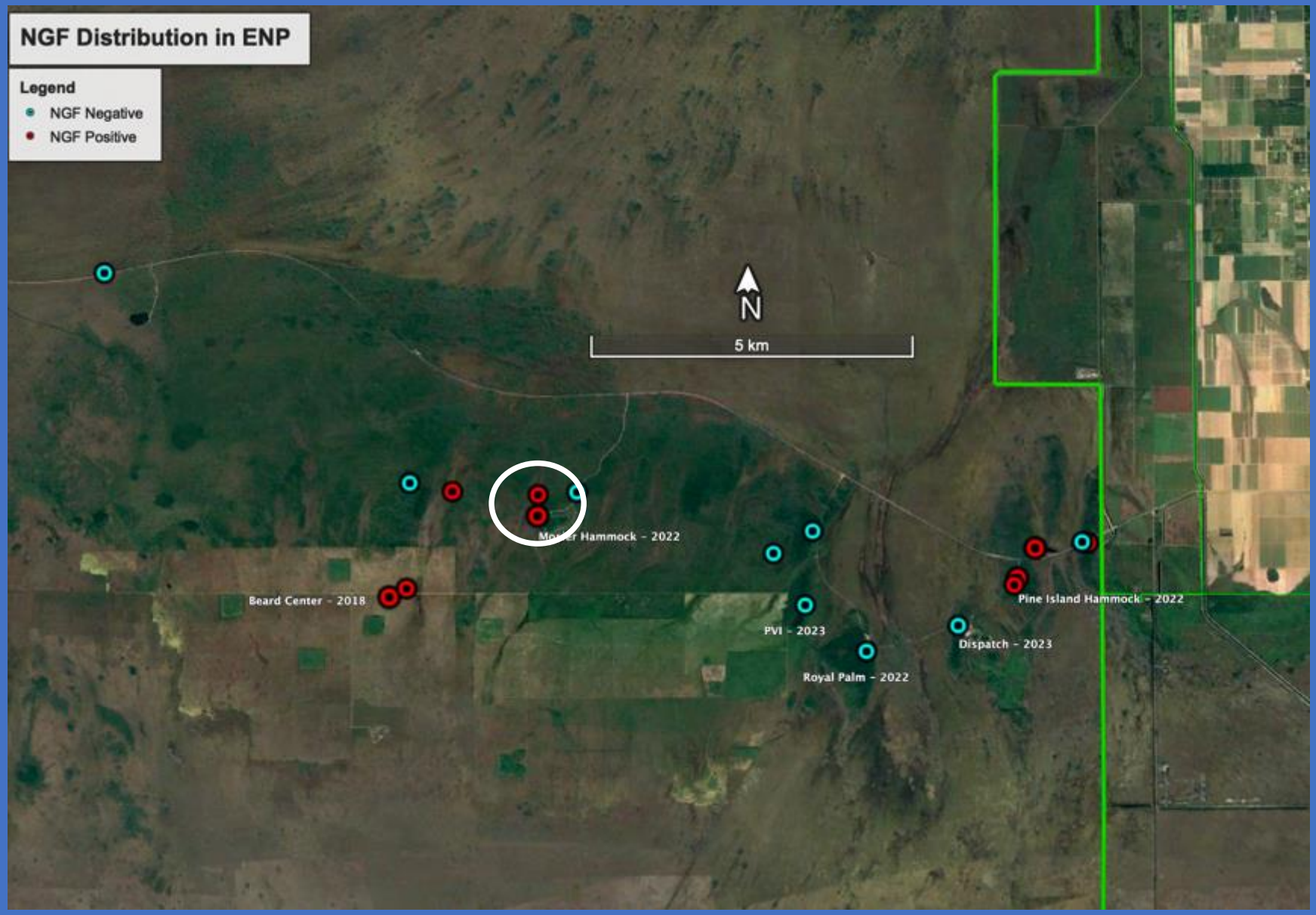
Light Blue Dots = NGF Negative



IV. NGF in Everglades National Park Hammocks

Red Dots = NGF Positive

Light Blue Dots = NGF Negative



IV. NGF in Everglades National Park Hammocks

Mosier Hammock

Photo: Lawrence Lopez

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IV. NGF in Everglades National Park Hammocks

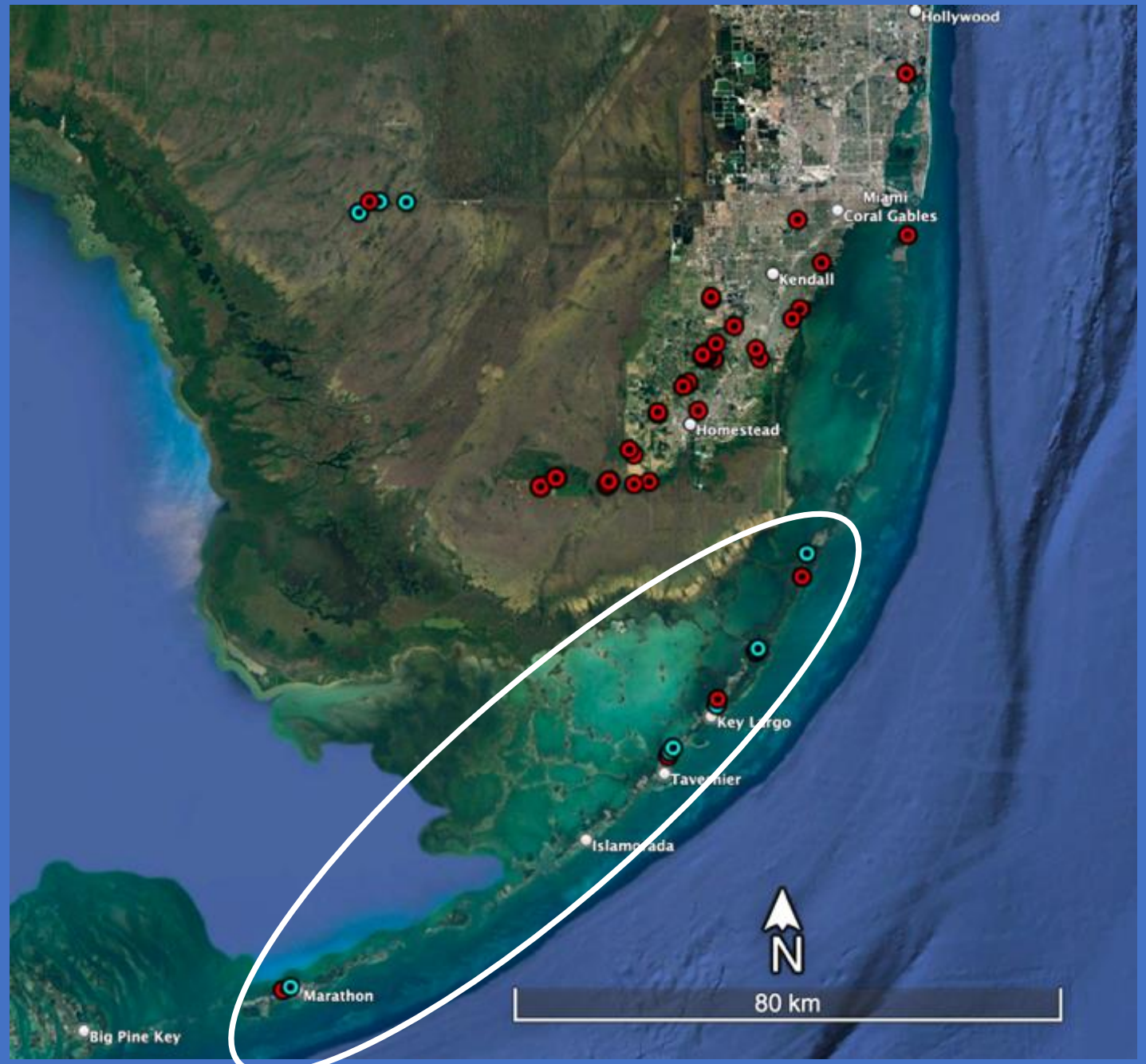
Mosier Hammock

Ecological Impact. Photo: Lawrence Lopez

V. NGF in Florida Keys Hammocks

Red Dots =
NGF Positive

Light Blue Dots =
NGF Negative



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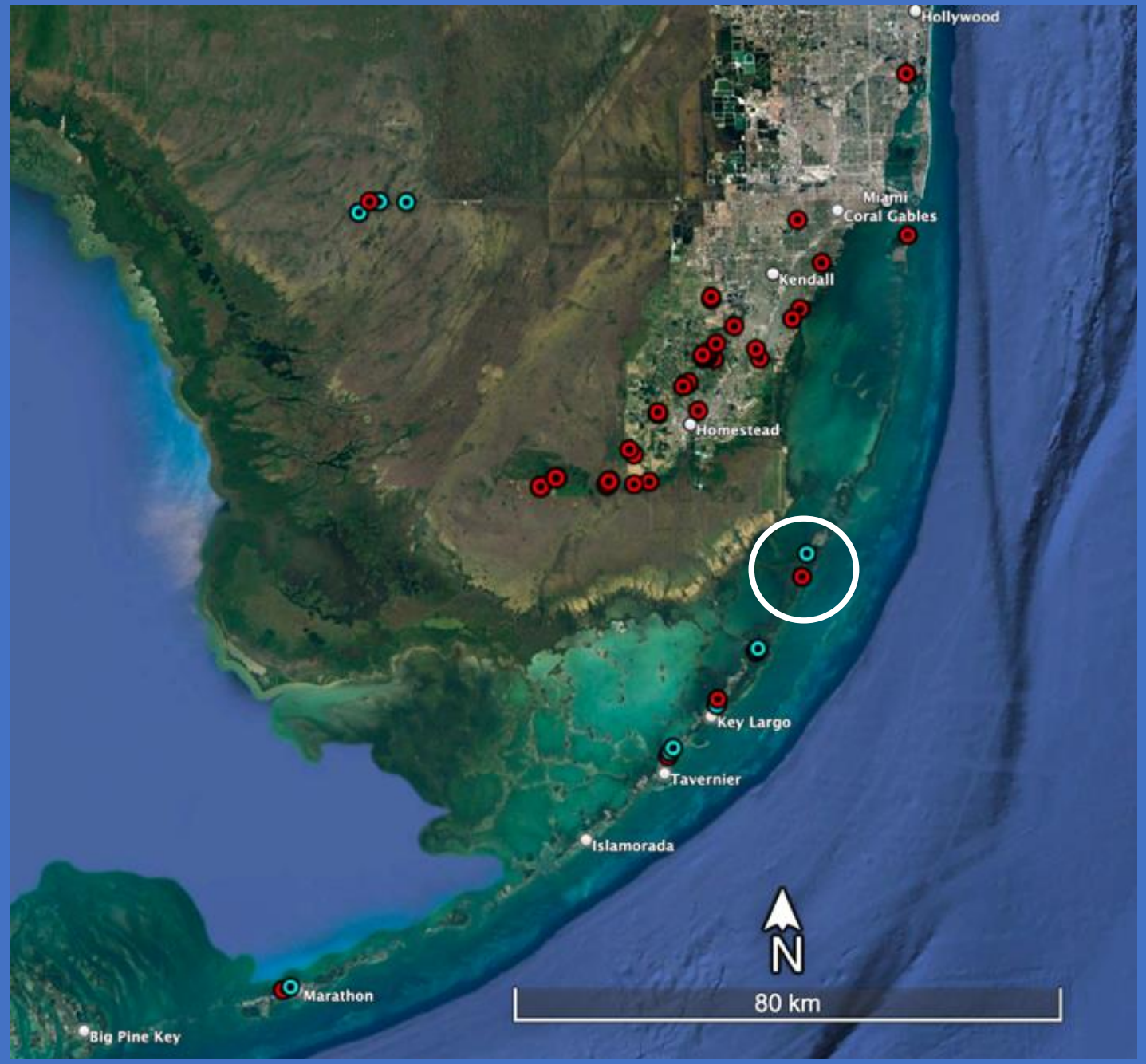
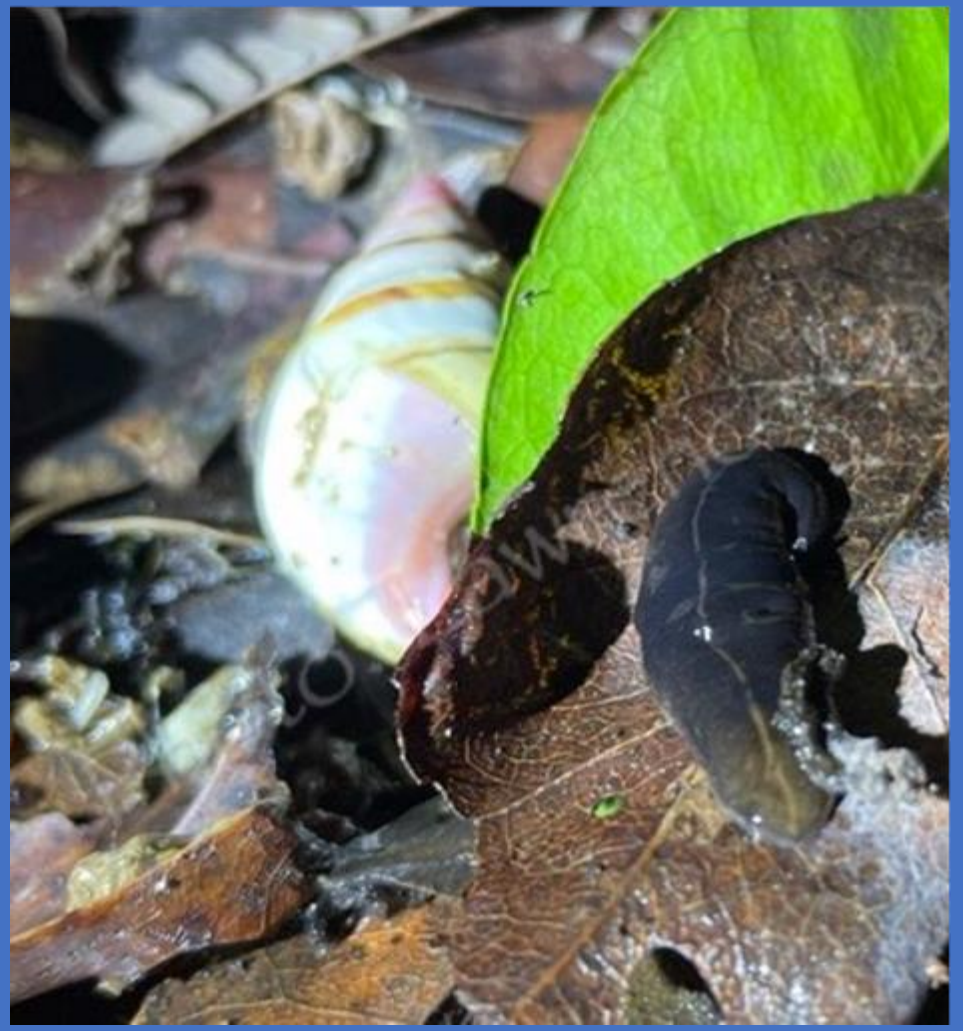
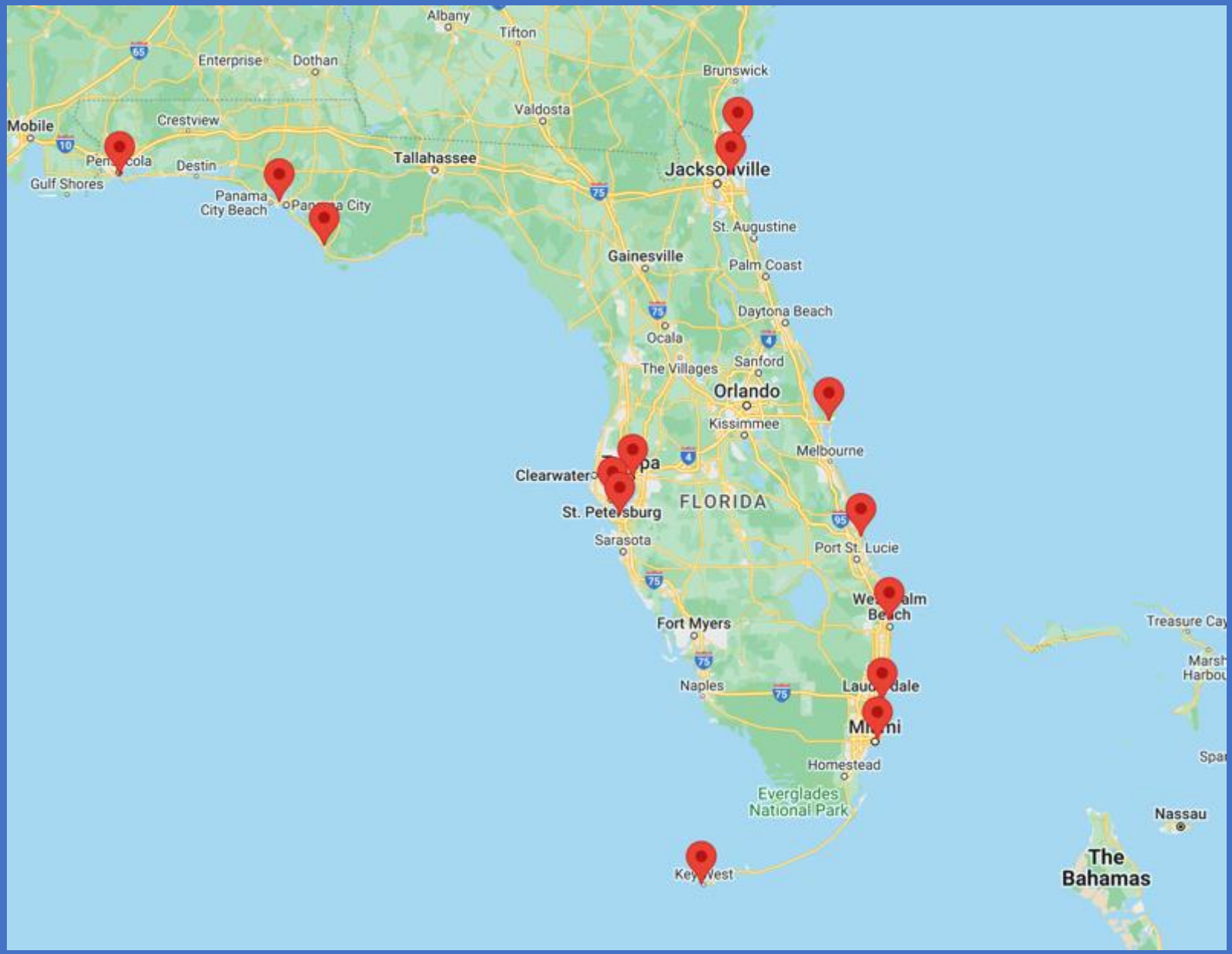


V. NGF in Florida Keys Hammocks



Hammock Site 3 in Dagny Johnson State Park. Photos: Lawrence Lopez

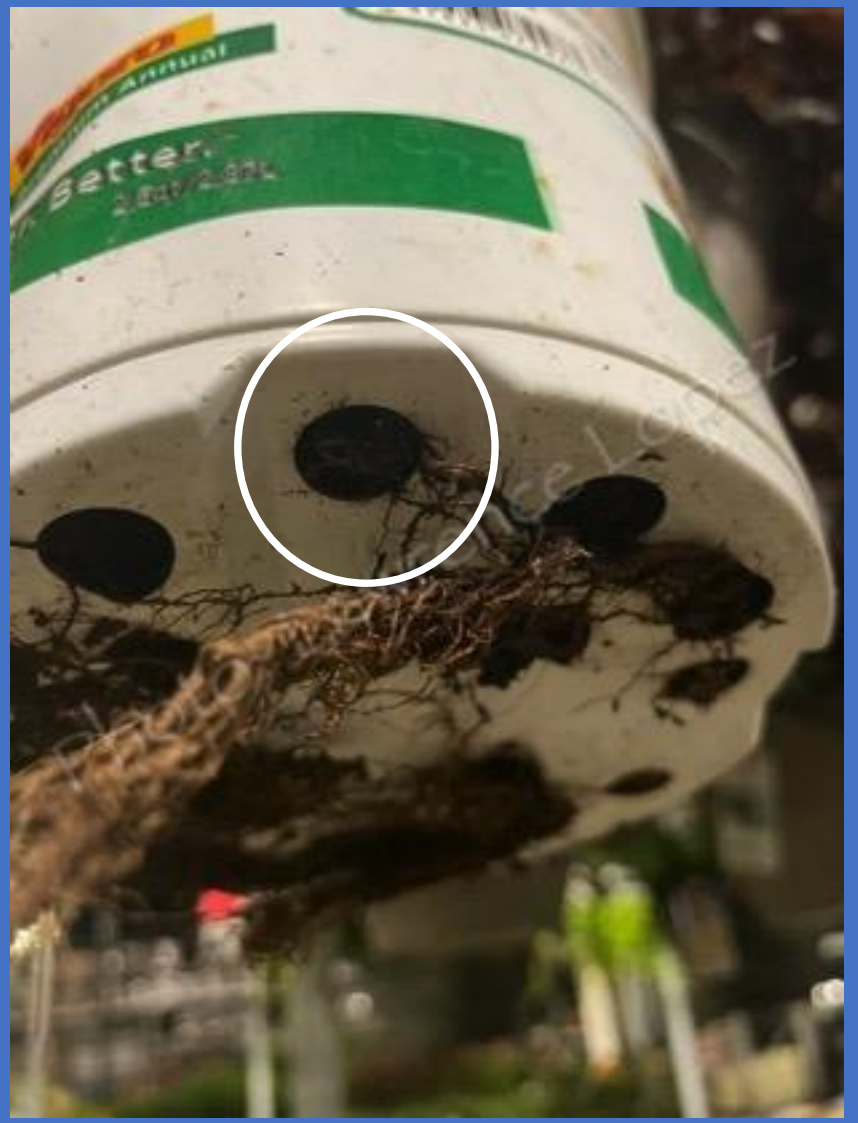
VI. NGF Sources



Florida Seaports

VI. NGF Sources

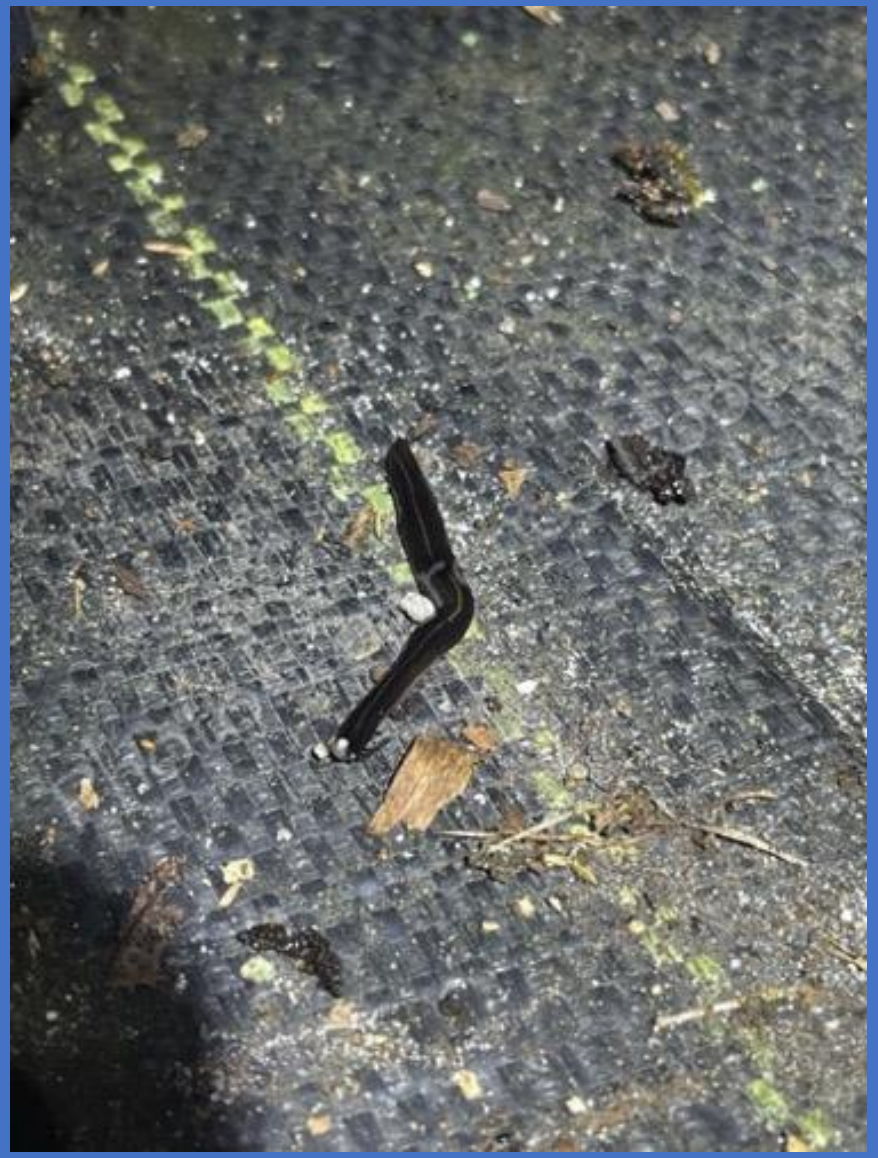
Garden Center Store. Photo: Lawrence Lopez



NGF found below plant pod. Photo: Lawrence Lopez

VI. NGF Sources

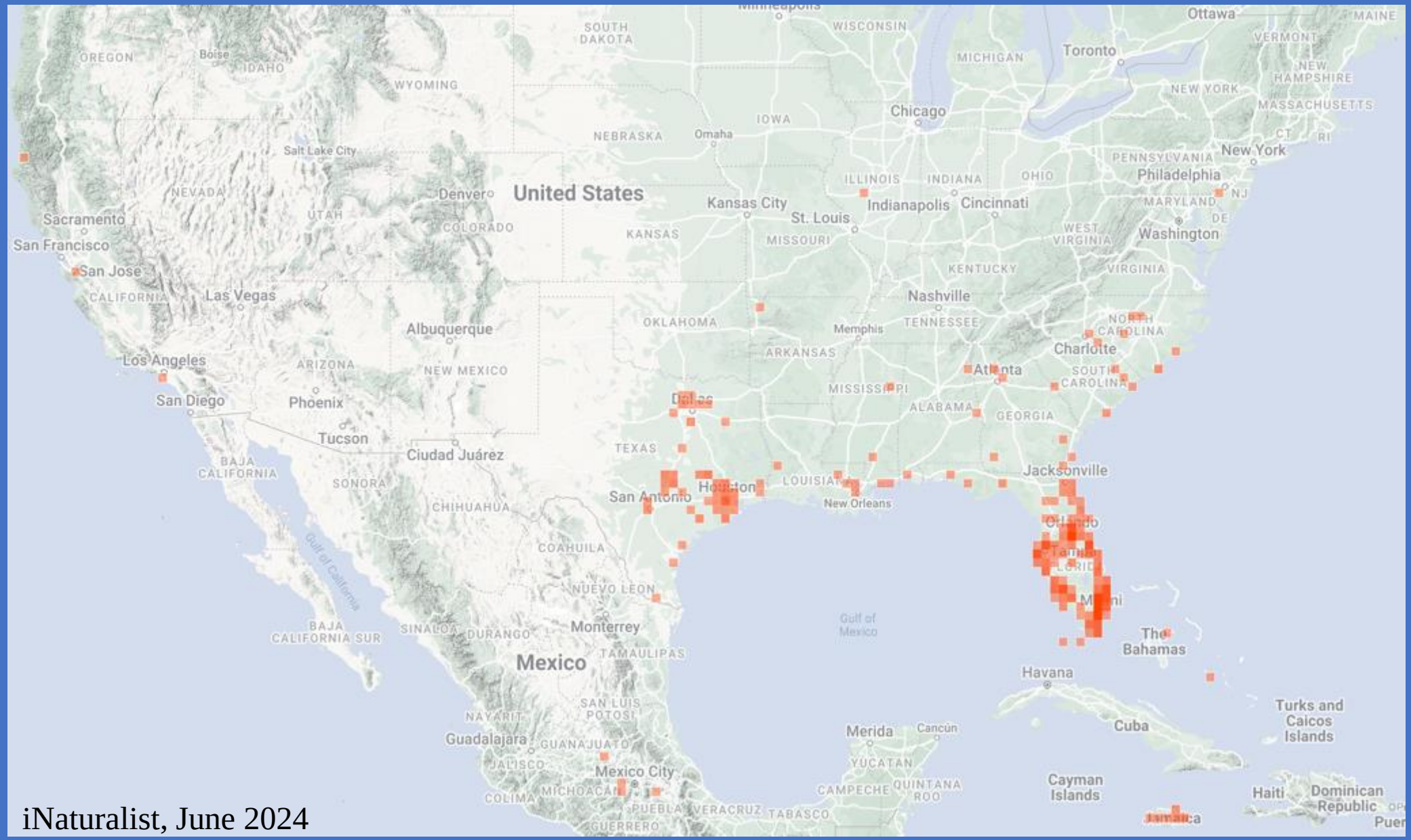
Redlands Nursery. Photo: Lawrence Lopez



FIU Nursery. Photo: Lawrence Lopez

VII. NGF Controls:

Cold Weather?



iNaturalist, June 2024

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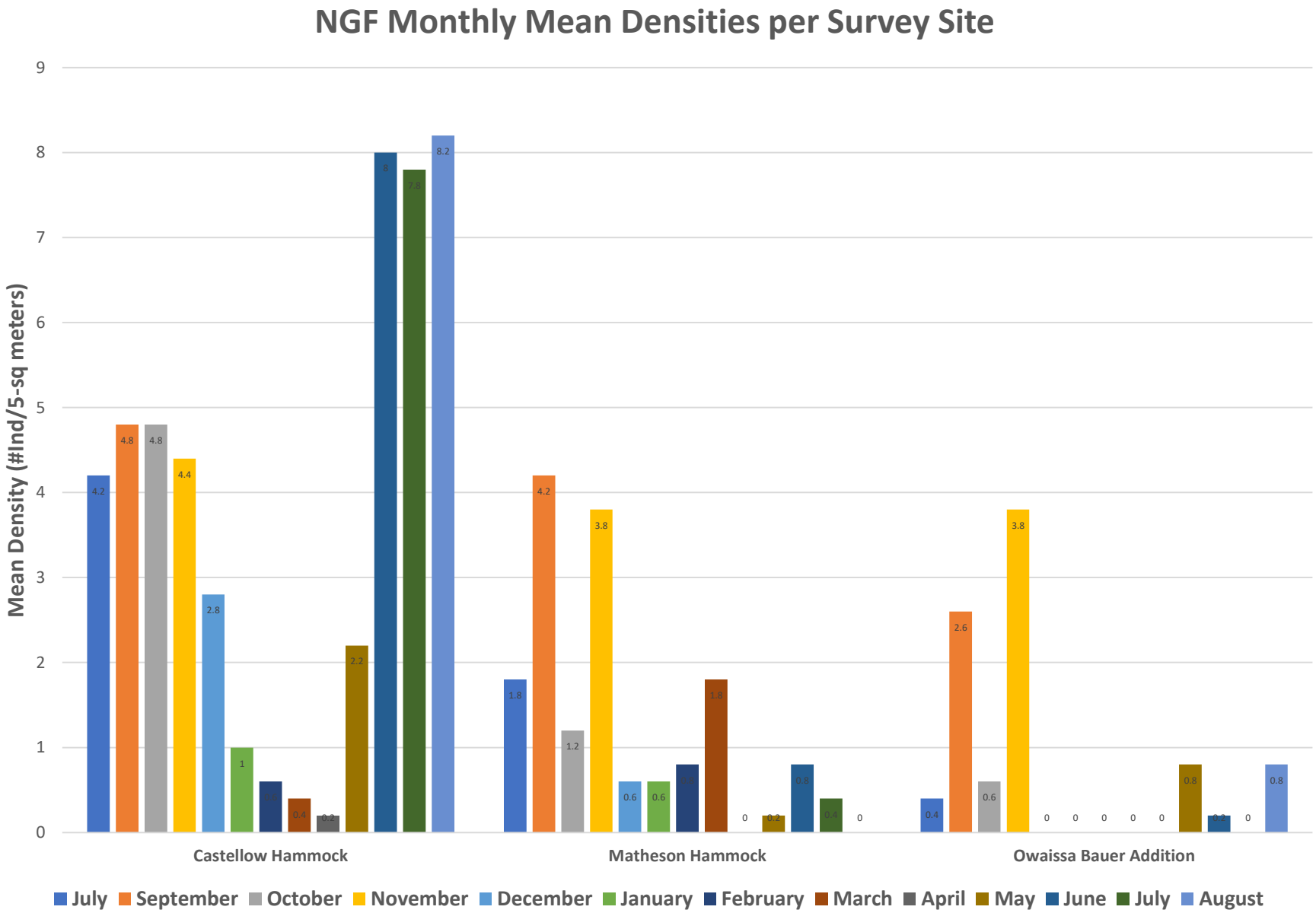
VII. NGF Controls:

Seasonality

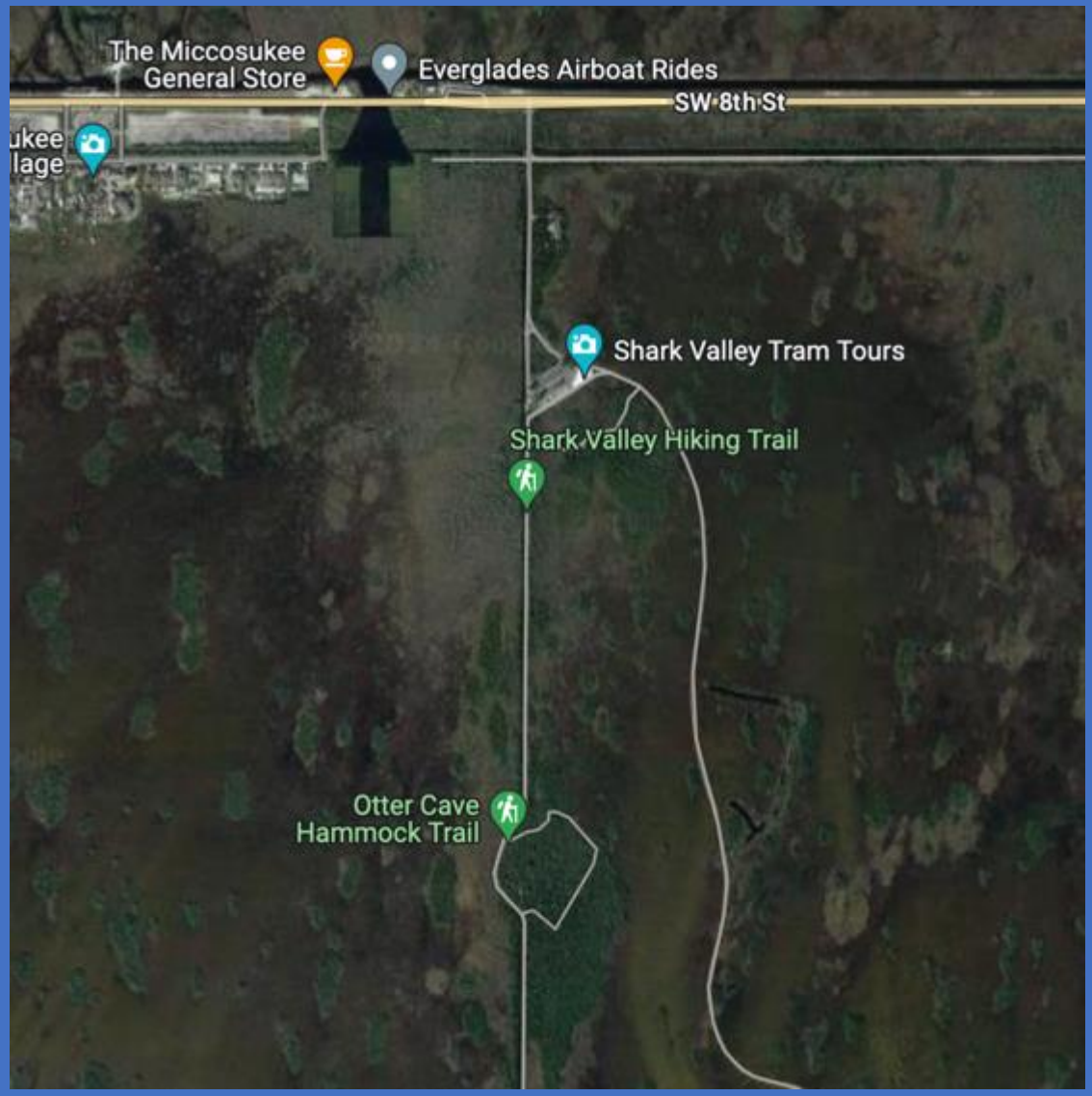


VII. NGF Controls: Sea Level Rise?

Hammock in Lower Florida Keys. Photo: Lawrence Lopez

L. fasciatus var vonpaulseni. Photo: L. Lopez

VII. NGF Controls: Freshwater Flooding?



Otter Cave Hammock

Flooded Trail. Photo: L. Lopez

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VII. NGF Controls:

Salt

Salted NGF. Photo: Lawrence Lopez

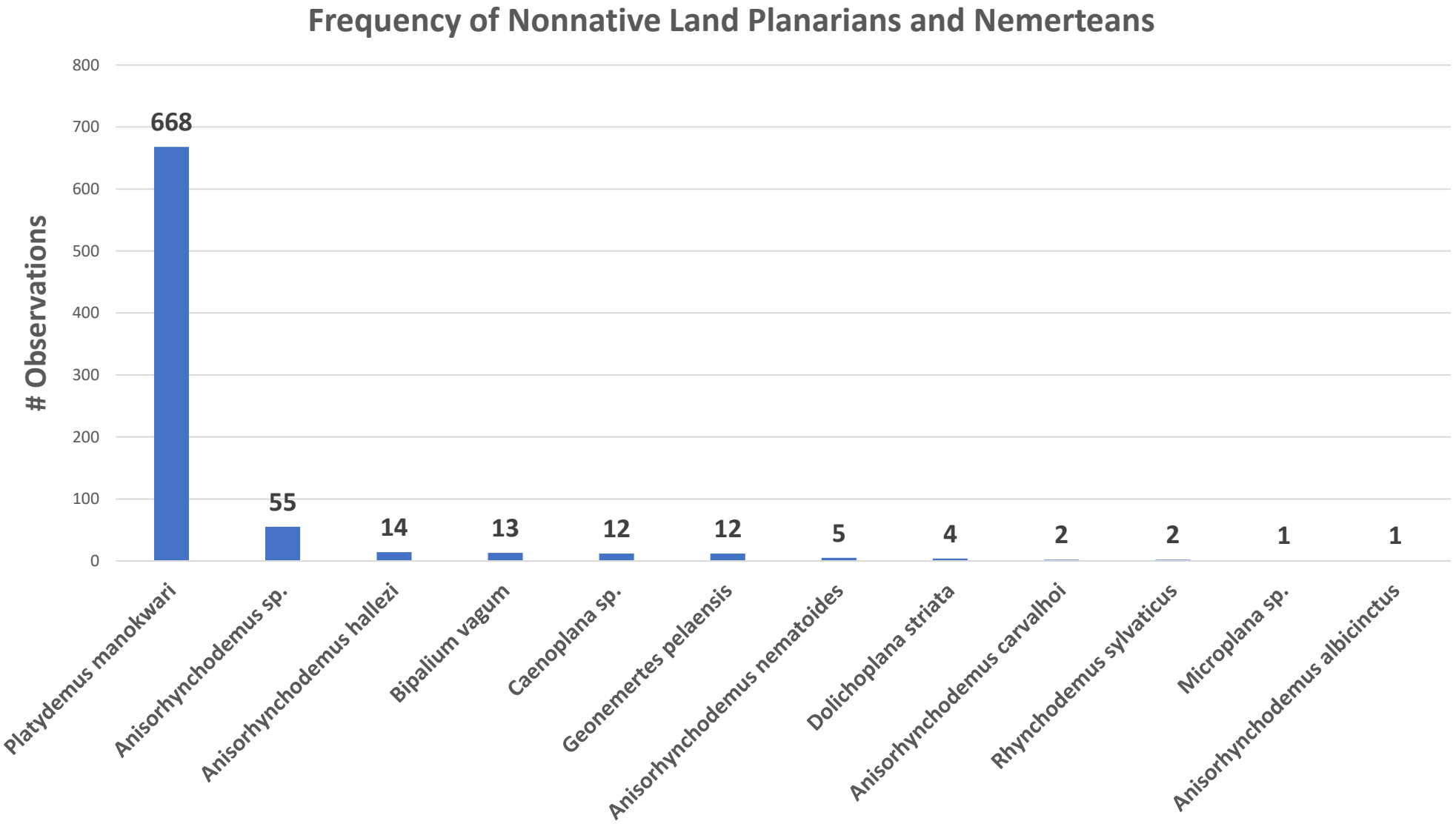
Salted NGF. Photo: Lawrence Lopez

VII. NGF Controls:

Biocontrol?

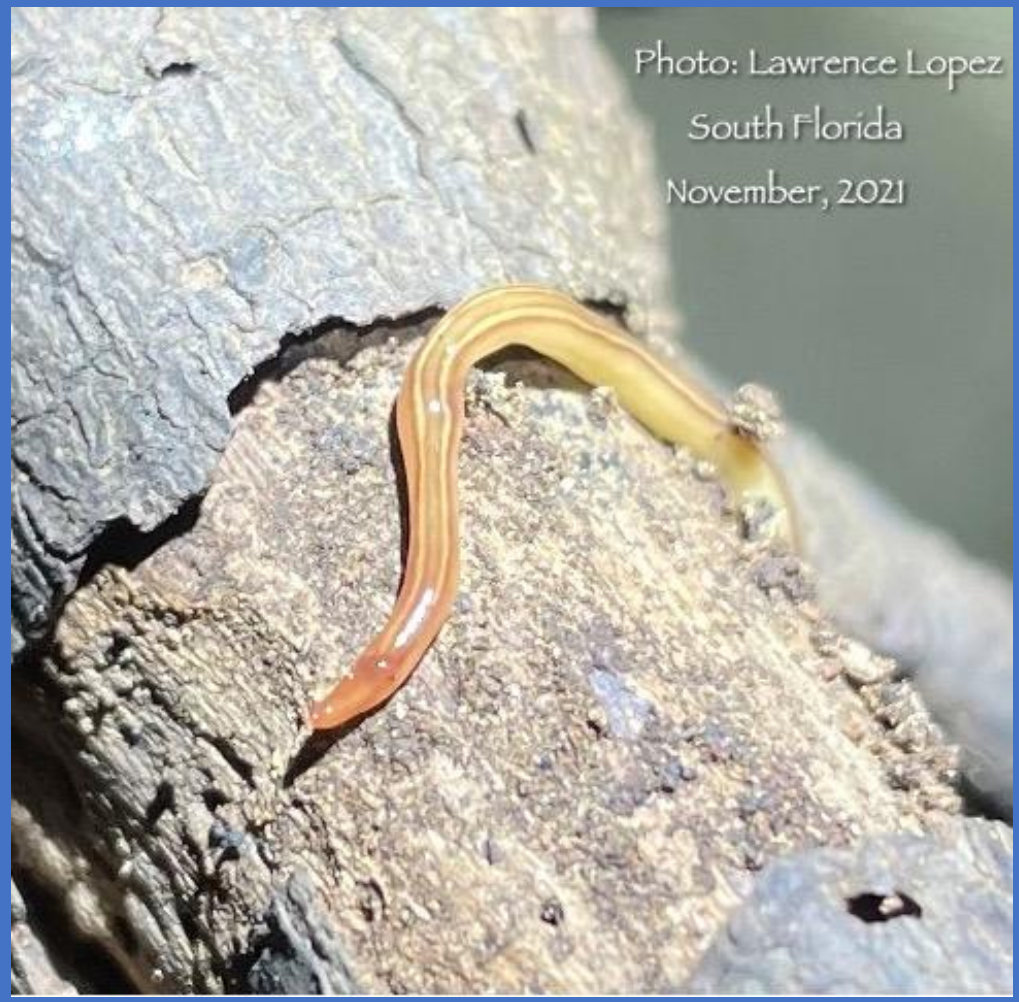
Carnivorous snail eating flatworm (*Rectartemon depressus* (Lemos et al. 2012).

VIII. NGF vs. Other Potential Invasive Land Planarians and Nemertean.



VIII. NGF vs. Other Potential Invasive Land Planarians and Nemertean.

Anisorhynchodemus sp.



Caenoplana sp.

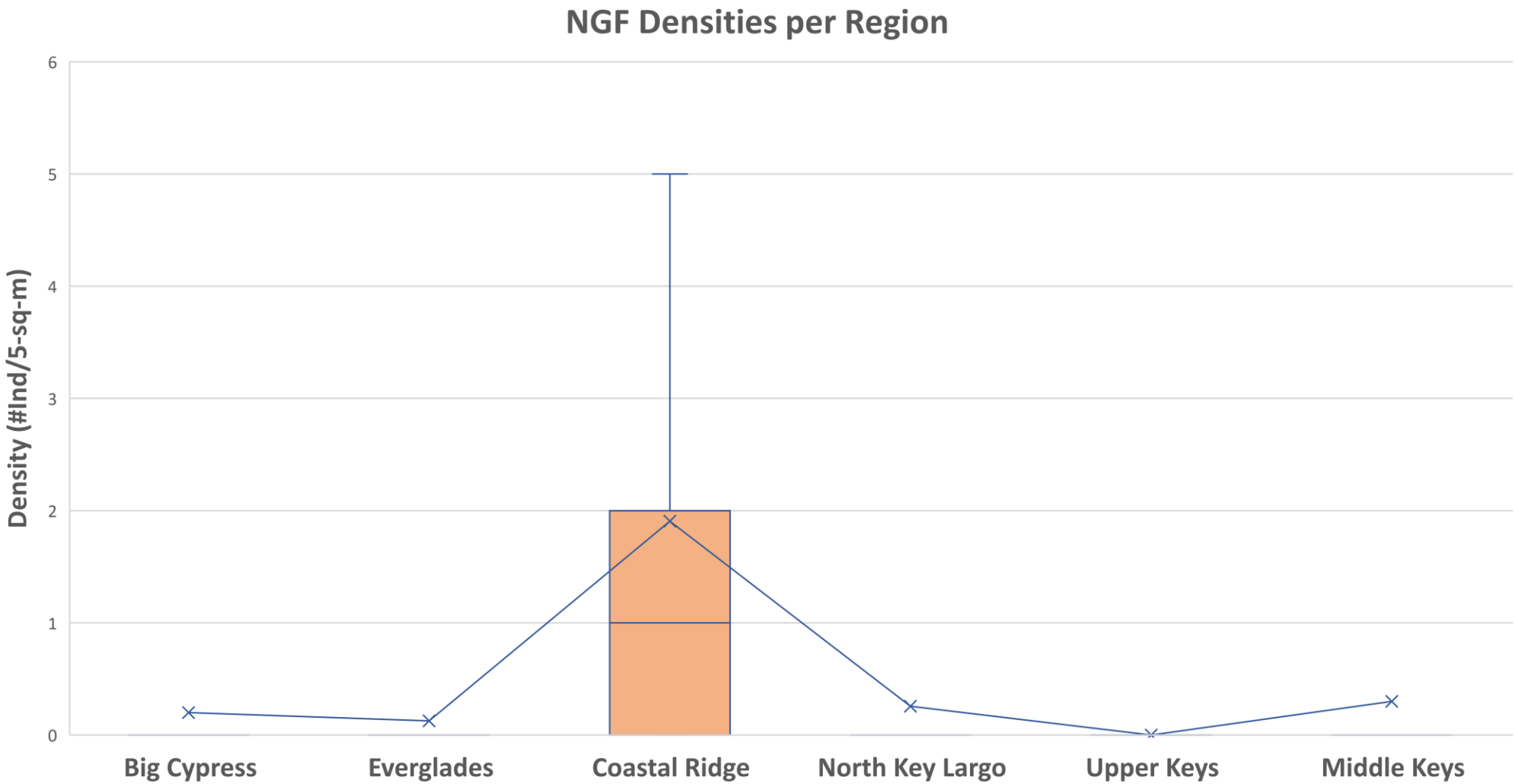
VIII. NGF vs. Other Potential Invasive Land Planarians and Nemertean.

IX. Conclusions: Ecological Impact in Hammocks

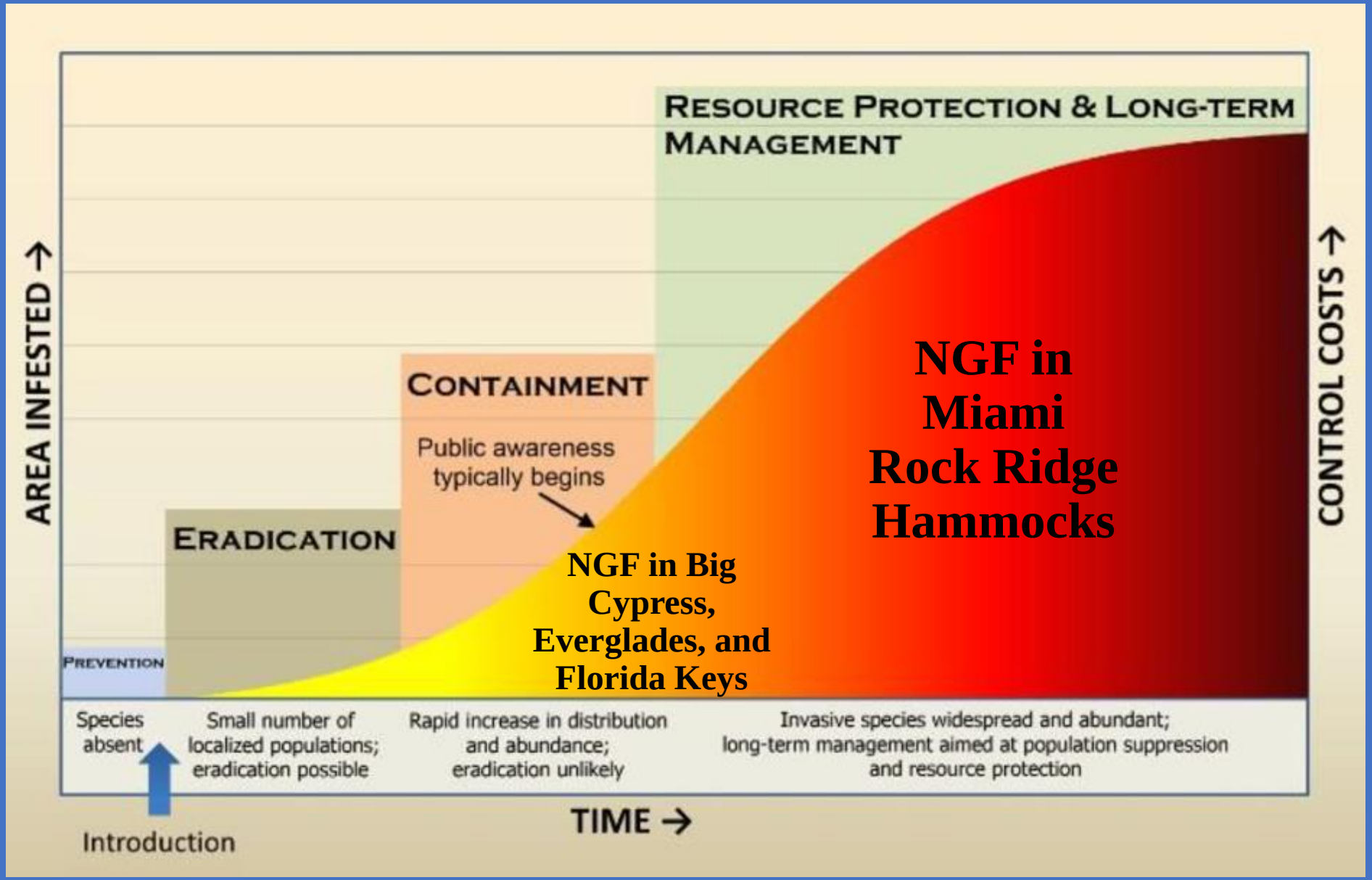
Camp Owaissa Bauer Addition. Photo: L. Lopez

Deering Estate. Photo: L. Lopez

IX. Conclusions: NGF Densities per Region



IX. Conclusions: Invasive Species Curve



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QUESTIONS?

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Think Locally, Act neighborly
invasive species know no boundaries!