Miccosukee Tribe of Indians

Invasive Species Program

CRAIG VAN DER HEIDEN


Oklahoma
Arkansas
Tennessee
North Carolina
South Carolina
Texas
Mississippi
Alabama
Georgia
Louisiana
Bermuda
Florida
Federal Reservation
Gulf of Mexico
Nassau
The Bahamas
Straits of Florida
Havana
Gulf of Batabano
Cuba
Cockburn Town
Isla de Cozumel
Dominican Republic
San Juan
Grand Cayman
Haiti
Santo Domingo
Puerto Rico
Port-au-Prince
Jamaica
Kingston
Belize
Belmopan
Guatemala

Management plans

- Plants
- Reptiles
- Fishes
- Insects (in development)
- Exotic Fishing Competition

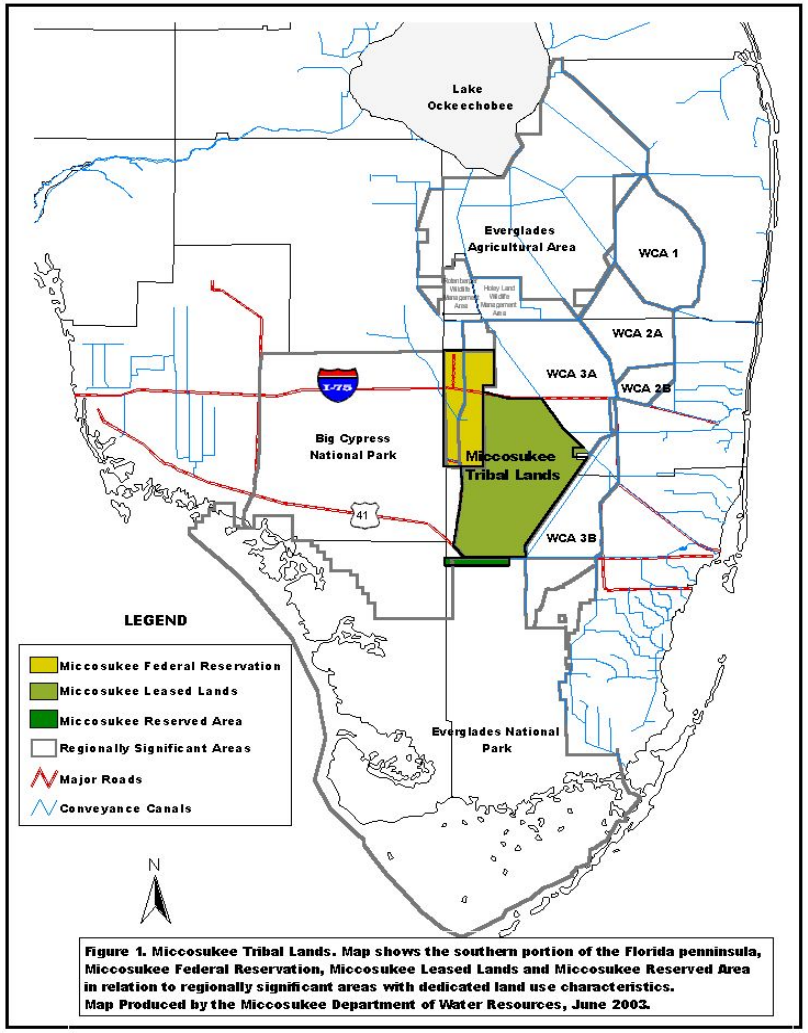
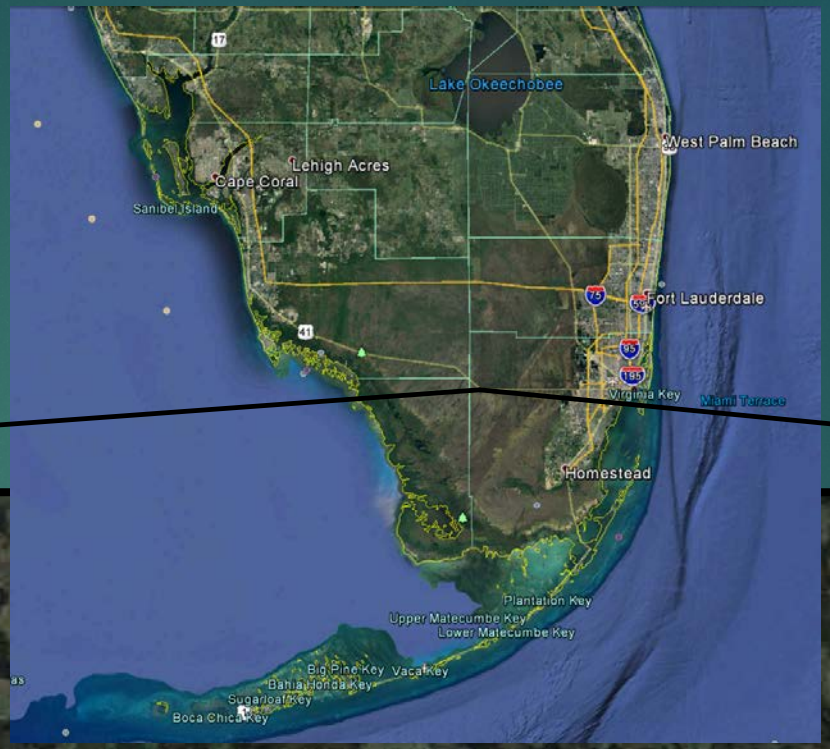


Figure 1. Miccosukee Tribal Lands. Map shows the southern portion of the Florida penninsula, Miccosukee Federal Reservation, Miccosukee Leased Lands and Miccosukee Reserved Area in relation to regionally significant areas with dedicated land use characteristics.
Map Produced by the Miccosukee Department of Water Resources, June 2003.

Examples

- Canal restoration
- Python removal

Canal Restoration



3D
Google

Project Objectives

- Habitat restoration
    1. Remove aquatic vegetation
    2. Remove exotic vegetation along canal bank
- Implement the Miccosukee Fisheries Management Plan
    1. Capture native fish
    2. Remove exotic fish
    3. Reintroduce native fish
- Community outreach and public awareness

Background

Previously Canal restoration completed in 2009
Canal had reverted back to previous condition

Habitat Restoration

- **Habitat restoration**
  1. **Remove invasive aquatic vegetation**
  2. **Remove exotic vegetation along canal bank**
- Implement the Miccosukee Fisheries Management Plan
  1. Capture native fish
  2. Remove exotic fish
  3. Reintroduce native fish
- Community outreach and public awareness


USFWS Photo/J. Galvez


USFWS Photo/J. Galvez

Invasive Exotic Plant Species

Species	Common name	Family	FLEPPC Status
Bischofia javanica	Bishopwood	Phyllanthaceae	Cat I Invasive
Casuarina equisetifolia	Australian pine	Casuarinaceae	Cat I Invasive
Cocos nucifera	Coconut palm	Arecaceae	Cat II Invasive
Colocasia esculenta	Wild taro	Araceae	Cat I Invasive
Cyperus involucratus	Umbrella plant	Cyperaceae	Cat II Invasive
Dactyloctenium aegyptium	Cow's foot grass	Poaceae	Cat II Invasive
Leucaena leucocephala	White leadtree	Fabaceae	Cat II Invasive
Ludwigia peruviana	Peruvian water primrose	Onagraceae	Cat I Invasive
Neyraudia reynaudiana	Burma Reed	Poaceae	Cat I Invasive
Panicum repens	Torpedo grass	Poaceae	Cat I Invasive
Pennisetum purpureum	Napier grass	Poaceae	Cat I Invasive
Richardia grandiflora	Mexican clover	Rubiaceae	Cat II Invasive
Ruellia blechnum	Green shrimp plant	Acanthaceae	Cat II Invasive
Salvinia minima	Water spangles	Salviniaceae	Cat II Invasive
Schefflera actinophylla	Australian umbrellatree	Araliaceae	Cat I Invasive
Schinus terebinthifolius	Brazilian pepper	Anacardiaceae	Cat I Invasive
Spermacoce verticillata	Buttonweed	Rubiaceae	Cat II Invasive
Tradescantia spathacea	Boatlily	Commelinaceae	Cat II Invasive

After


MICCOSUKEE
POLICE

Solar Aeration

Implement the Fisheries Management Plan

- Habitat restoration
    I. Remove aquatic vegetation
    II. Remove exotic vegetation along canal bank
- **Implement the Miccosukee Fisheries Management Plan**
    I. Capture native fish
    II. Remove exotic fish
    III. Reintroduce native fish
- Community outreach and public awareness

Native fish removal

Exotic Fish Species

Nonnative species	
Common name	**Scientific name**
Pike killifish	*Belonesox belizanus*
Black acara	*Cichlasoma bimaculatum*
Mayan cichlid	*Cichlasoma urophthalmus*
African jewelfish	*Hemichromis letourneuxi*
Sailfin catfish	*Pterygoplichthys multiradiatus*
Spotted tilapia	*Tilapia mariae*






Exotic fish removal

Rotenone Treatment

Fish restocking (USFWS)

- 400 Florida Gar (16 inches minimum)
- 400 Bowfin (12 inches minimum)
- 500 Large Mouth Bass (4-6 inches)
- 1500 Bluegill (3-5 inches)
- 1000 Red-ear sunfish (3-5 inches)
- 2000 shiners

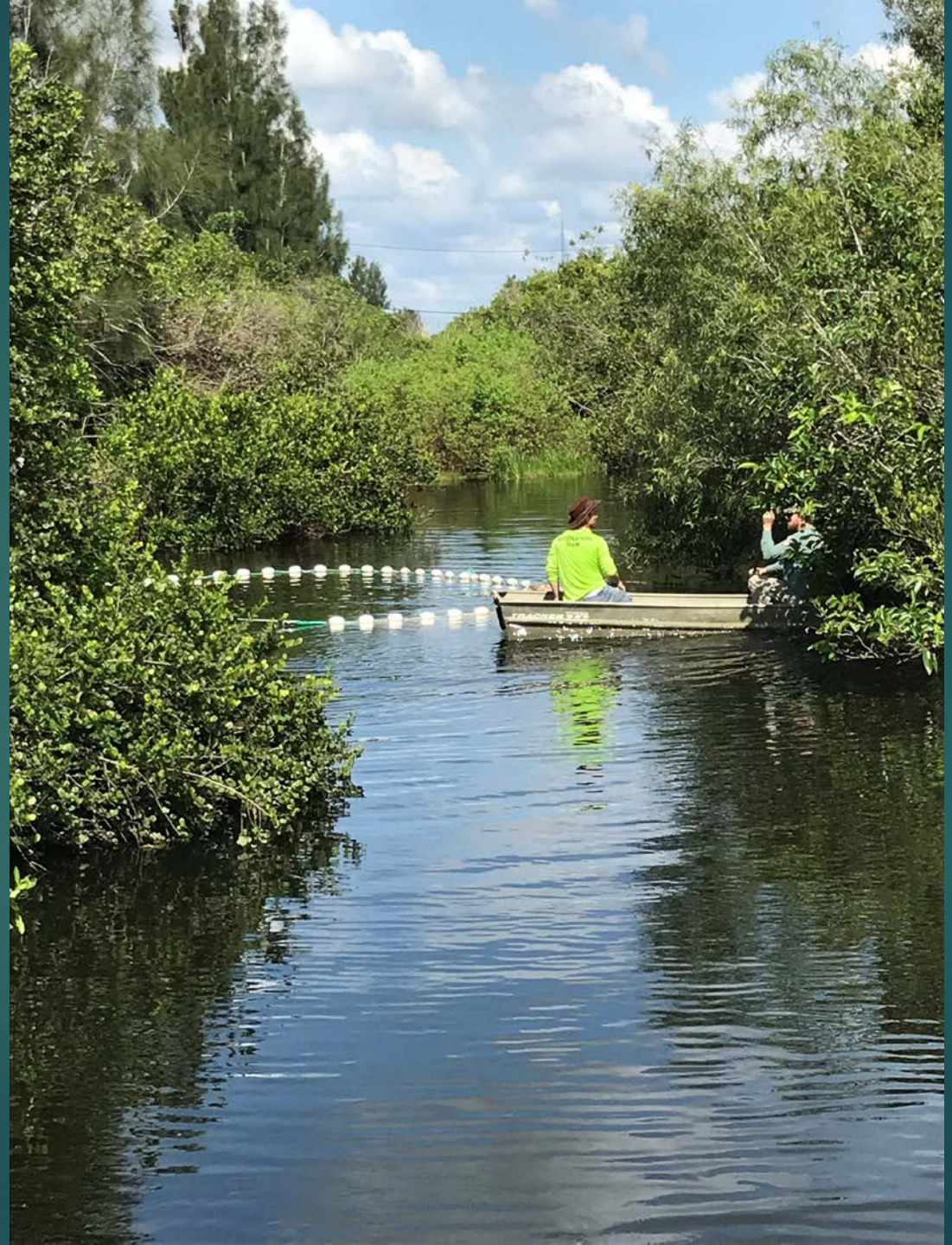
Community outreach and public awareness

- Habitat restoration
    I. Remove aquatic vegetation
    II. Remove exotic vegetation along canal bank
- Implement the Miccosukee Fisheries Management Plan
    I. Capture native fish
    II. Remove exotic fish
    III. Reintroduce native fish
- **Community outreach and public awareness**

Miccosukee Community and Youth

- Invasive vegetation removal
- Invasive fish removal
- Amphibian surveys
- Insect surveys
- Birds and other animals


RESTORATION
TEAM




RESTORATION
TEAM


STOP
LET'S
THIS.

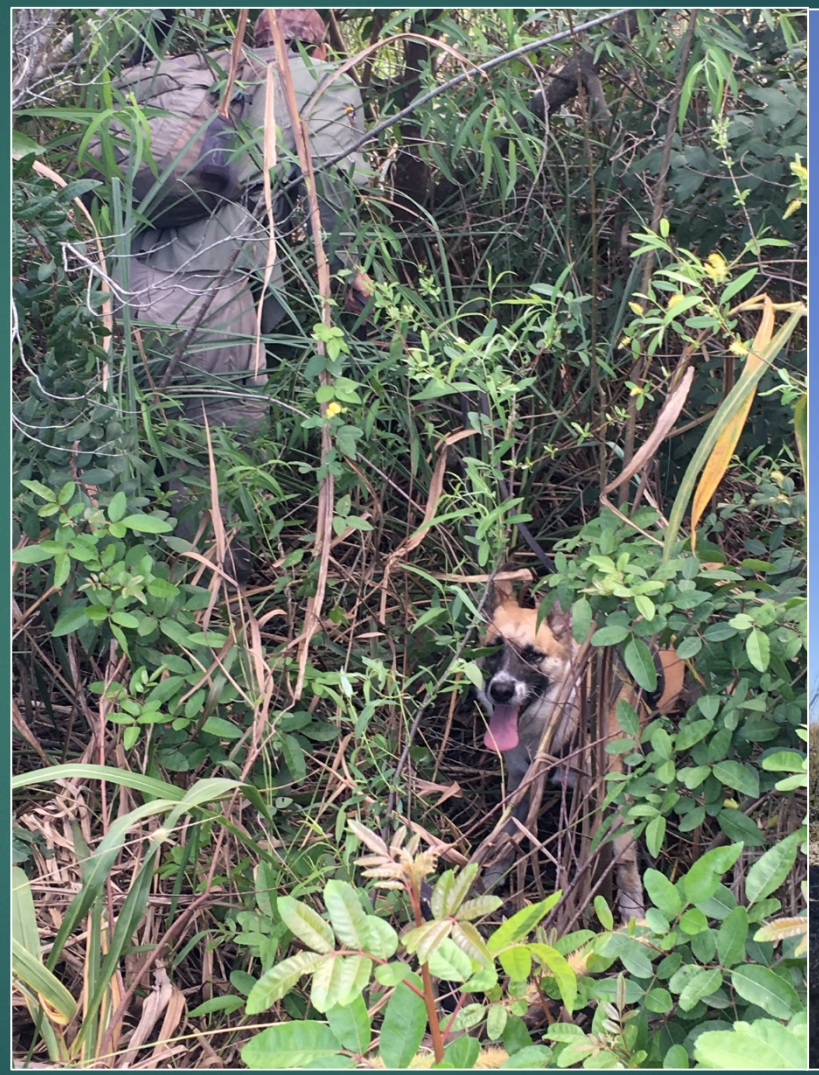
Usage of detection dogs to increase Burmese python capture rate

Miccosukee Python Removal Program

- Research and management began in 2017.
- Started as a result of several incidental captures.
- Driving levees, but not getting good results.
- How to increase captures?
- Detection dogs.
- 2019 we implemented python K9 hunts.
- Developed a successful detection dog program.
- Integrate research and management.

Why detection dogs?

- Despite their large size, **pythons are very cryptic**.
- Detectability can be as low as 1%.
- Detections dogs have used in wildlife management.
- Python dogs were tested in 2011, they showed a **considerable increase in success rate** over human search teams.



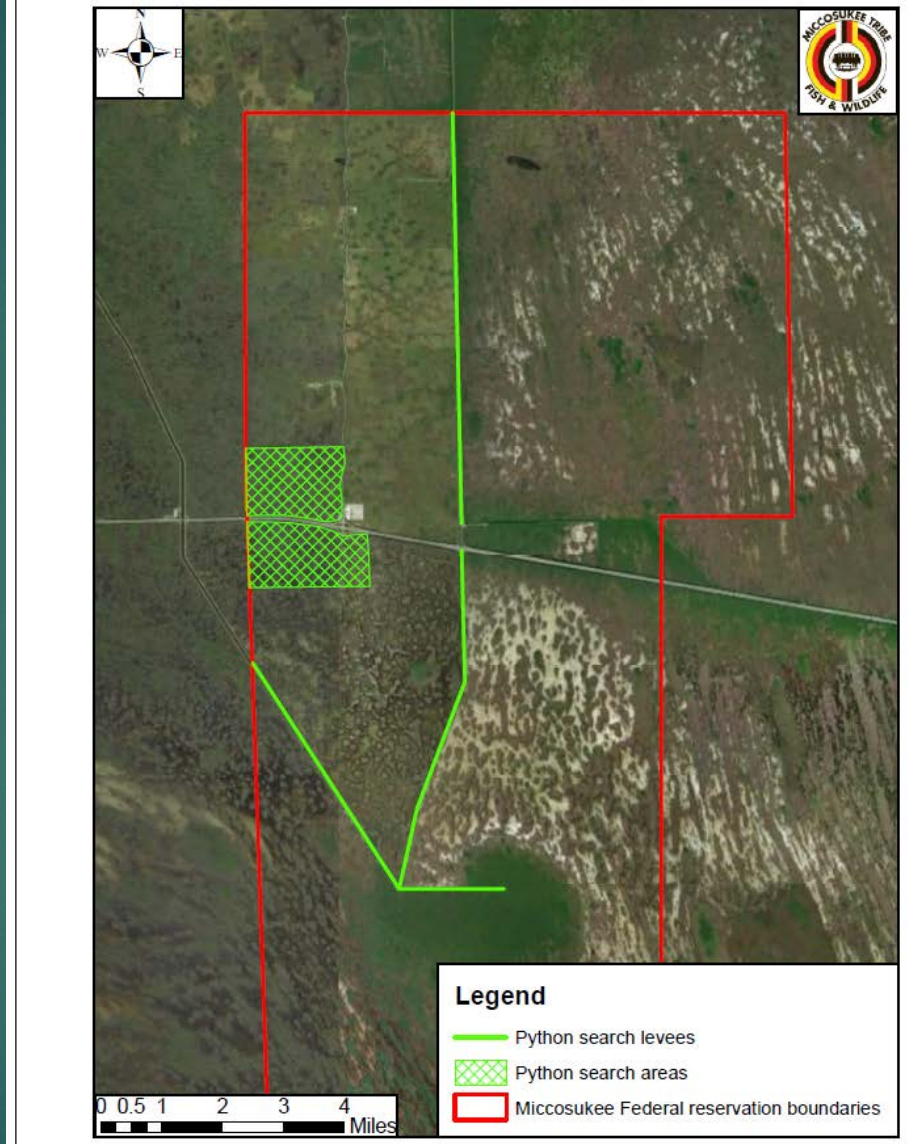
Methodology

2018

- Driving levees once or twice a week.
- Every month.

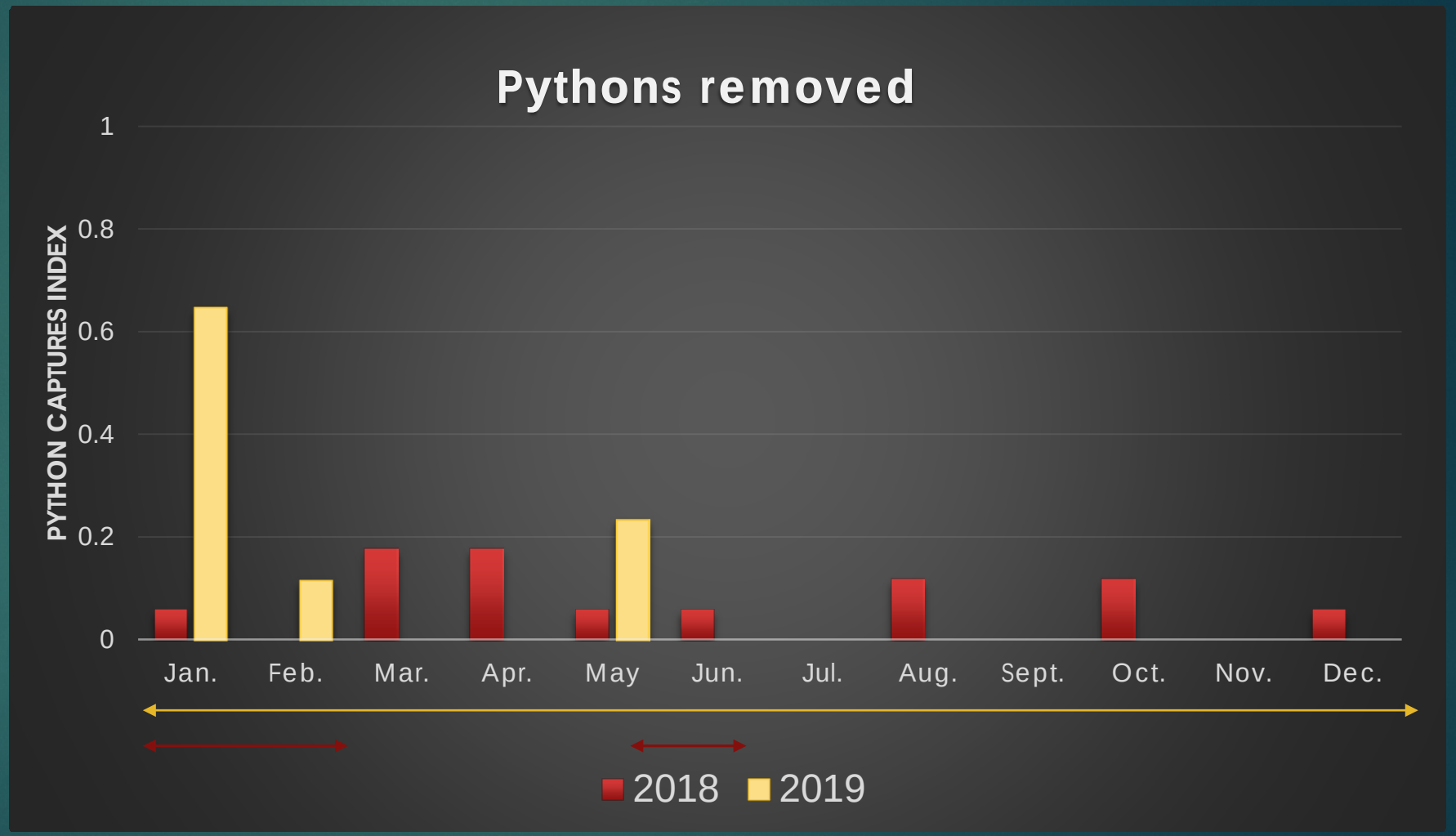
2019

- Walking the dog 2 or 3 times a week.
- January and February.
- End of May and June.



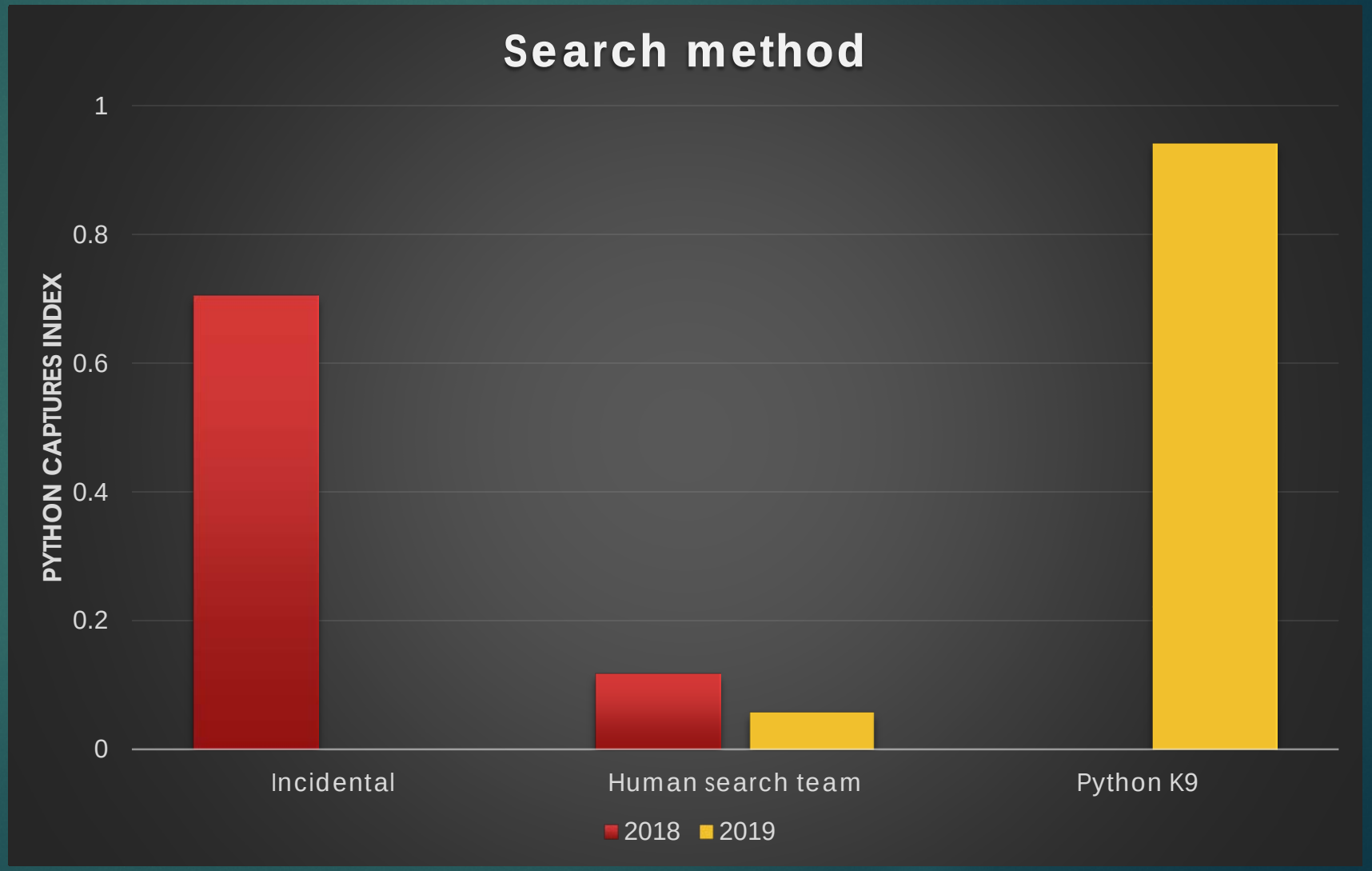
Results and successes

- **Increase of 21% on python** captures compared to 2018.
- We capture more pythons than 2018, in only 3 months in 2019.



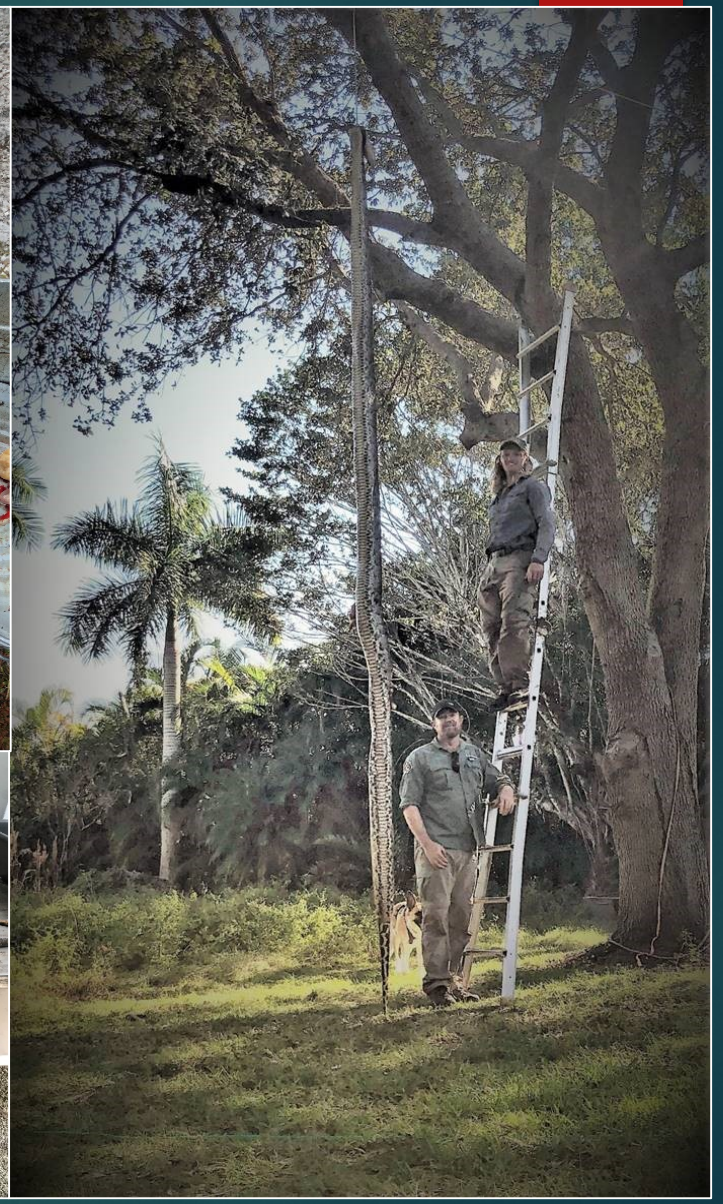
Results and successes

- Incidental captures in 2018, while conducting other wildlife management activities.
- Almost all the pythons captured in 2019 were found with the help of the dog.



Successes using a detection dog

- **20 ft. python** removed.
- We captured gravid females and found a nest in 2 days at the end of May. **200 eggs** removed**.**

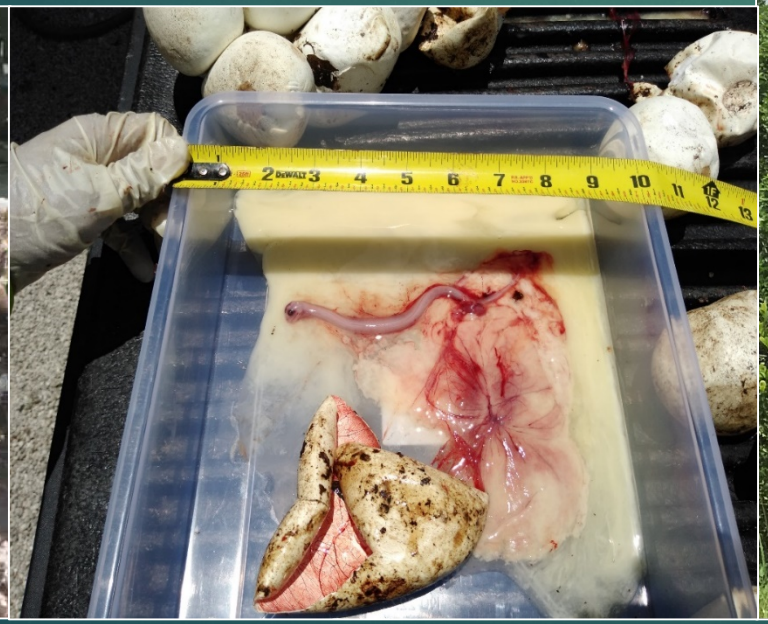


Advantages of Using a Detection dog

Python skin visible on the same “window” in leaf litter.

Advantages of Using a Detection dog

- In thick vegetation or tall grass, finding pythons is unfeasible by the human eye or a human search team
- Search areas besides levees
- Search an area faster

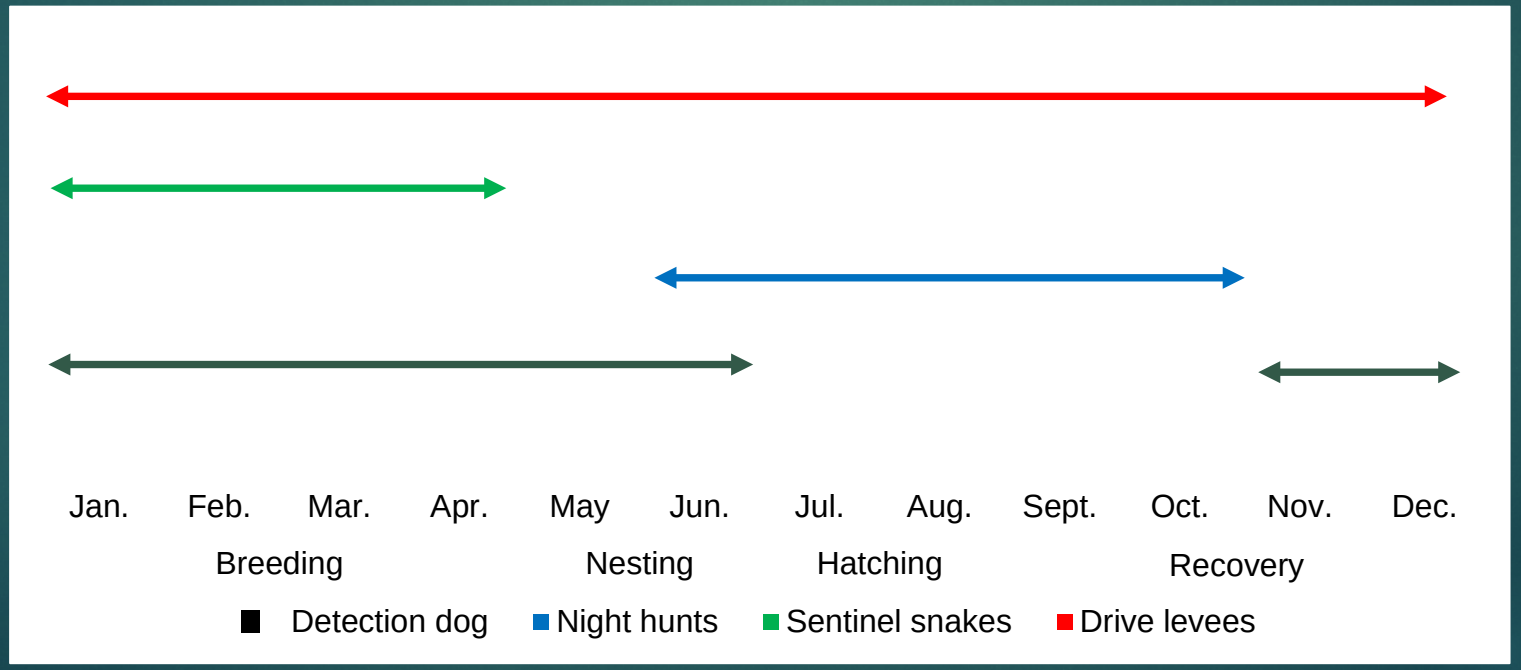


Things to consider Using Detection dog

- Get the right breed for south Florida weather.
- Bonding between dog and handler.
- Constant **training** is very important, especially for the handler.
- Reading the dog body language.
- Real life scenarios when training.
- Use the wind to your favor.
- Don’t over work the dog.

Conclusions

- A detection dog works great during the winter.
- Good results during nesting season.
- Not a silver bullet, but a good tool for python management efforts.
- Using a combination of techniques will help to increase capture rate throughout the year.
- Good method to find pythons in the interior (tree islands).



Thank you

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