Canine Detection as a Potential Tool for Python Management

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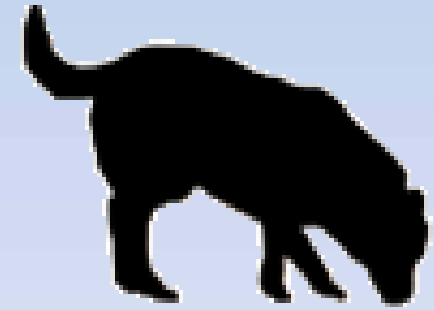
Priority Animal Species

Monitoring and Innovations

Detection dogs



EcoDogs

Monitoring and Innovations

- Auburn University EcoDogs
  - Collaboration between:
    - College of Veterinary Medicine
      - Canine Detection Research Institute
    - School of Forestry and Wildlife Sciences

Detection dogs and pythons

- Proof of concept study
  - Funded by:
    - NPS – ENP
    - SFWMD
    - AU Center for Forest Sustainability
  - Additional support:
    - USDA
    - USGS
    - UF

Detection dogs and pythons

- Proof of concept study
  - Nov 2010 – May 2011
  - Identify situations best suited for detection dogs
  - Compare dog efficacy to current detection methods

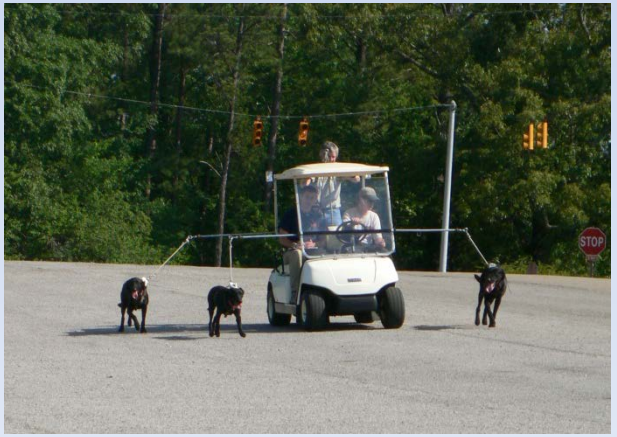
Training process

- Auburn, AL

  - 3 dogs selected from AU Canine Detection Research Institute stock

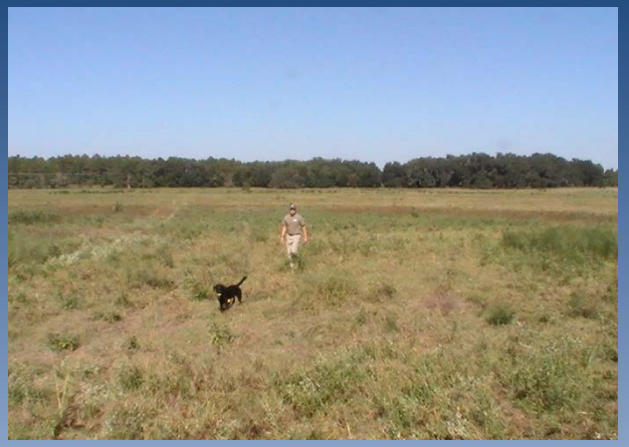
  - Trained on python scent

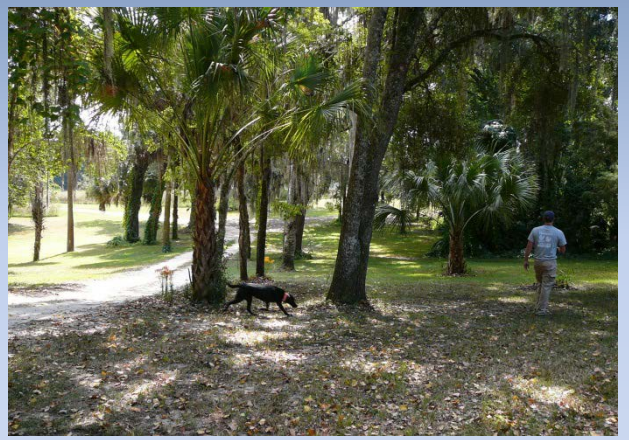
  - Physical conditioning



Training process

- Gainesville, FL
  (USDA-Wildlife Services)
  - Trained on live snakes
    - Field and road scenarios with bagged pythons
    - Pythons released in large enclosures





Training process

- Miami-Dade County, FL

  SFWMD lands

  – Bagged snakes in realistic canal/levee scenarios

  – Radio-tagged snakes in fields

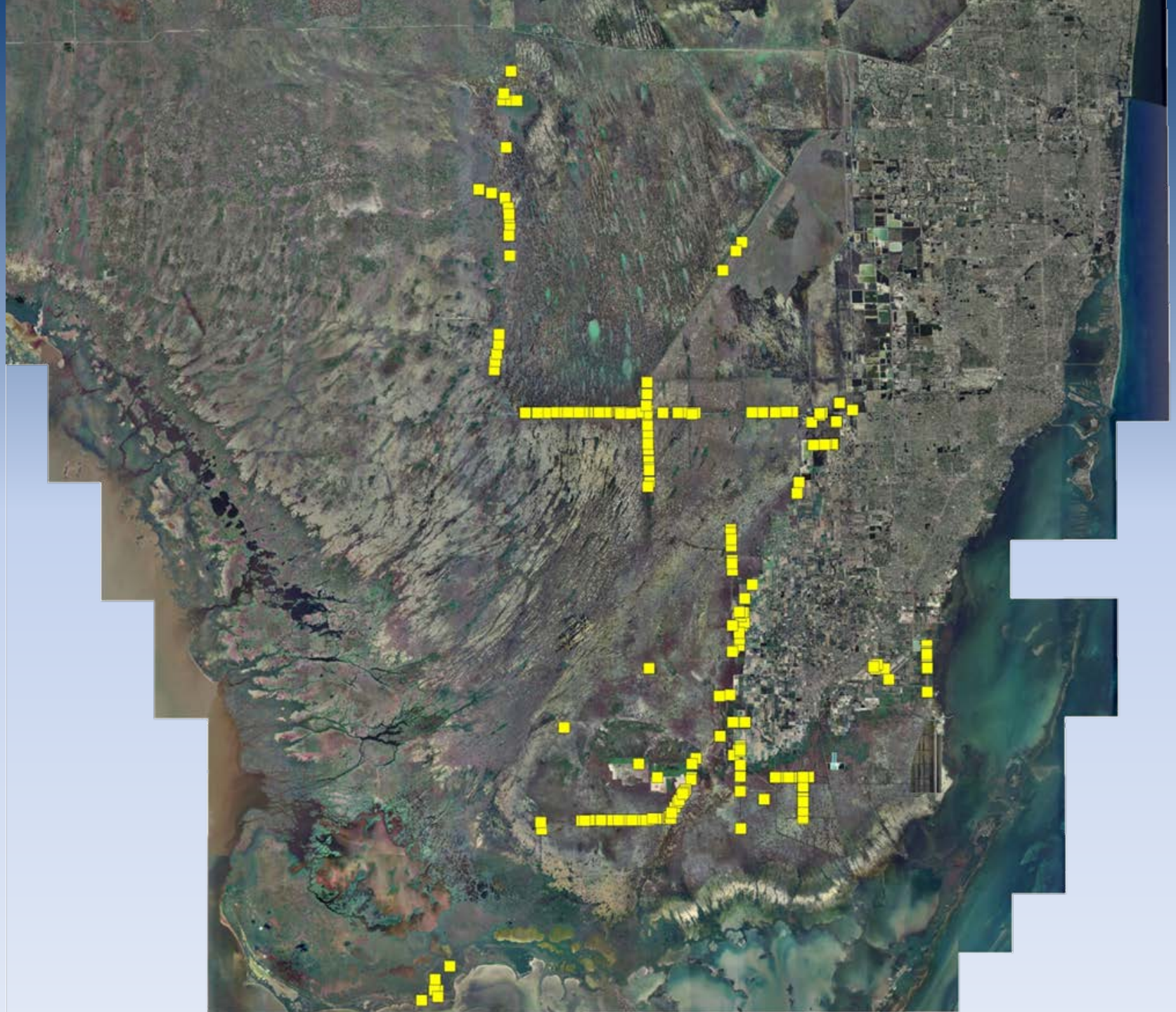
Activities

- Cooperate in Early Detection/Rapid Response efforts
  - North African Python surveys
  - Python calls

Activities

- Cooperate in Early Detection/Rapid Response efforts

- Perform wild searches
  - 8 Nov 2010 -12 April 2011





19 snakes captured, most in Dec and Jan



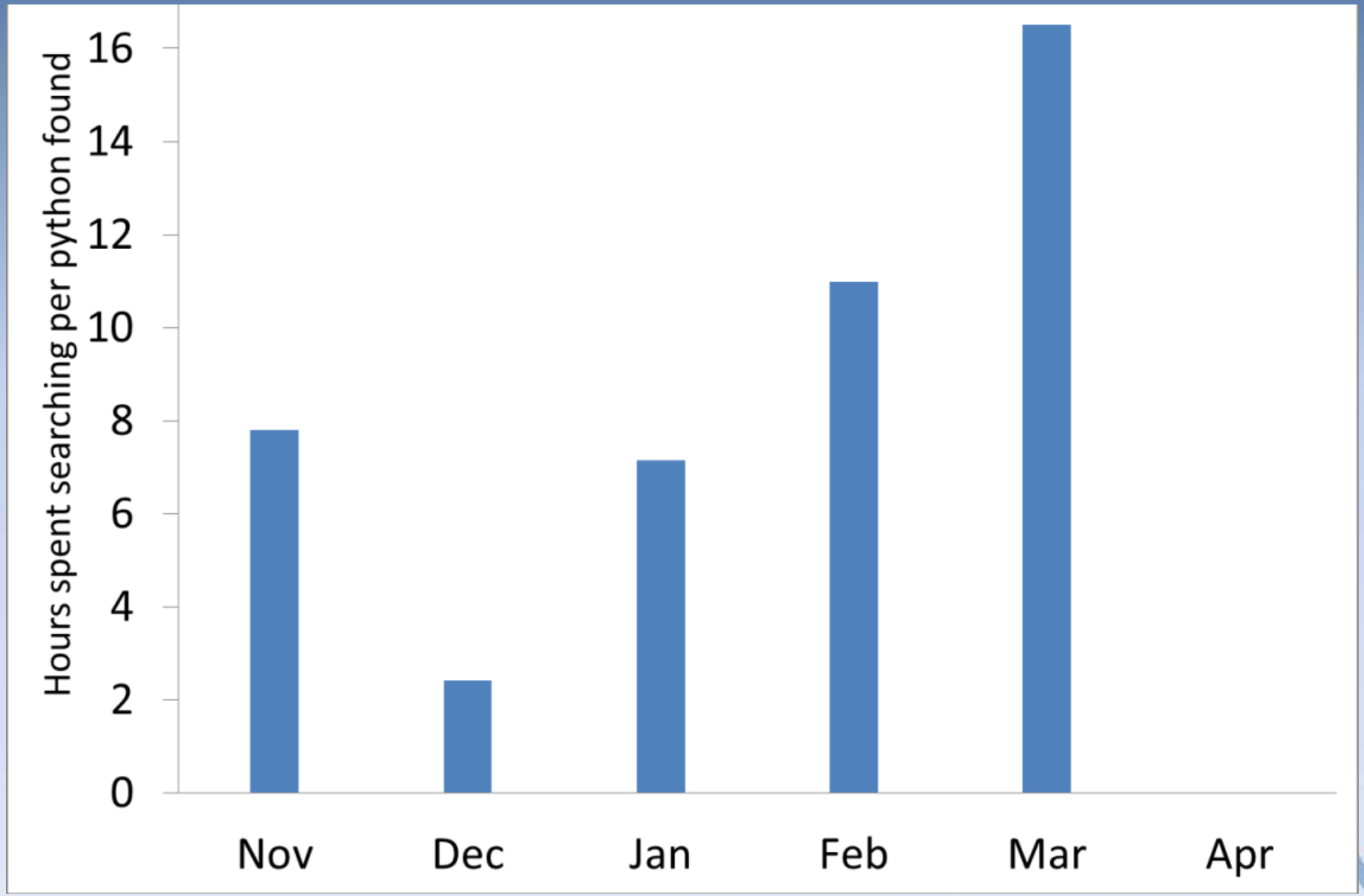
Wild search summary

- Miles searched: 426.7 “dog” miles
  324 linear miles

- Can cover roughly 2.23 linear miles/hour (3.13 dog miles/hour)

- Dogs use air scent and can also track on ground to find pythons

Monthly: **hours** searched per python captured



Activities

- Cooperate in Early Detection/Rapid Response efforts
- Perform wild searches
- Test efficacy

Testing efficacy

"Man vs. Dog"

– Quantify and compare dog and human search teams under controlled search conditions

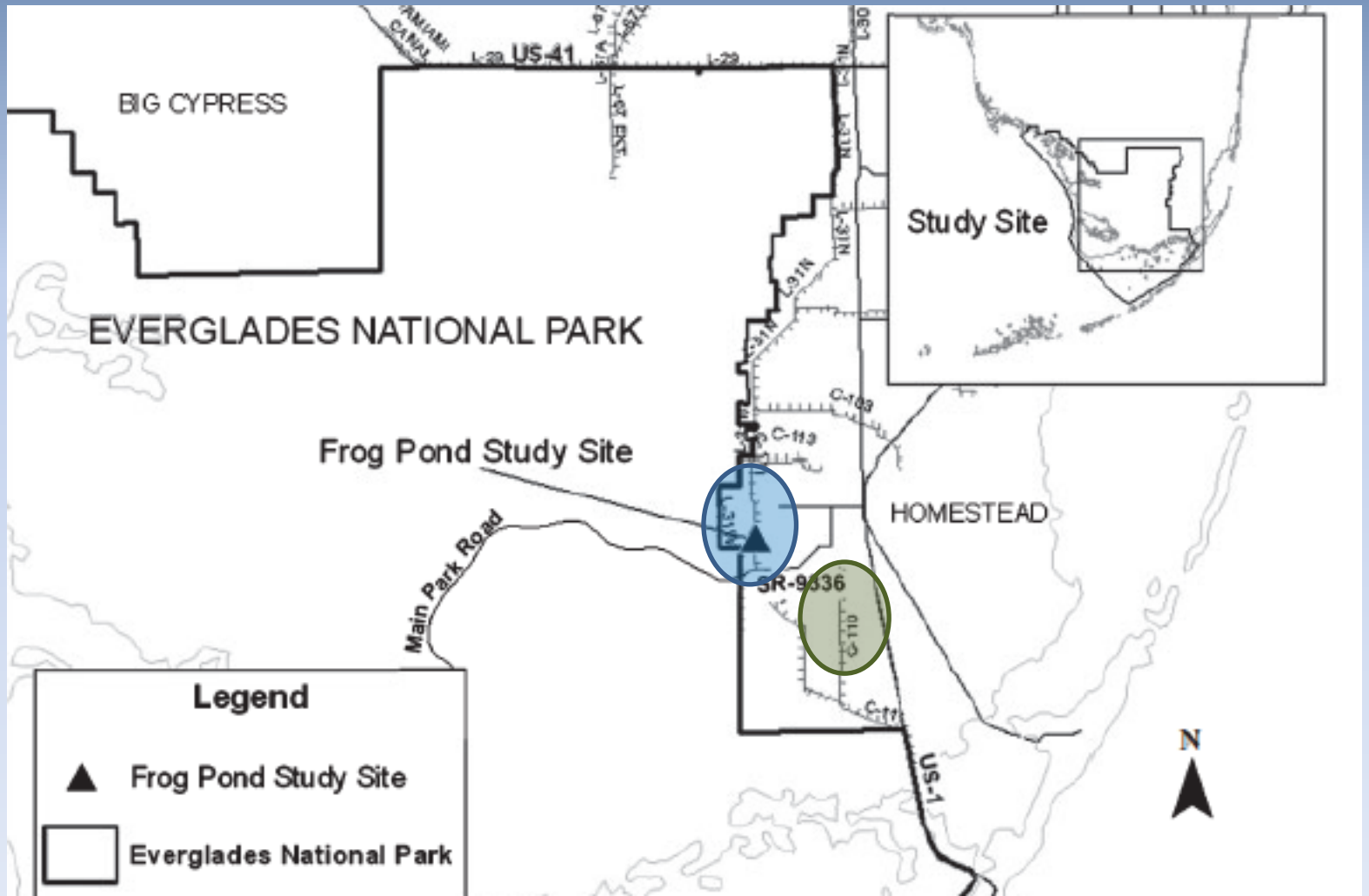
Testing efficacy

"Man vs. Dog"

- Dog team
  - Dog, handler, data collector/tracker
- Human teams
  - 2-6 volunteers, data collector/tracker
  - ~ 50 volunteers from agencies, NGOs, academic institutions, private citizens

Testing efficacy

- 1-25 May 2011
- Plot searches
- Canal searches



Plots

- Eight 50 x 50 m plots
- 1 to 3 radio-tagged pythons released per plot

Plots

- Each team allowed one sweep of plot

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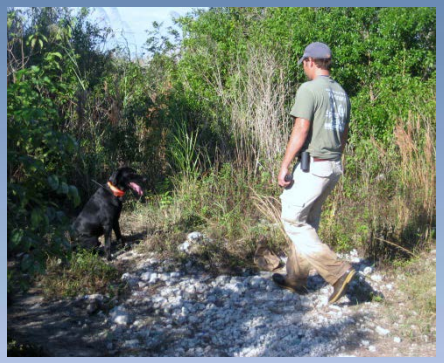
Canal searches

- Bagged snakes
- Dead snakes



Efficacy summary

Dogs

- 73% success (both dogs)
  77% success (Jake) in plots
- Average 9.1 min to search 50 x 50m plot
- 91% success along canal
- Search rate: 2 linear miles/hr; 3 dog miles/hr

Humans

- 64% success in plots
- Average 21 min to search 50 x 50m plot
- 63% success along canal
- Search rate: 0.6 miles/hr

What factors affect python detection?

- Dogs
  - Wild searches
    - Relative humidity: lower humidity ↑ success
    - Temperature: lower temp ↑ success
  - Plot searches
    - Relative humidity : lower humidity ↑ success
- Humans
  - Snake size: small snake ↓ success
  - Plot: plots with thick veg ↓ success

Lessons learned

- Dogs can be a useful tool for pythons
  - Time efficient
  - Best use in particular scenarios
    - Levees and canals in winter
    - Known sighting
  - Dog personality and qualities

Lessons learned

So….

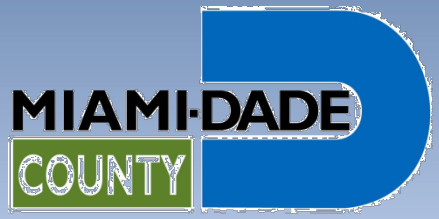
- Dogs are faster and can find pythons better than humans in certain scenarios
- What is the difference in cost?

Leased dogs	Cost/week	Miles/week	Cost/mile
AU dogs (includes handler and 2 dogs) + snake tech at $13/hr	$2520	50	$50.40
Two employees working at $20/hr	$1600	18	$88.89
	Lease for 3 months		**$30,240**
Bought dogs	**Cost/week**	**One time cost**	**Cost/year**
Buy and train 2 dogs, handler, salaries and additional costs for 8 years (life of dog)	$1350	$42,500	**$70,150**

Needs and gaps

- More precise assessment of temporal variation and habitats
  - Data from multiple years
- Better assessment of human wild survey effort

US Army Corps of Engineers®



EcoDogs

DENISON UNIVERSITY

THE CENTER FOR FOREST SUSTAINABILITY

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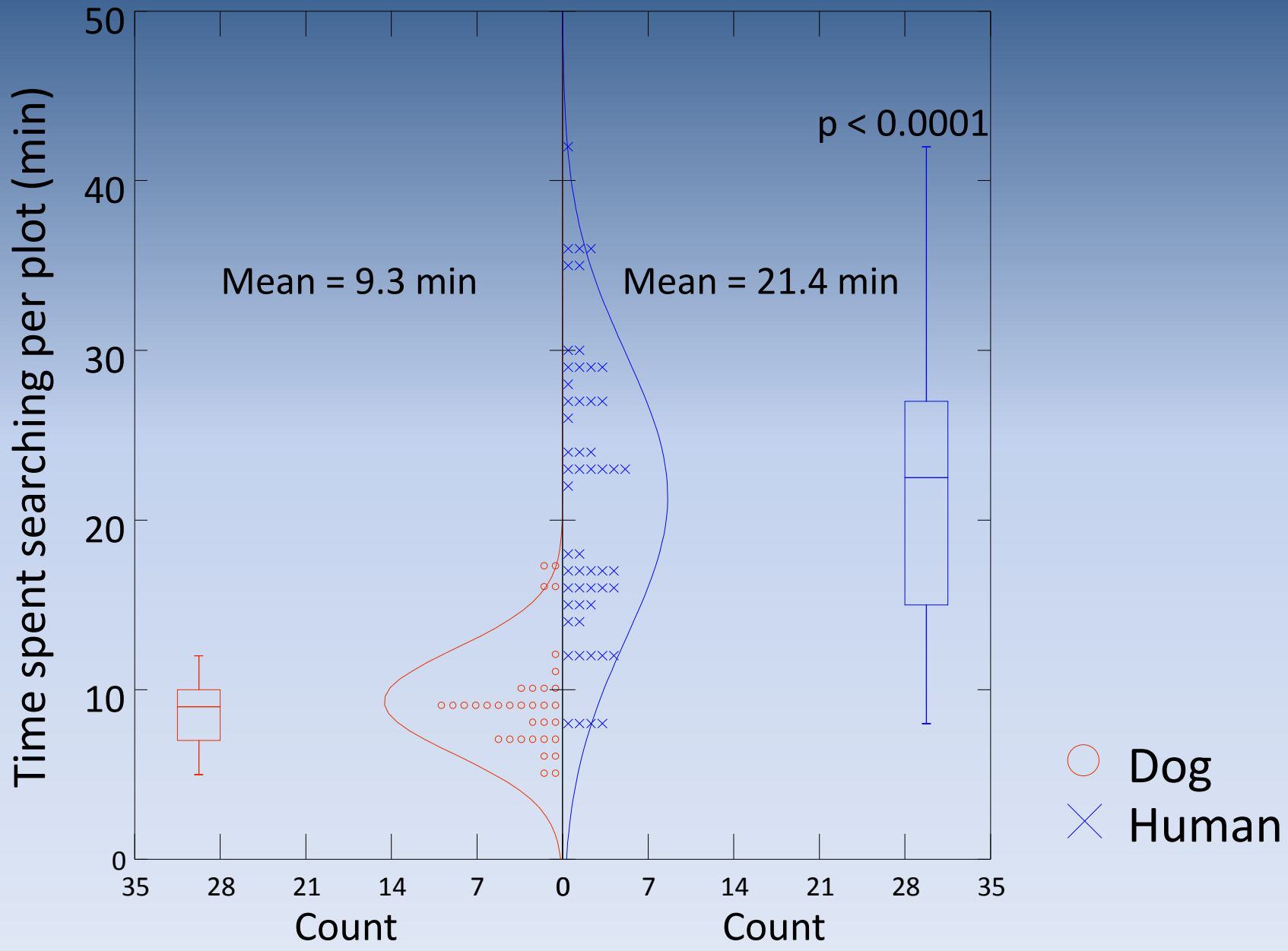
Time spent searching per plot



Time spent searching per plot
Number of volunteers