

Detector Dog Surveys for Eastern Indigo Snakes (*Drymarchon couperi*) at three Navy Installations in north Florida



BACKGROUND: What is an Eastern Indigo Snake ?

Nonvenomous species in Family Colubridae

Longest Snake in the U.S. (to 8 ft., 7 in. [2.63 m])

Known to eat Venomous Snakes

Colloquial Name is “Gopher Snake”







Black Racer (above); Indigos (R)

BACKGROUND: Imperiled Status

Federally Listed since 1978

Population Declines:

- ❖ **Habitat loss and fragmentation (road mortality)**
- ❖ **Declining Gopher Tortoise population**
- ❖ **Overcollection**
- ❖ **Rattlesnake Roundups (gassing burrows)**

A US FWS status review in 2008 concluded that continued listing as FED T is warranted



BACKGROUND: Use of Gopher Tortoise Burrows

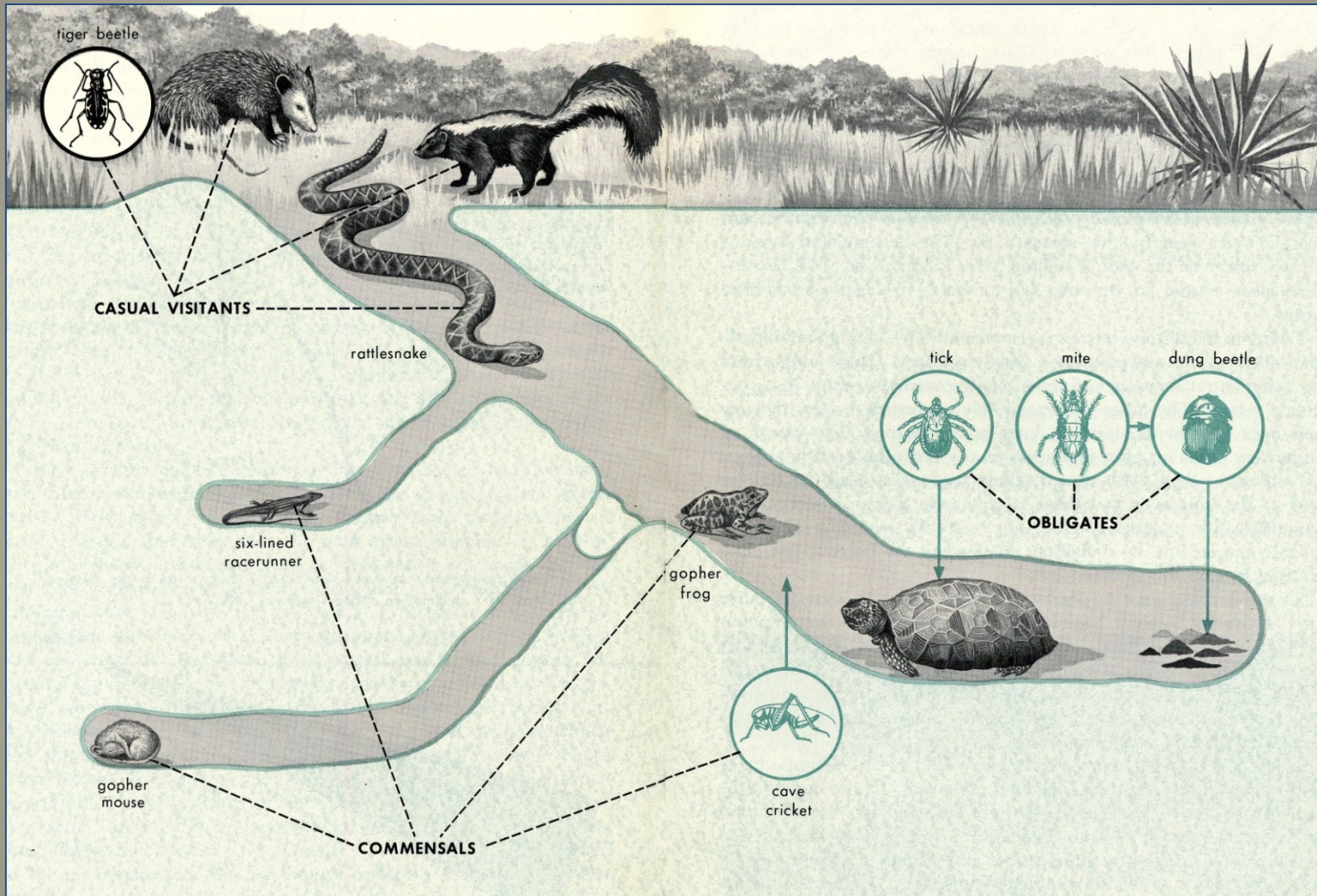
Dens to avoid temperature extremes

Foraging, mating, egg-laying, shedding

Tortoise burrow use greatest during cooler months

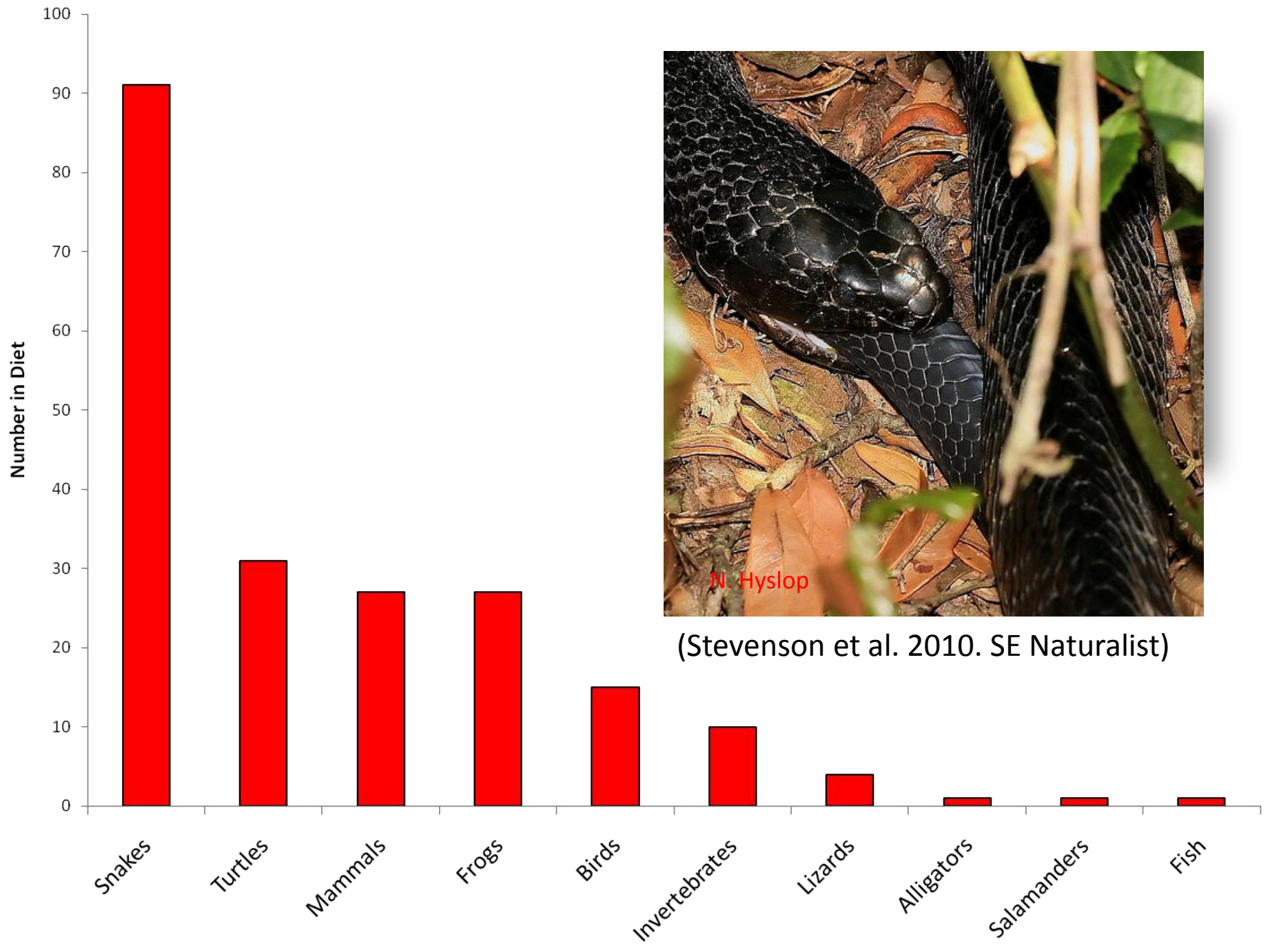
**From Gainesville, FL, north may be regarded as an
OBLIGATE COMMENSAL (seasonally)**





Gopher Tortoise burrows: 6-10 ft. deep and 15-30 ft. long





(Stevenson et al. 2010. SE Naturalist)



A. Day

Indigo Snake: Survey Methods

a) Detector Dog Surveys

b) Visual Encounter Surveys

“CJ” and “Charlie”



Detector Dog Surveys for Indigo Snakes



Our study demonstrated that a trained wildlife detector dog could locate eastern indigo snakes and shed skins in the wild, including deep in gopher tortoise burrows.



(Stevenson et al. 2010. Herp. Review)

Indigo Snake: Detector Dog Surveys

Dog is specifically trained to visit then inspect tortoise burrow (and vicinity) and **“indicate”** if it detects the odor of an indigo snake or shed skin.

PackLeader Conservation

Dogs, Gig Harbor, Washington

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Indigo Snake: Detector Dog Surveys

Dog is trained using shed skins and live snakes — including those of other snake species encountered in indigo habitat.



Indigo Snake: Detector Dog Surveys

Dog training is intensive and takes ca. 3 full weeks. Dog is tested with a series of “problems” (hidden snakes or fragments of shed skin).



Indigo Snake: Detector Dog Surveys

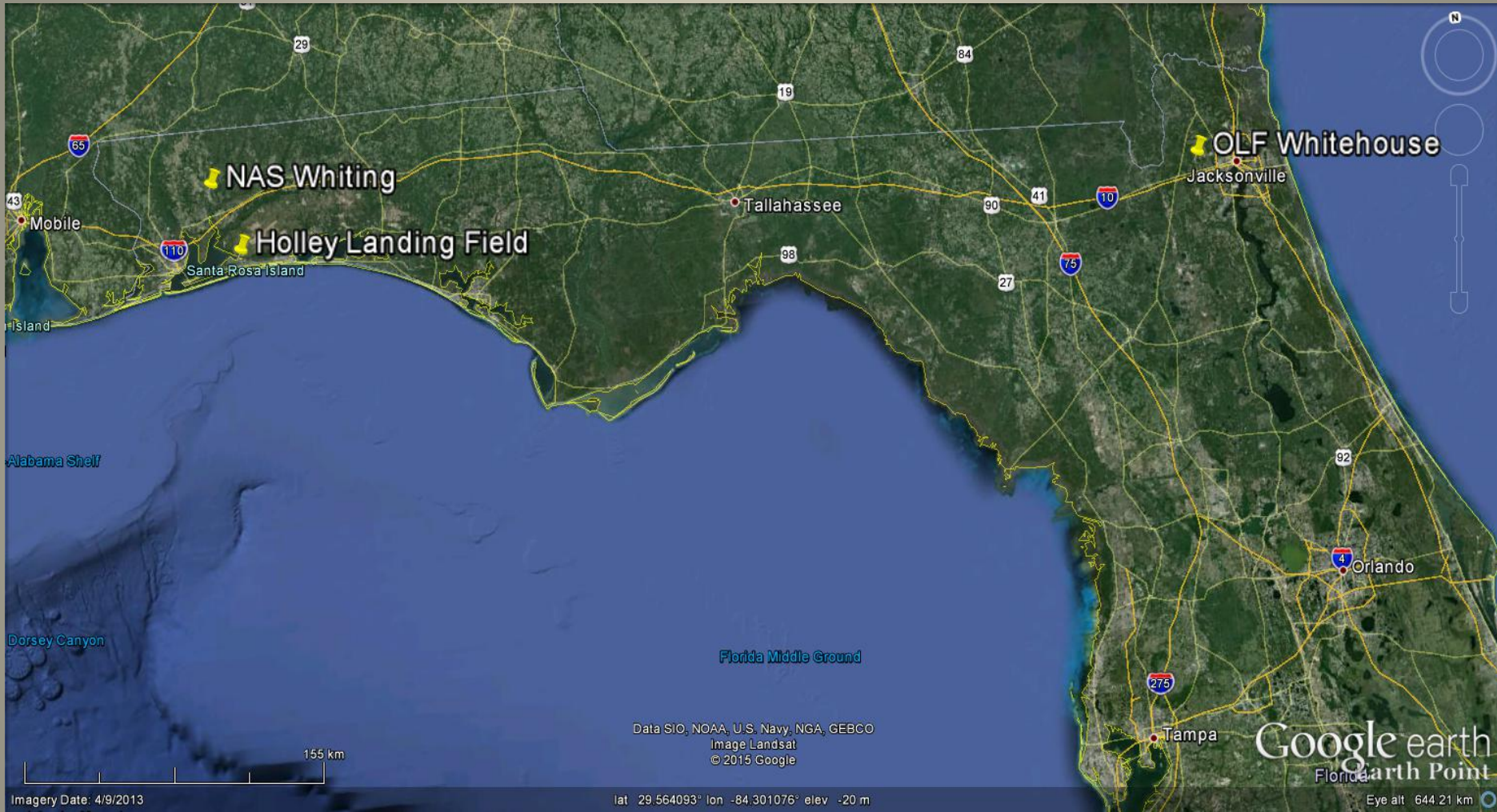
- ❖ Dog can survey 4 hours per day.
- ❖ Optimal weather conditions = moderate temperatures and slight wind.
- ❖ Surveys require a dedicated handler and a handler's assistant.



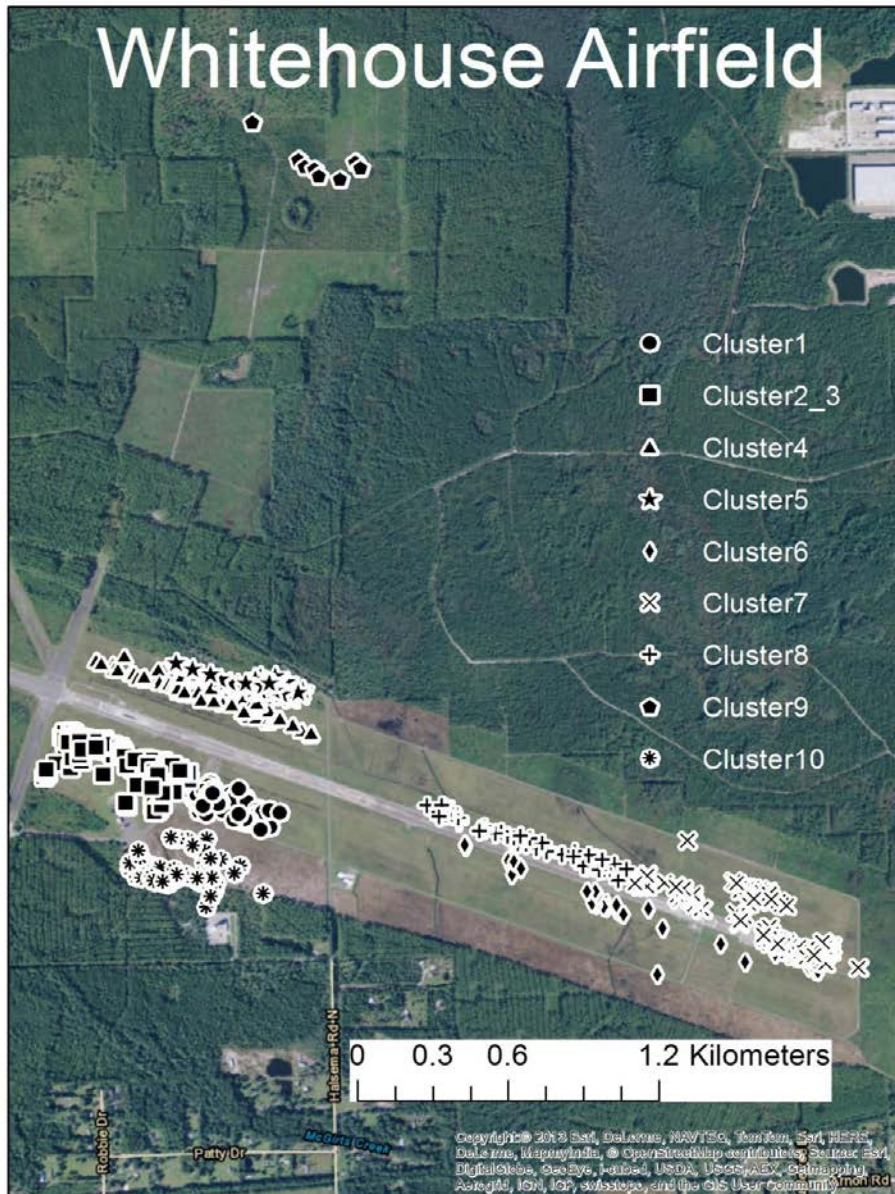
Alas, all
for a
Tennis
Ball...

NAVY Indigo Snake Surveys: Methods

- ❖ We located and GPS'ed all active/inactive tortoise burrows at each survey installation.
- ❖ We conducted detector dog surveys on 3 different dates (surveyed all tortoise burrow clusters 3 times)
- ❖ We scoped (w/burrow camera) those burrows where the dog “indicated”.



Whitehouse Airfield



$n = 574$ burrows

1,931 acres

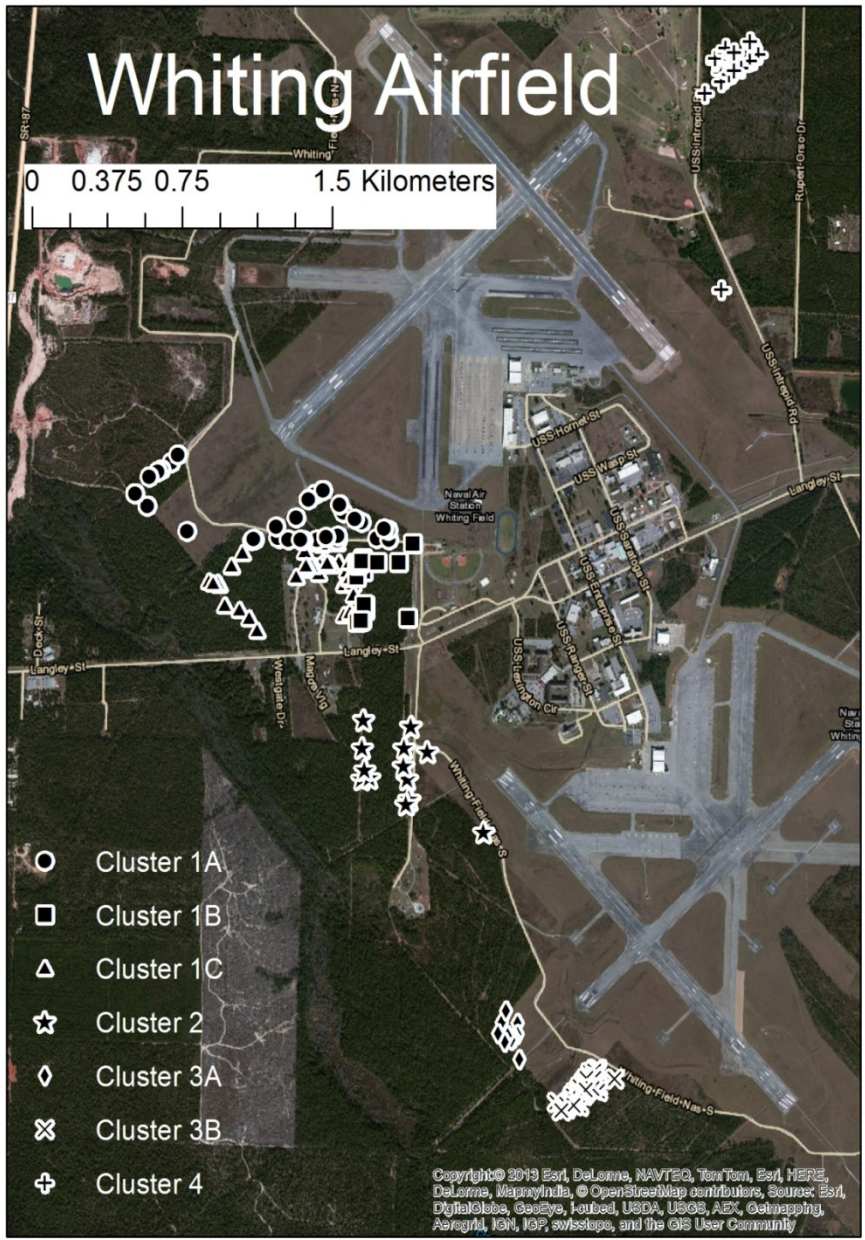


Holley Airfield



$n = 160$ burrows

698 acres



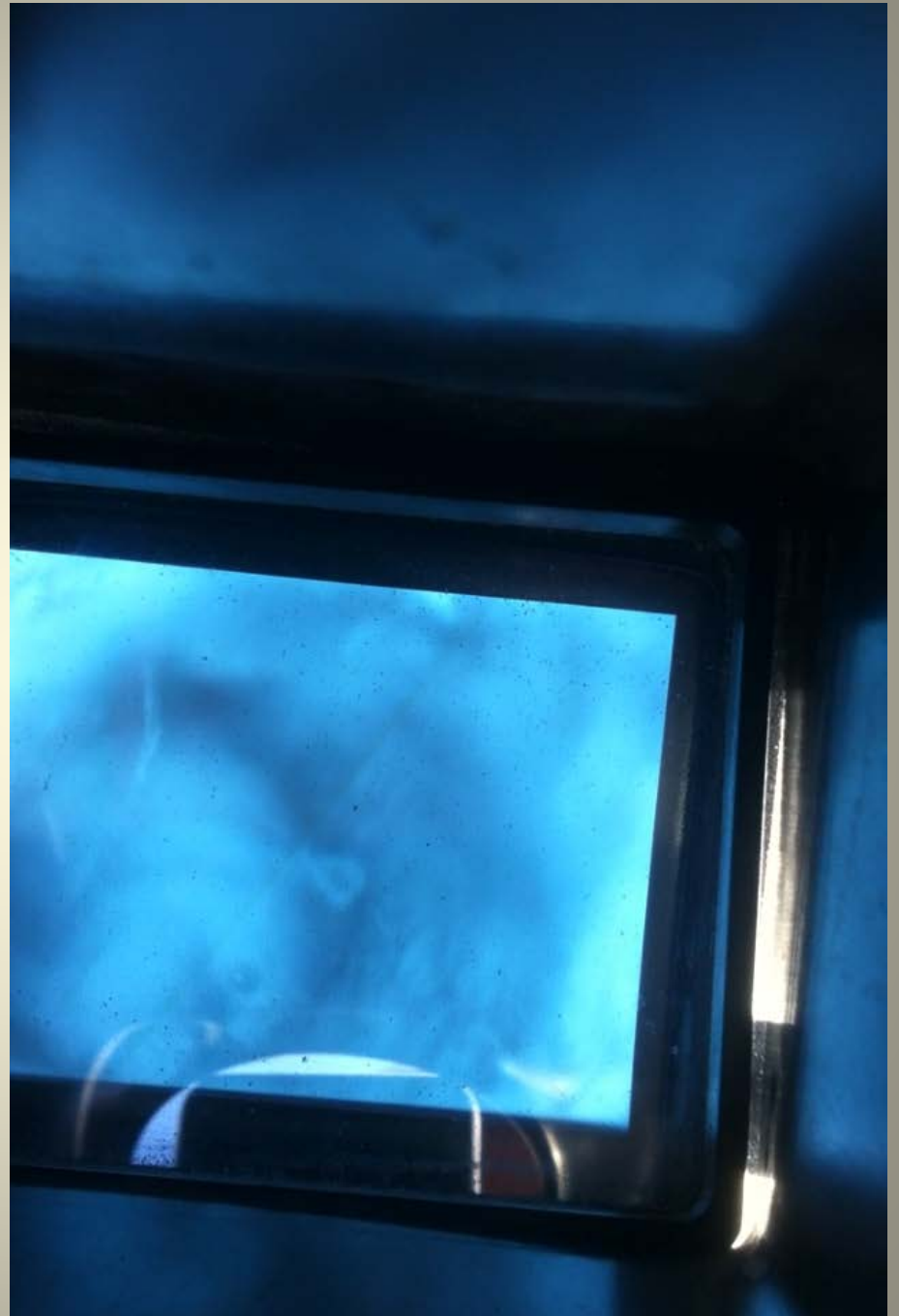
$n = 255$ burrows

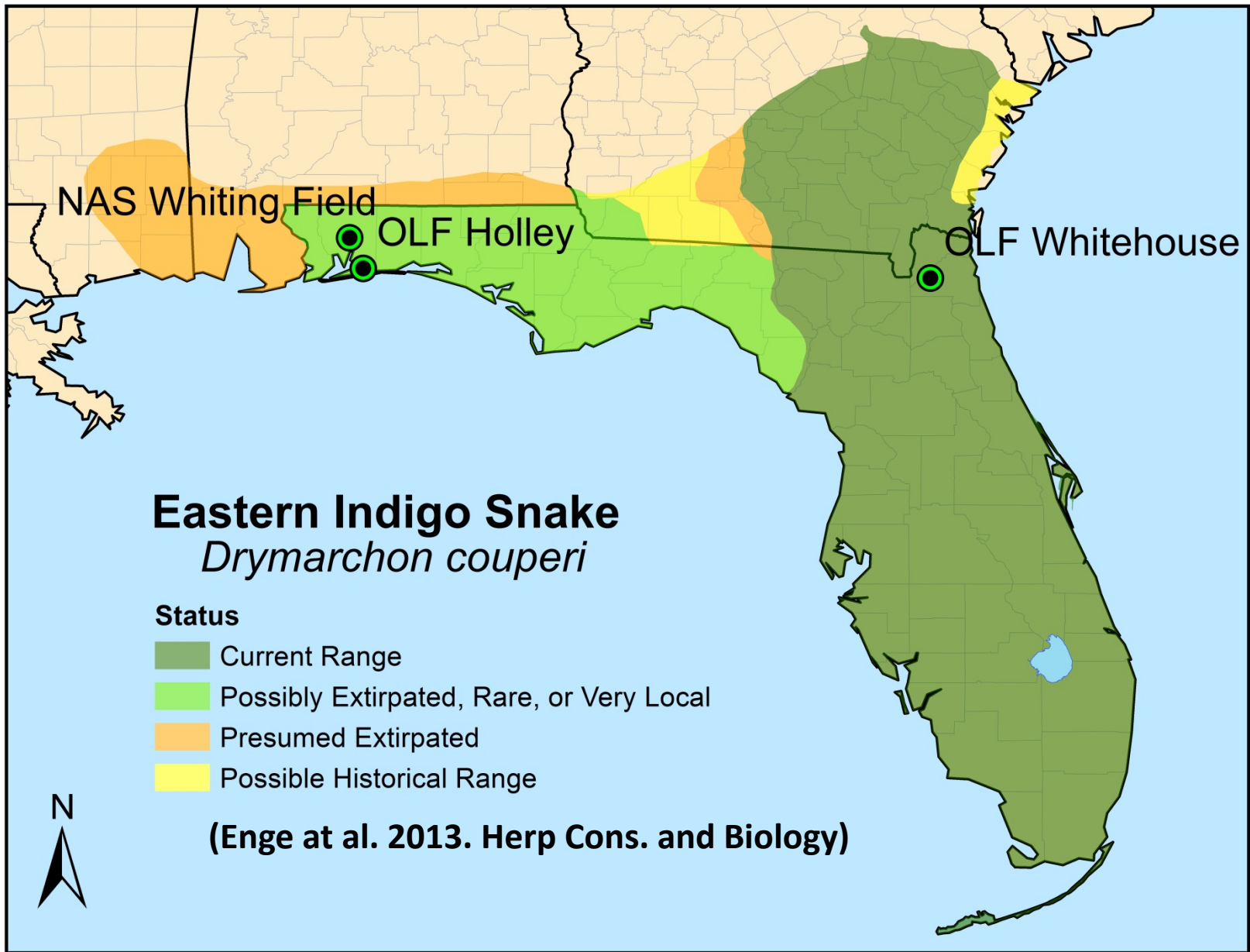
4,774 acres

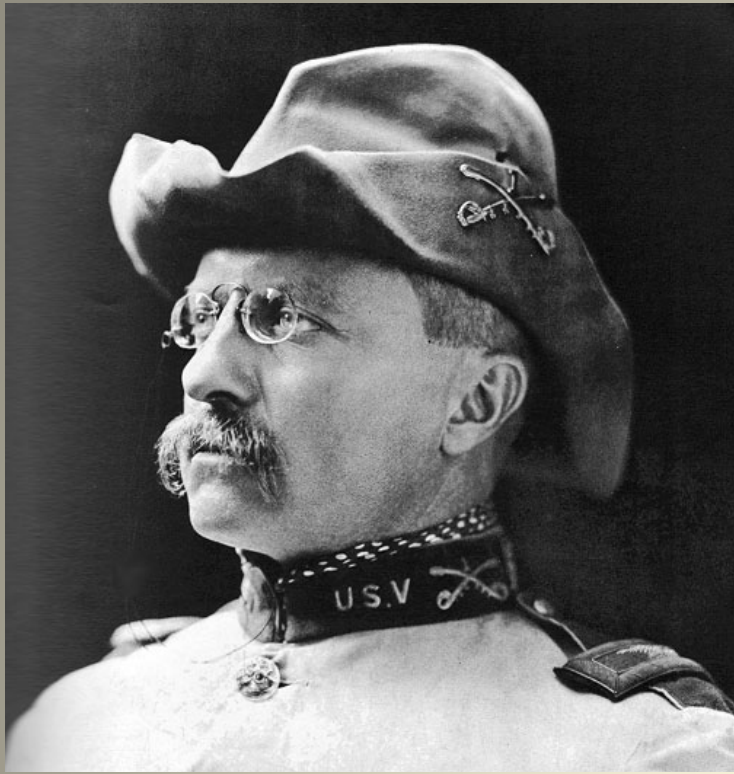
NAVY Indigo Snake Surveys: Results

<u>Survey Site</u>	<u>Tortoise Burrows Surveyed</u>	<u>Survey Dates</u>	<u>Dog Survey- Hours</u>	<u>Snake Species Documented</u>
NAS Whiting	255	12/16/2014 - 2/12/2015	21	none
Holley Landing Field	160	12/17/2014- 2/11/2015	11	Eastern Coachwhip, Eastern Diamondback Rattlesnake
OLF Whitehouse	574	12/29/2015- 2/5/2015	40	E. Coachwhip, E. Gartersnake, Black Racer

“False Positive” AND Unexpected Find







“The “gopher snake” (Spilotes corais couperi) goes in and out the burrows, no doubt on friendly terms with the owners, and the “gopher frog”(Rana aesopus), also on friendly terms, sites in the doorway at dusk and hides in the retreat if an enemy appears.”
(Theodore Roosevelt, 1917)

—“by provisions of an act passed in 1909, it was unlawful to take or sell any gophers during the months of May, June, and July, and taking or selling gophers under nine inches in length was prohibited”.



Mean Home-Range Sizes (ha) (Minimum Convex Polygon)

Central Florida (Breininger et al. 2011, J. Herp.)

Males 202 ha

Females 76 ha

Southeast Georgia (Hyslop et al. 2014, J. Wildl. Mgt.)

Males 510 ha

Females 101 ha



DOR Indigos, south Georgia July, 2014







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***The Orianne Society* is a non-profit organization (501-c-3) dedicated to the conservation of reptiles and amphibians.**



THE Orianne
Society

Indigo Snake Initiative

www.oriannesociety.org