

“Ecology and genetics of the endangered species, *Cyclura cornuta* and *Cyclura ricordii*: scientific framework for their management and conservation”



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Program

Study system

Ecological comparison of *C. ricordii* and *C. cornuta*

Resource partitioning: nesting, dispersal

Genetic analysis of *C. cornuta* and *C. ricordii*

Population genetics, sources of variation, ESUs

Education and Outreach

Addressing iguanarios, creating education, centers, building ties with the government

Study System

- Ricord's: Critically Endangered
- Rhinoceros: Vulnerable
- Rock Iguanas from Hispaniola
- Exist in sympatry
- Maintenance of dry forest



Cyclura ricordii

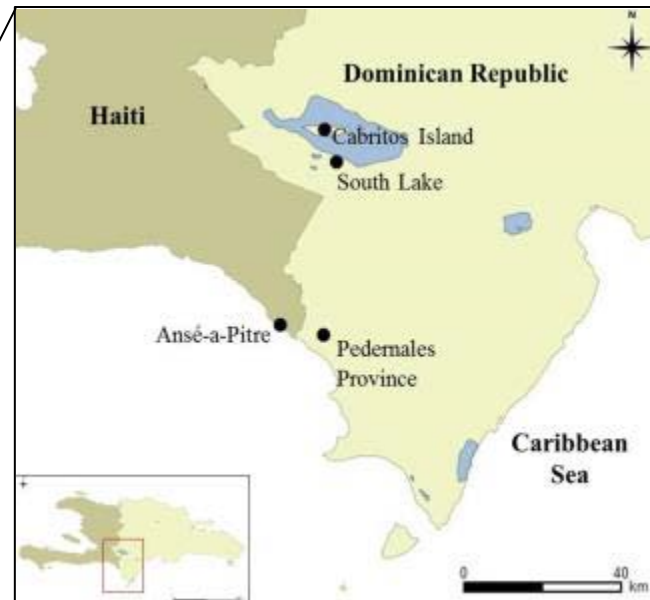


Cyclura cornuta

Study System

- Partition in nesting season
- Distribution

C. ricordii

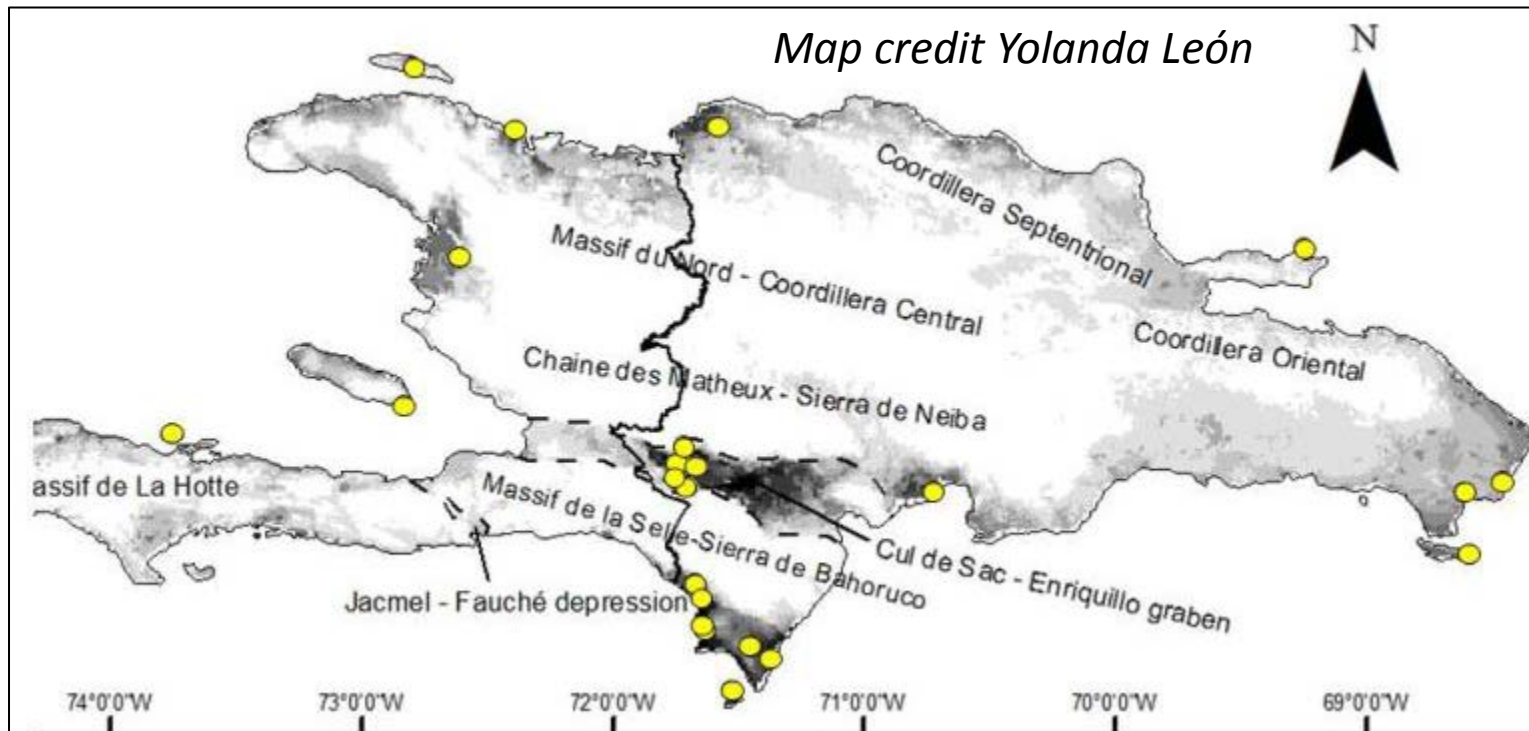


Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

C. cornuta



Study System



C. cornuta



Threats

- Main threats:
 - 1) Loss of habitat:
agricultural expansion
and charcoal production
 - 1) Presence of feral mammals,
Pedernales and Cabritos
populations
 - 1) Illegal trade for
commerce: meat
consumption and pets



Nesting Study

- **Three sites:** 1 sympatric and 2 allopatric
- **Daily use**
 - Mark/recapture
 - Telemetry (hatchlings so far)
- **Nesting Comparison**
 - Date, habitat, depth, temperature, proximity to neighboring nest of conspecific / congener



Nesting Study

- ***C. ricordii* (1 site)**

Clutch size: 14 (N=17 clutches)

Nest success: 81% (N=17 clutches)



- ***C. cornuta* (2 sites)**

Clutch size: 13.78 (N=21 clutches)

Nest success: 72% (N=21 clutches)



Telemetry

- **Mean total movement:**

C. cornuta mean: 853 m (N=12)

C. ricordii mean: 220 m (N=12)

$P = 0.0447$

- **Total distance traveled *C. cornuta*:**

Puente Arriba (allopatric, N=7) = 1,239 m

Tierra (sympatric, N=5) = 312 m

$P = 0.045$

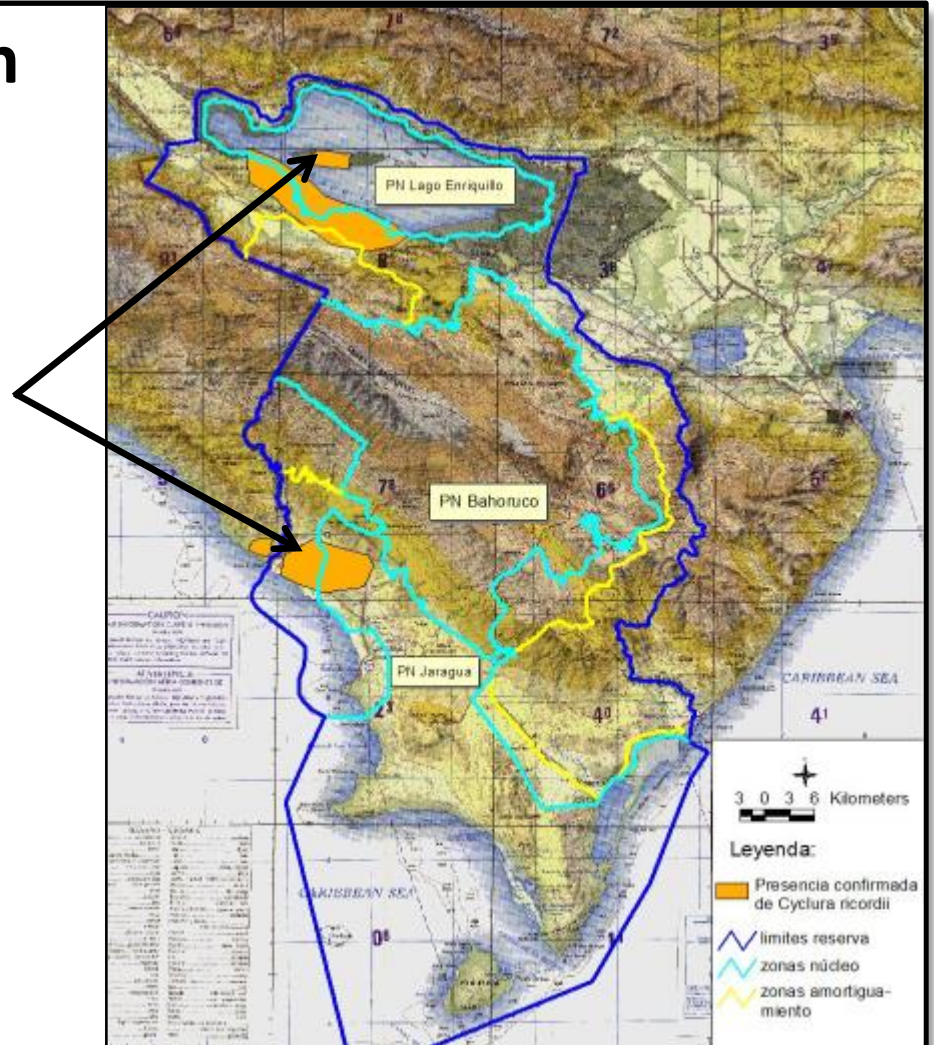


Genetics: Riccord's

- Differentiation **between geographic regions:**

- Adults CAB vs. PED

$$F_{ST} = 0.134, p < 0.01$$

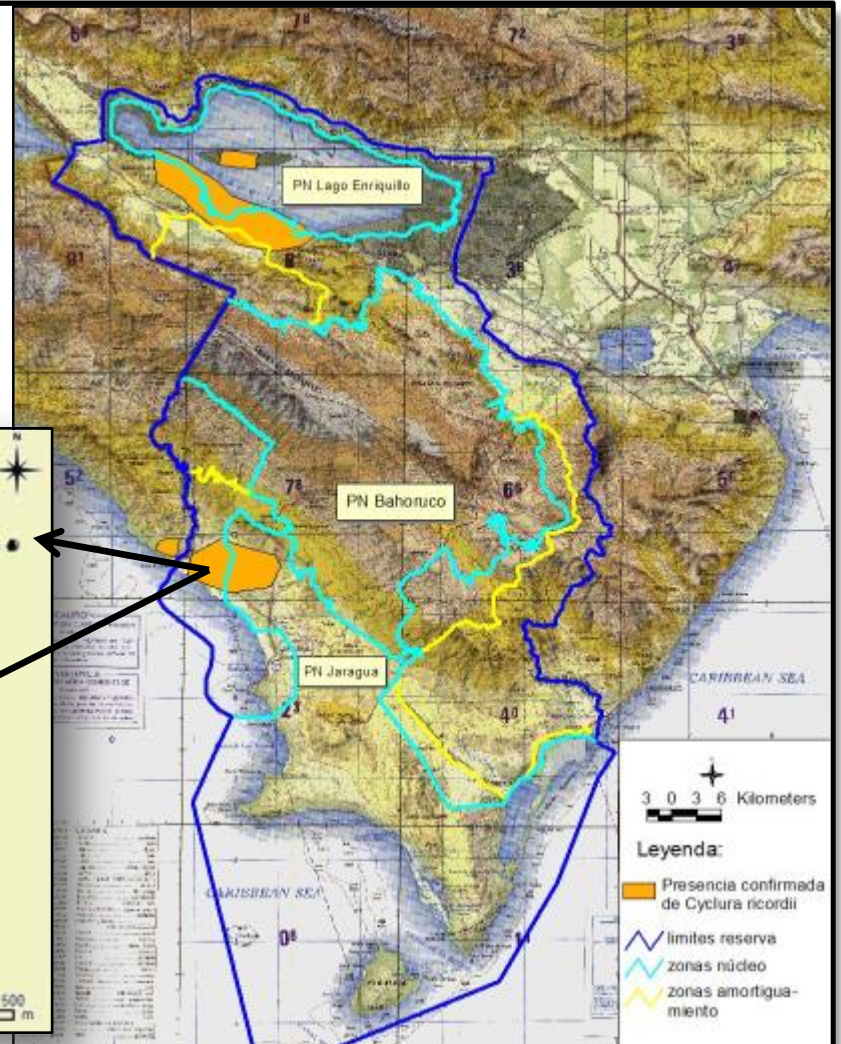
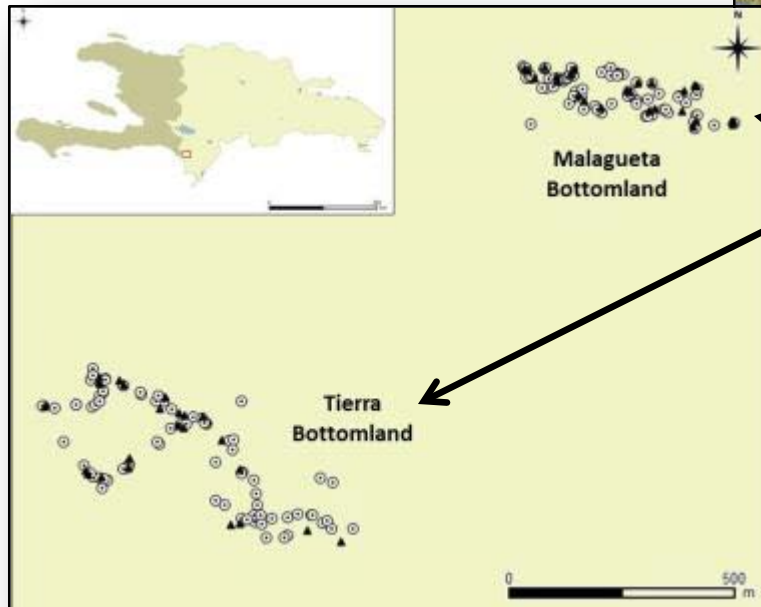


Genetics: Ricord's

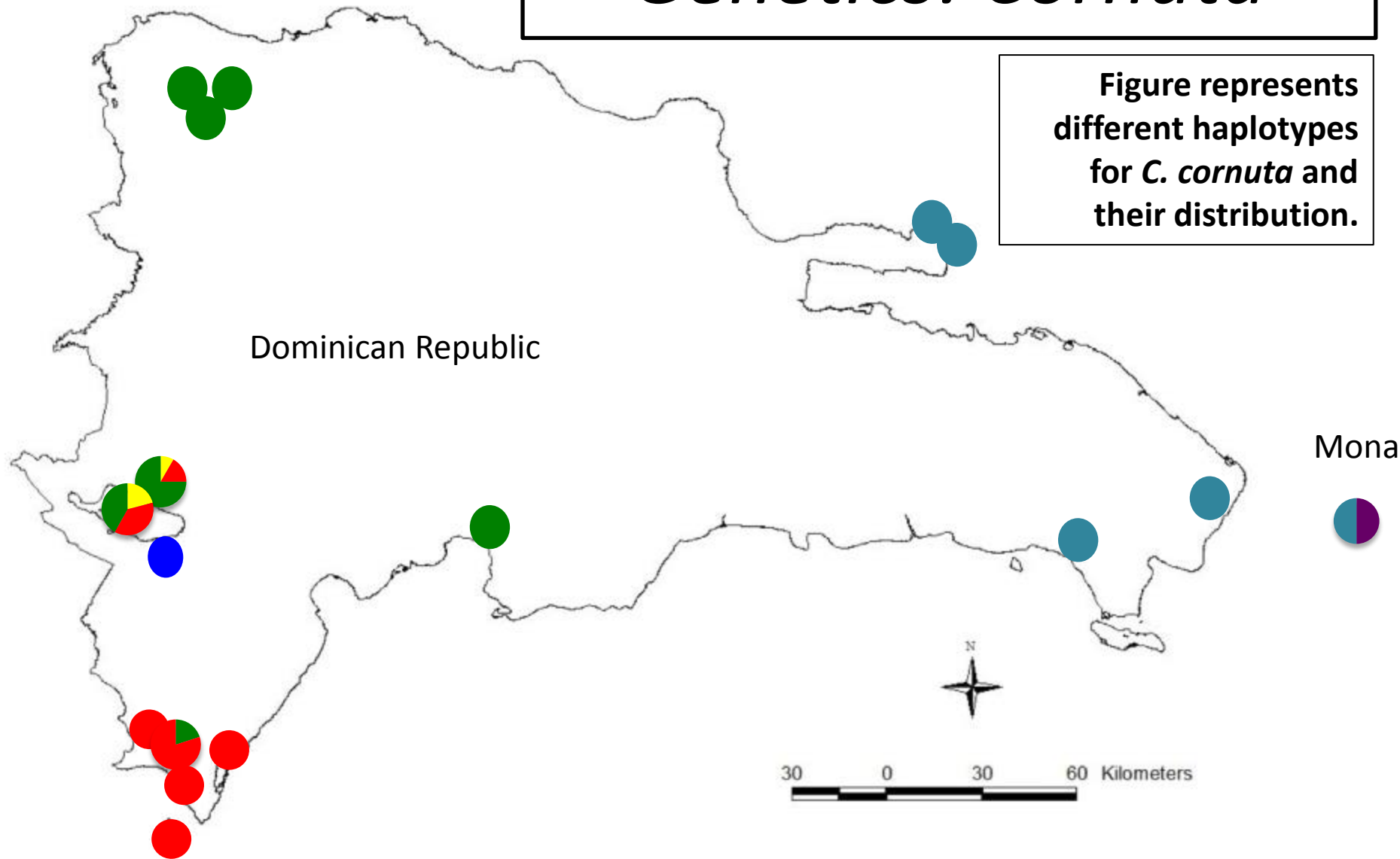
- Differentiation **between bottomlands:**

- Hatchlings MAL vs. TIE

$$F_{ST} = 0.020, p < 0.01$$



Genetics: Cornuta



Iguanariums

- Visits and interviews in all localities known
- Visits to iguanariums: *C. cornuta* was the most abundant



Appendix I: Survey form used in field visits to iguanariums (C. cornuta)

(optional section)
Name: _____ Age: _____
Time being in area: _____

(Critical section)
Location: _____
Correct identification of species? (yes/no)
How many types of iguanas are in the area?
How often are iguanas seen?
Are they usually seen in a certain location?
Are they seen less often than in the past?

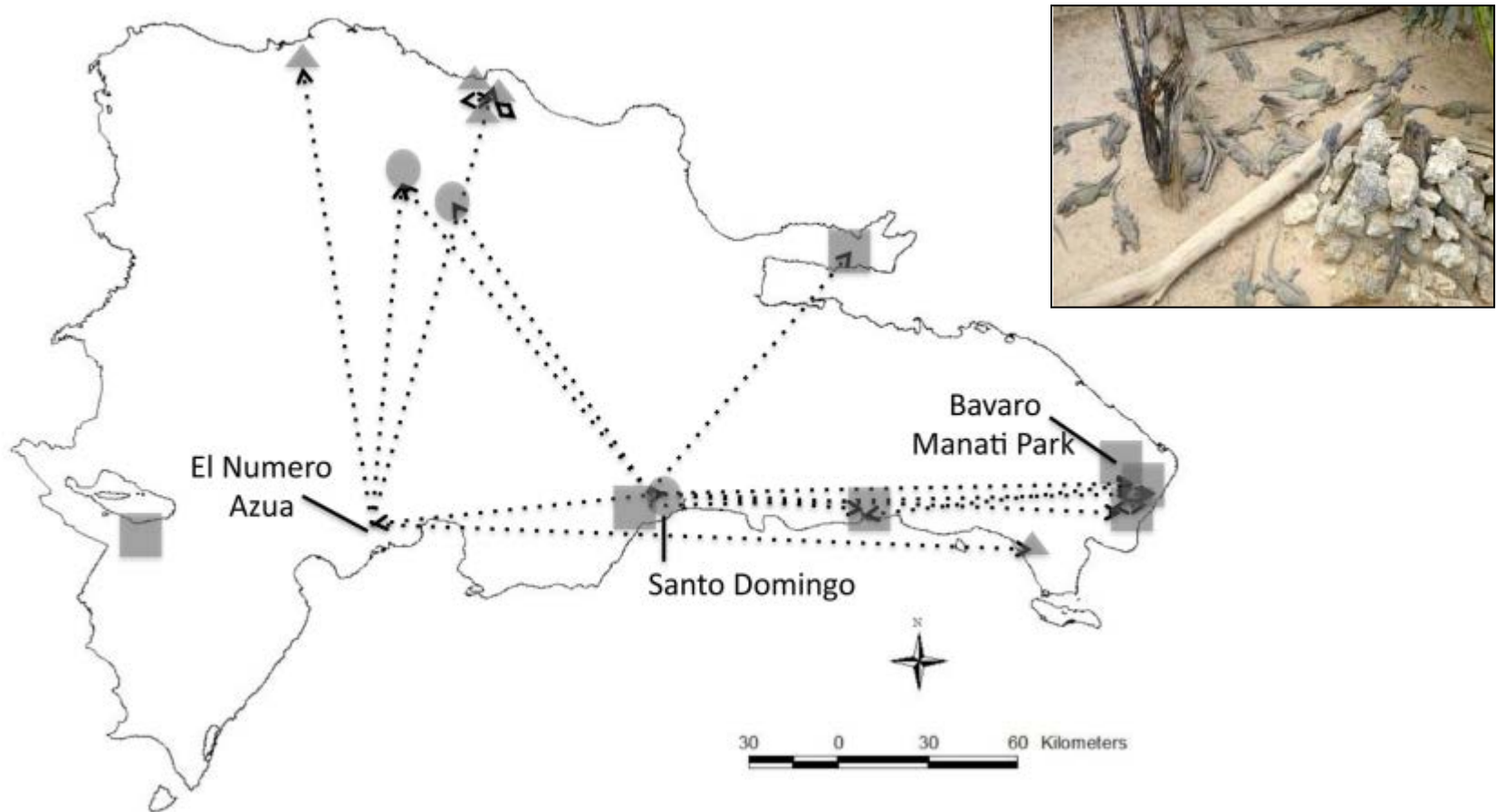
Are the iguanas killed locally? Y / N
If they are killed, what are they used for? (food, pets, sold internationally?)
How are they captured (logs, nets, hands, snare)?
What is the preferred type? (female, gravid female, male, juvenile)
What is the price to purchase?
Have the prices changed over time?

Does the interviewer know that this is an endangered species?
Who is in charge of protecting this species?
Does protection benefit them?
Is this species dangerous?
Is this species beneficial? (medicinal, ...) ☐
Will this species ever go extinct?

Additional observation (for short questions, many about species...)

Iguanariums

- Movement of *Cyclura* in 2012 across Hispaniola

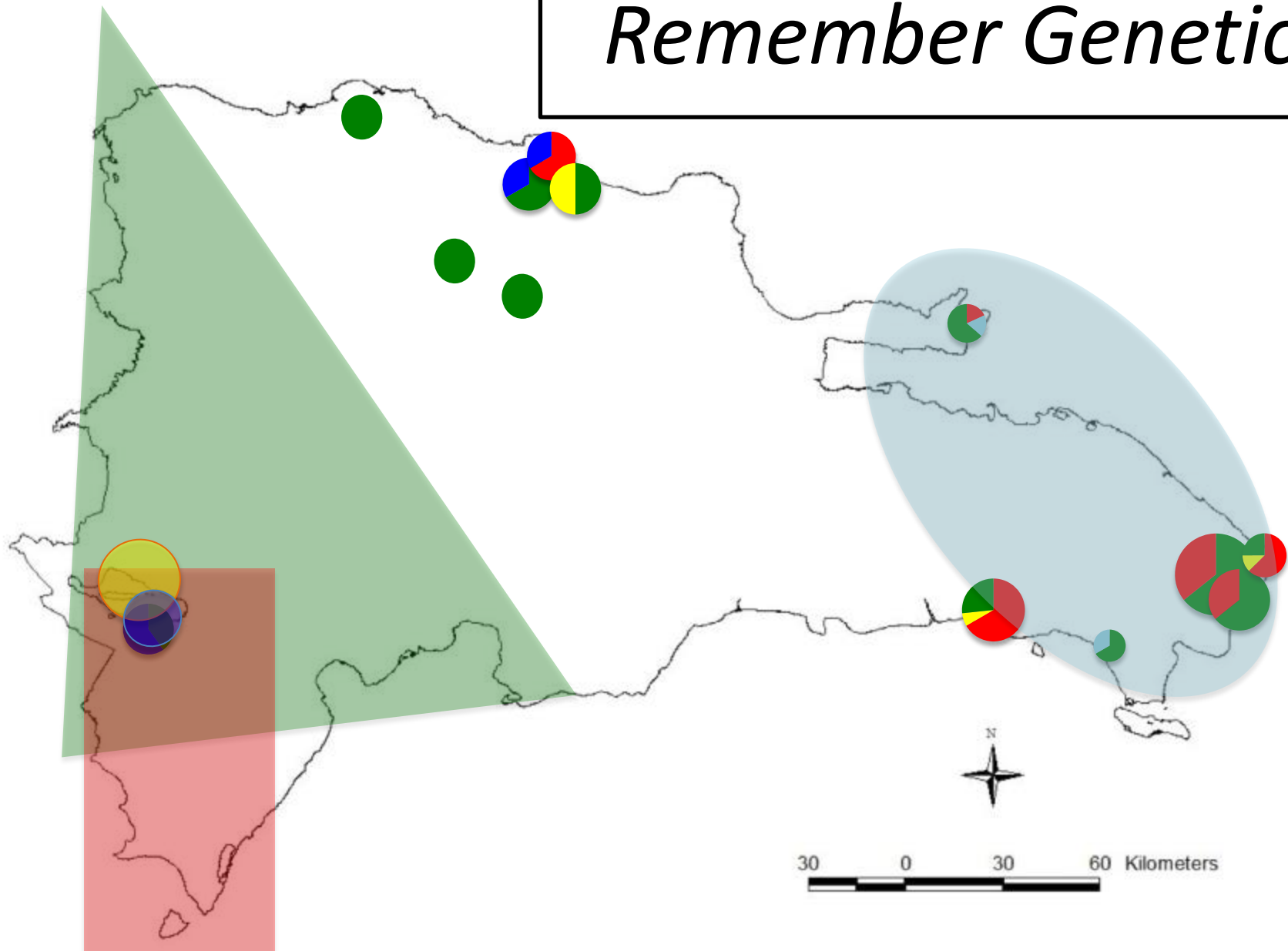


Iguanariums

- Iguanarium Workshop in June 2014
- Main topics: handling and management of captive iguanas
- Establish action soon base on genetics results



Remember Genetics



What is next?

- Continue dispersal studies in Pedernales area.
- Increase number of individuals sampled for both species.
- Have a follow up Iguanarium meeting.
- What to do with 100's of adult *Cornuta* iguanas?
- And more...



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