

Footprint Possibilities: Biodiversity

Connor Bourgeois (ME), Lokesh Gangaramaney (ME & RBE), Jax Sprague (ME), Luke Trujillo (CS & RBE)

Advisor: James A. Chiarelli

Sponsor: Rick Montanari



Footprint Possibilities



- NGO in Panama
- Managed by Rick Montanari
- Provided guidance, supplies, and logistical assistance

Fundación El Caño



- Manages El Caño
- Preserves ancient heritage
- Helps tourists understand Panamanian history
- Advised the project to best fit their needs to initiate a comparative study

The purpose of this project is to identify the flora currently in El Caño to determine how the environment has changed since Pre-Columbian times.

Methodology



Sample Collection



- Plant collection
 - Snip small sample from plant
 - Press for two weeks
 - Mount to herbarium paper and wrap in protective sheet
- Tree collection
 - Saw off a sample of tree bark
 - Place inside clear briefcase
- Fruit collection
 - Separate fruit from plant
 - Vacuum seal inside of plastic wrap

Making of the Plant Press

- 2 pieces of plywood
- 3 layers of cardboard
- 2 sheets of newspaper
- 4-8 mechanical clamps



Data We Collected

On-Site

- Visual description
- Height
- Frequency
- Location (GPS)

Off-Site

- Scientific name (family, genus, species)
- Common name
- Growth habits (vine, herb, tree, shrub, etc.)

Identifying Flora



- Used assorted plant identification applications
- Personally identified species through known genus
- Contacted Laurencio A. Martinez (botanist)

PLANTS OF EL CAÑO

Family name
<Amaranthaceae>
Common name
Celosia argentea “Silver Cock’s Comb”
Det. L. Gangaramney, 2019
Genus & species name
Location

COCLÉ: El Caño Archaeological Park, 08°23’48.23”N 80°30’4.6W; just north of the museum, sparsely populated in a grassy field; Forb/Herb, ca. 3.42 ft tall. Flower is a light purple to a dark purple gradient, leaves are found near the bottom of the stem.

3 September 2019

Lokesh Gangaramaney #1

With: Jax R. Sprague, Luke R. Trujillo

Herbaria of El Caño Archaeological Park and
Worcester Polytechnic Institute (WPI)

Example of the label for the “Silver Cock’s Comb”

Results & Findings

Project Results

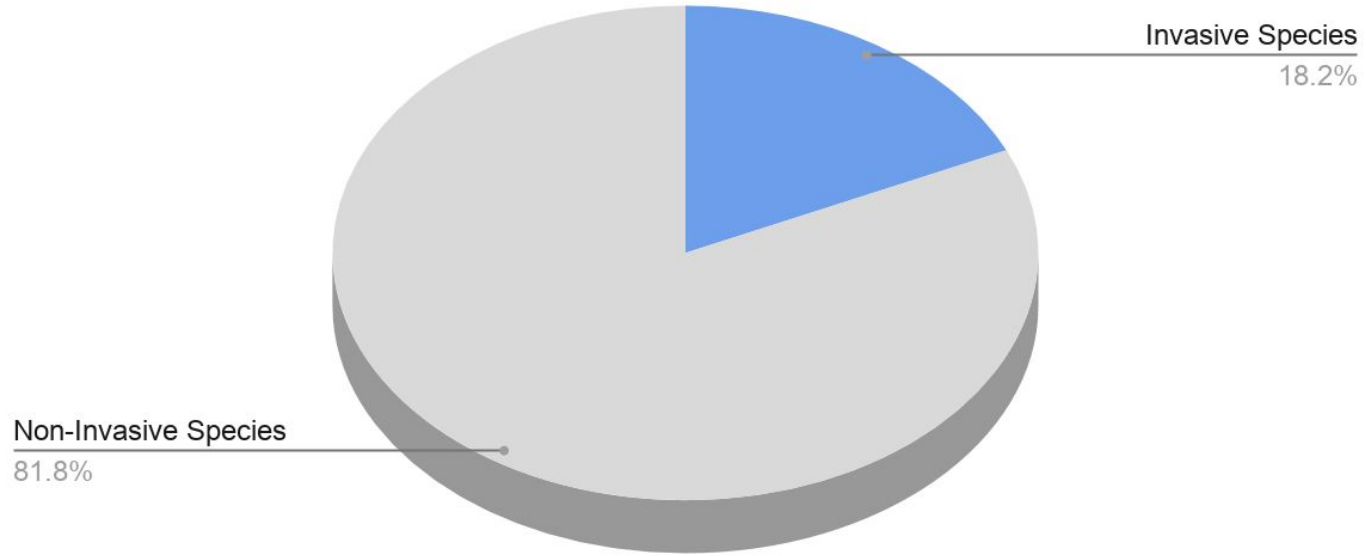


- Identified 44 plants in El Caño
 - 9 trees
 - 19 forbs/herbs
 - 2 vines
 - 3 shrubs
 - 6 subshrubs
 - 5 graminoids
- Collected, preserved, and mounted 32 specimens
- Formulated identifications into spreadsheet
- Determined whether native, non-native, or invasive
- Researched historical uses and cultural significance

Conclusions

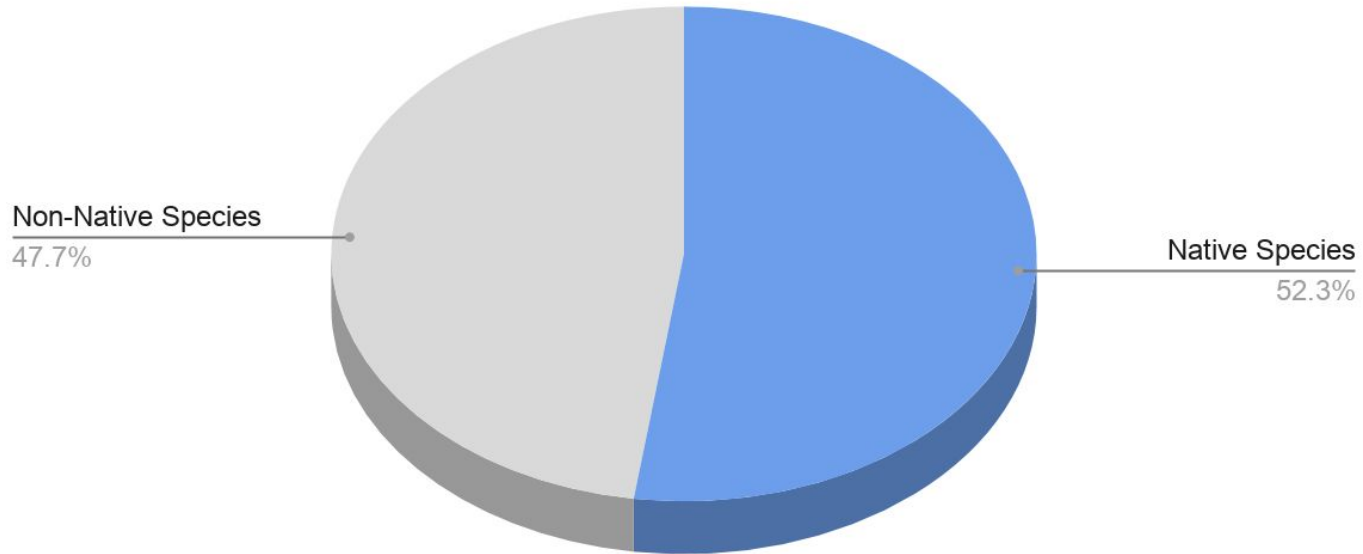
- Found many invasive and non-native species
- Environment has greatly changed over time
- Some possible explanations:
 - Birds
 - Flooding
 - Landscaping
 - Agriculture

Invasive Species vs. Non-Invasive Species



Invasive vs. Non-Invasive species found in the park

Native Species vs. Non-Native Species



Native vs. Non-Native species found in the park



Location of collected samples (image taken on April 2nd 2018)

Moving Forward

- Identify plant matter found during excavations
- Compare modern environment to Pre-Columbian
- Recreate study during dry season

Thank You

With special thanks to Rick Montanari & Alexa Hancock for being such great mentors!

References

- <https://media-cdn.sygictraveldata.com/media/800x600/612664395a40232133447d33247d3835373938363134>