

Changes in the Predaceous Fire Ants Species Distribution on Sea Turtle Nesting Beaches in St Croix, U.S. Virgin Islands



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INTRODUCTION

- Predaceous fire ants known for attacking ground-nesting birds and reptiles; hatchlings more vulnerable



Figure 1. The tropical fire ant *Solenopsis geminata*



Figure 2. The red imported fire ant (RIFA) *Solenopsis invicta*

- Both are generalist omnivores and prefer disturbed habitats
- Both have been previously observed in St. Croix

HYPOTHESES

- H1: There will be a change in the fire ant species distribution at Sandy Point National Wildlife Refuge (SPNWR) in St. Croix
- H2: Predaceous fire ants will be present at Jack Bay in St. Croix

METHODS



Figure 3 Survey sites highlighted in red in St. Croix U.S.V.I.

Figure 4 Tuna bait in old sea turtle nest at Jack Bay, St. Croix



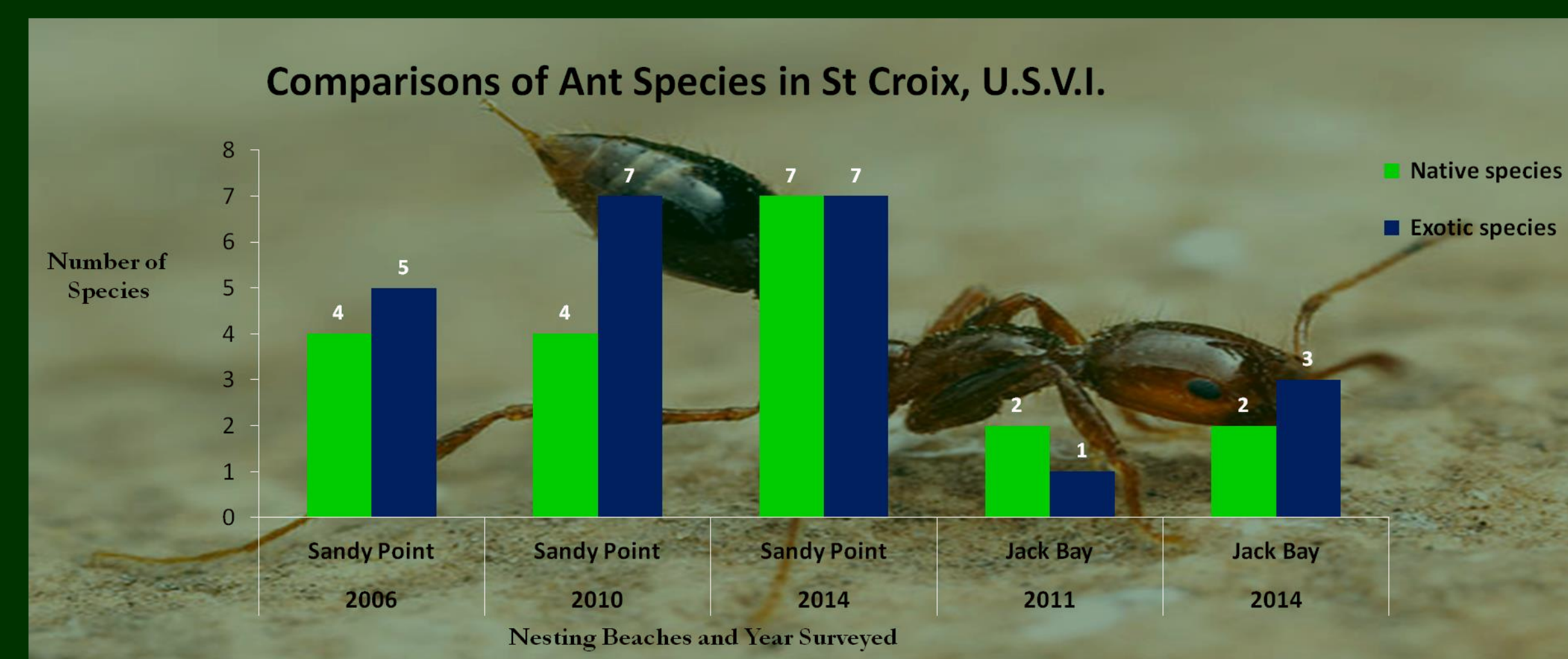
Figure 5 Native ants on tuna bait at Jack Bay



- Collected specimens
- Placed in freezer until dead
- Stored in 95% Ethanol
- Identified ants' genera and species
- Chi-square test

RESULTS

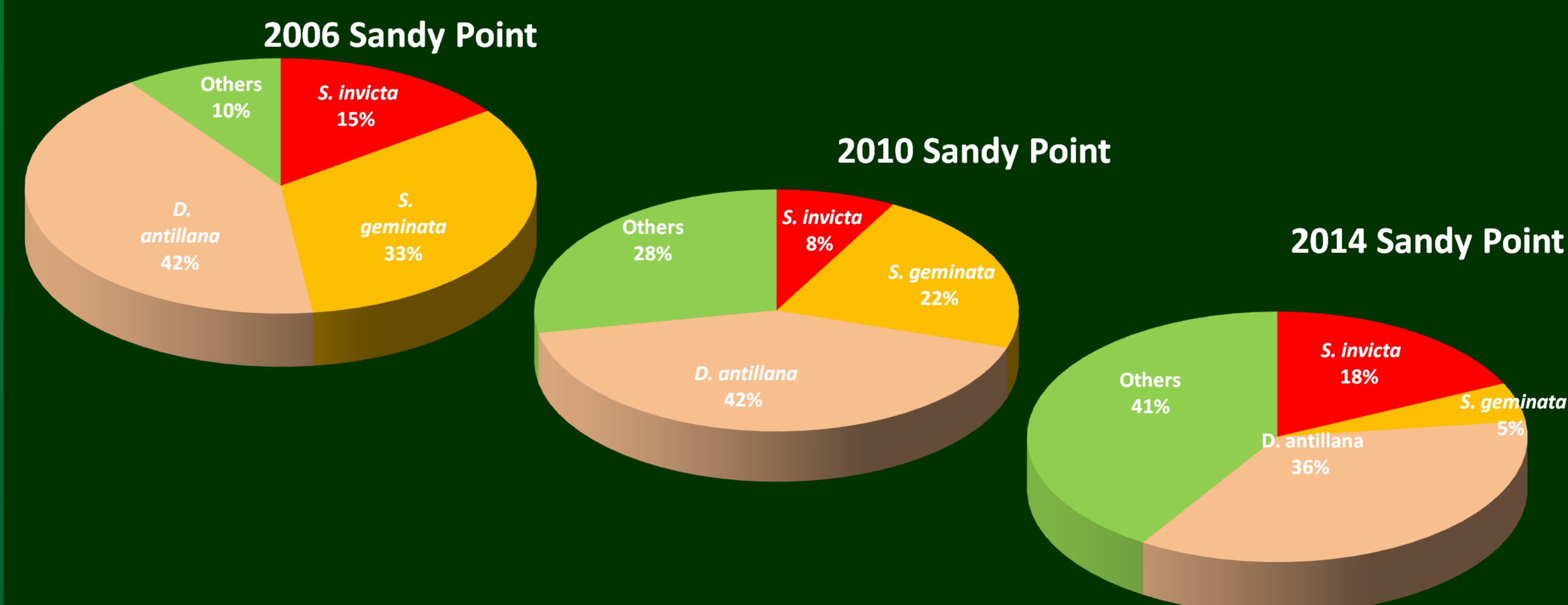
- Total of 77 markers surveyed
- Total of 15 species of ants, seven natives, eight exotics
- Solenopsis invicta* significantly more abundant ($p=0.02$) than *S. geminata*



Graph 1 shows that there were equal numbers of native and exotic species at SPNWR and an increase in exotics species in Jack Bay

Nesting Beach	Number of markers	Most common native sp.	Most common exotic sp.
SPNWR	55	<i>Dorymyrmex antillana</i> (20)	<i>Solenopsis invicta</i> (10)
Jack Bay	22	<i>Dorymyrmex antillana</i> (14)	<i>Tetramorium sp.</i> (4)

Table 1 shows that *S. invicta* was the most common exotics ant at SPNWR



Pie charts 1, 2, & 3 show that *S. geminata* decreased throughout the three surveys

D. antillana, $p=0.87$
S. invicta, $p=0.34$
S. geminata, $p=0.009$

DISCUSSION

- Change in predaceous fire ant species at SPNWR- H1 supported
- S. invicta* displaced *S. geminata*; more highly disturbed habitat
- No predaceous fire ants at Jack Bay- H2 not supported
- Inaccessible beach, least anthropogenic disturbance

FUTURE STUDY

- Perform plant distribution survey to determine *S. invicta* preference
- Introduce *Solenopsis invicta* virus-3 (SINV-3) to SPNWR to attempt RIFA's eradication

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