Testing management methods for the invasive New Guinea flatworm in Barbados

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Setting:
This research took place in Barbados, a small island developing state in the Eastern Caribbean, as a part of the Barbados Field Study Semester (BFSS)

What is the New Guinea Flatworm?
- An invasive species is a species present outside of its native range that faces few natural barriers to success
- The New Guinea flatworm (NGF) is an invasive species that has been spotted in several countries
- Prolific predator of snails and other invertebrates
- It has the potential to decimate local snail communities
- Transported in plant pots and soil
- First seen in Barbados in 2020

Goal:
Find a low-impact way for citizens and researchers to reduce NGF populations

Key Objectives
1. Evaluate the feasibility of pitfall traps to catch the New Guinea Flatworm in the field
2. Test the effectiveness of various substances as attractants for the New Guinea flatworm in a laboratory setting

Methods
Field: Pitfall Traps
- Two sets of three traps at three sites (gully, plant nursery, residential area); left for five days and then reset
- Built out of plastic containers and wooden stakes and then submerged into the ground, with PVC board over preventing debris
- Filled with molasses, beer or propylene glycol
- Removed from locations, organisms were identified and counted

Lab: Attractants
- Field surveys to collect NGF
- 52 NGF placed in containers with eight attractant substances (+4 controls)
- Three replicates for each attractant combination (attractant A + snail, attractant A + no snail), eight times
- Containers were checked hourly from 0800-2000 and the positions of flatworms noted
- Total time spent on each attractant and snail by flatworms were totaled and compared

Results
Pitfall Traps:
1. Traps caught several snails, and millipedes, some insects, and even some tree frogs and anoles
2. However, they were unsuccessful at catching flatworms of any kind

Attractants:
1. Observed Preference: On average, flatworms spent significantly more time on crushed Giant African snails.
2. Observed Aversion: Flatworms were not seen on canned cat food, live earthworms and ham
3. Observed Deaths: More replicates and data could point to significance difference in deaths, especially for Tuna

Conclusions
- Foul smells, labor requirements and bycatch of native species make pitfall traps a bad option for researchers and civilians trying to catch the New Guinea flatworm.
- Crushed Giant African snails showed the most potential as attractants for the New Guinea Flatworm, likely because they are already a part of the flatworm’s natural diet.
- Giant African snails are also invasive, management of both species could possibly be integrated, but this would require further study
- Components of canned tuna may have potential as flatworm-killers

References:
- Monz, A. Association of Applied Biologists, 2015, 104, 27.

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