The Community Effects of Trematode Parasites on Species Interactions

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BACKGROUND INFORMATION

- Parasitic trematodes have a complex life cycle, that infect snails as their initial host.
- *Elimia* snails have top-down control over algae in aquatic ecosystems (Rosemond et al 1993).
- Previous research has shown that trematode parasites can influence host consumption (Wood et al 2007).

METHODS: SURVEY OF INFECTION PREVALENCE

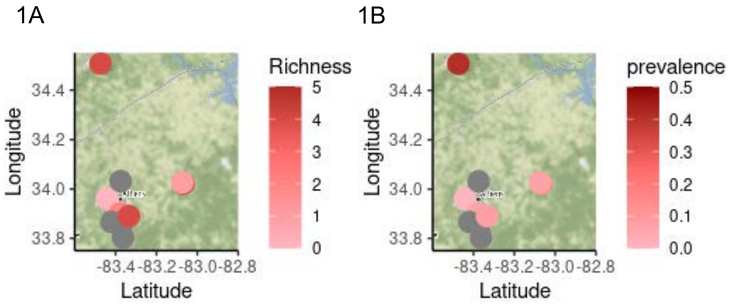

Figure 1. Maps showing a dozen sites surveyed in Northern Georgia (A) Collection Sites - Prevalence, (B) Collection Sites-Richness.

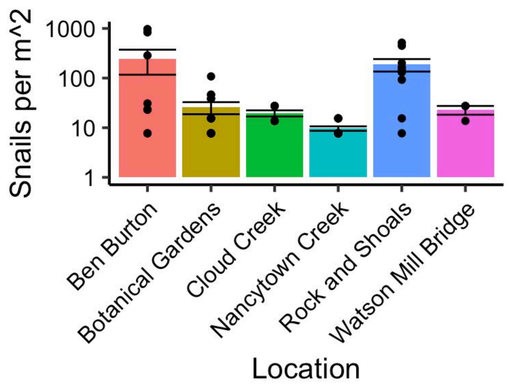

Figure 2. Mean density of *Elimia* hosts (per m^2) at each of the six surveyed locations. Points represent density per quadrat and error bars are standard error.

Q: How do trematode parasites influence aquatic ecosystems?

A: Trematode infections increase the consumption of chlorophyll (algae) in their snail hosts. Across our sites, parasites are responsible for up to 20% of chlorophyll consumption.

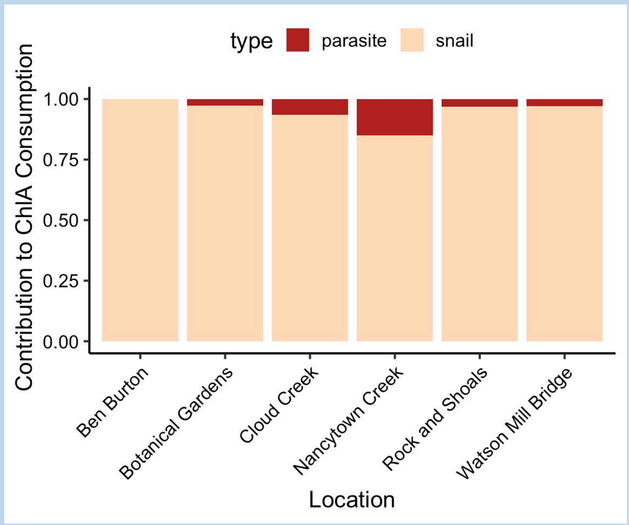

Figure 5. Relative contribution to chlorophyll consumption by snails and their parasites across surveyed sites. Parasites are responsible for between 0 – 20 % of total chlorophyll consumption.

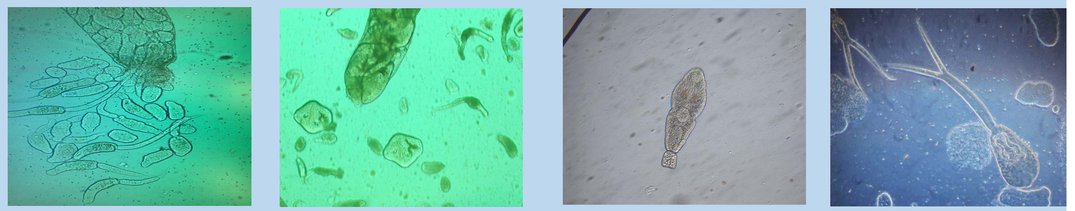

Figure 6. Four of the nine morpho-species of trematode parasites found during location surveying.

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CHLOROPHYLL CONSUMPTION RATE

Figure 3. The setup for the *Elimia* snail algal consumption experiment.

The experiment was done in the lab to determine if infected snails consumed more algae on average than uninfected snails (Hypothesis)

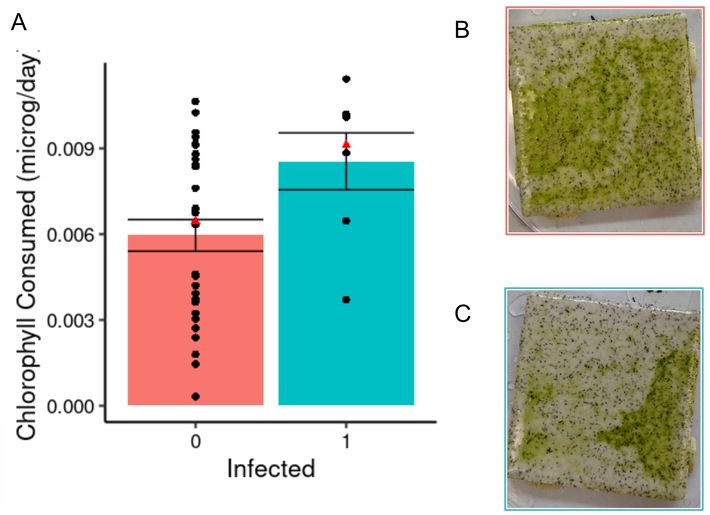

Figure 4. (A) Infection Status vs. Algae Consumed (Microg/day). Infected snails consumed significantly more chlorophyll than uninfected snails in 24 hours (F-value= 5.3752, df= 1, p-value < 0.05). (B) representative amount of algae left by uninfected snail. (C) representative amount of algae left by infected snail. Tiles shown in figures B and C are represented by a red triangle in figure A.

REFERENCES

Wood et al. (2007) *Proceedings of the National Academy of Sciences*, *104*(22), 9335-9339.

Rosemond et al. (1993) *Ecology*, *74*(4), 1264-1280.