

Testing Field Methods to Assess Interactions Between Native Caddisflies and the Invasive New Zealand Mudsnail (*Potamopyrgus antipodarum*)

MEGHAN BOCHANSKI

UNIVERSITY OF WYOMING

ADVISOR: AMY KRIST

MENTOR: DANIEL GREENWOOD



Project Overview

- Background
- Goals
- Methods
- Results
- Discussion

Polecat Creek, Wyoming



Background

- Ecosystems are constantly being altered by invasive species
- *Potamopyrgus antipodarum* (New Zealand Mud Snail)
- *Hydropsyche* caddisfly
- “Boom and Bust” in the Greater Yellowstone Ecosystem

P. antipodarum



Hydropsyche caddisfly



www.troutnet.com

Hydropsyche Caddisfly

- Family Hydropsychidae
- Net-spinning caddisfly
- Larvae construct nets at the ends of their retreats to catch food



“Boom and Bust”

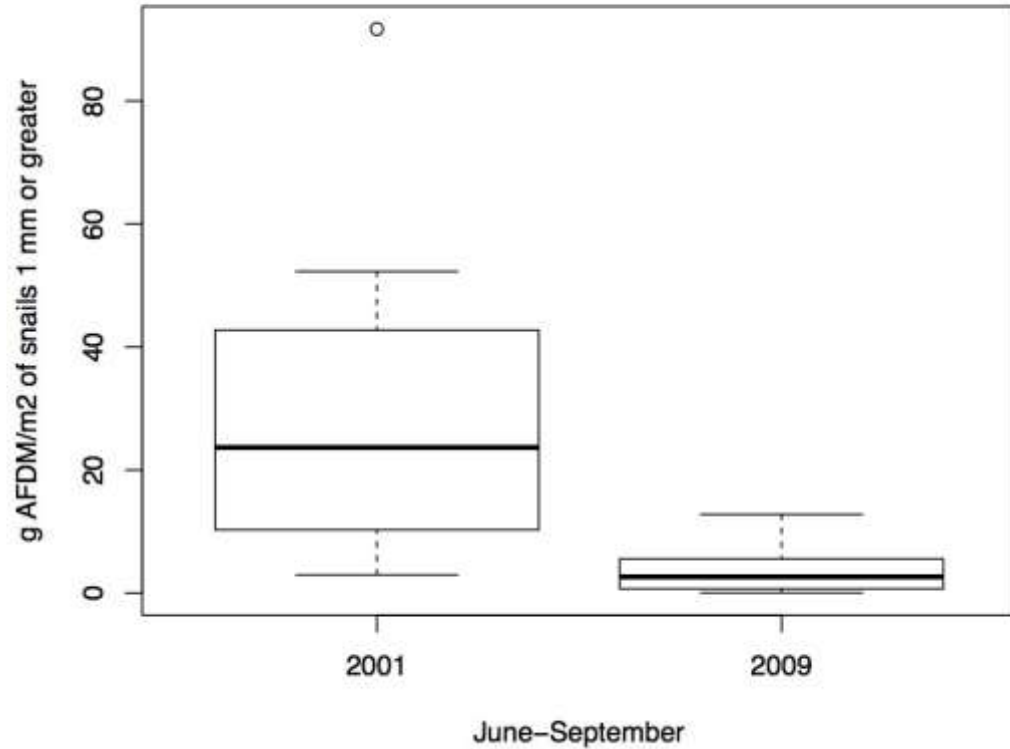


Figure 1. Biomass samples of *P. antipodarum* in 2001 and 2009 showing the boom (2001) and bust (2009) of this invasive species.

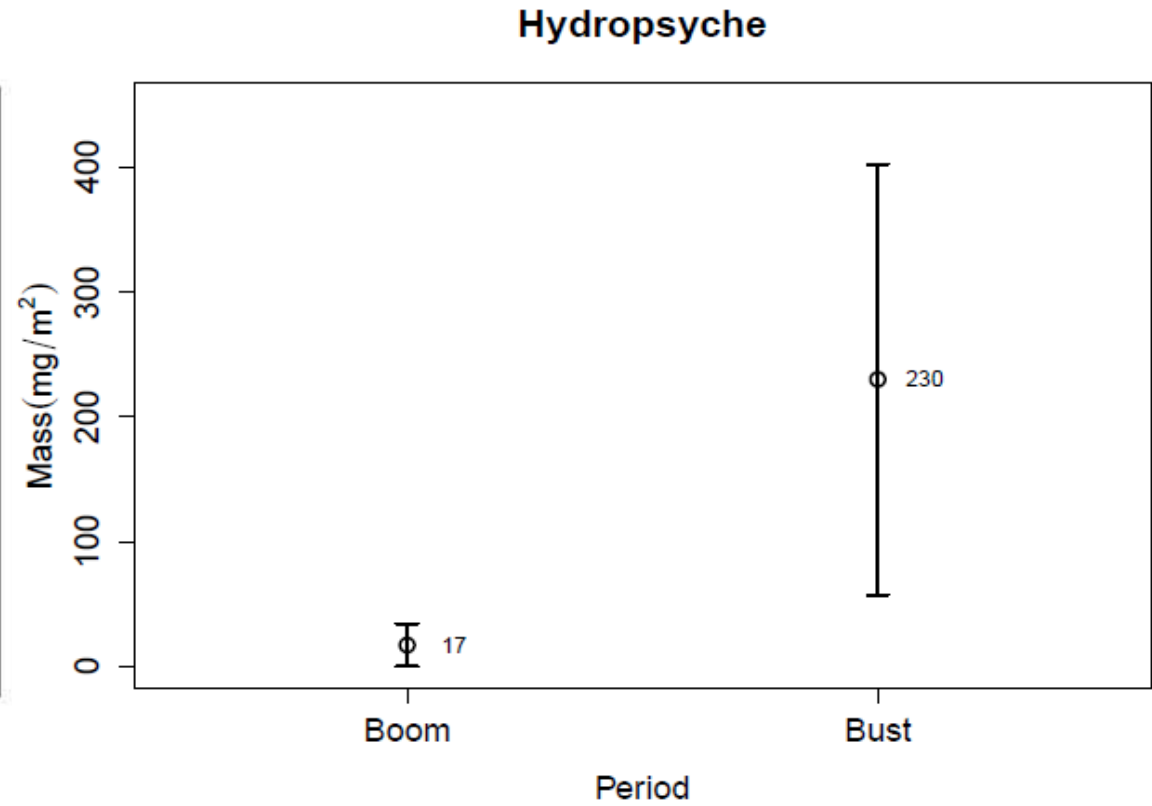


Figure 2. Biomass of a native snail, *Fossaria* from Polecat creek in 2001 and 2009.

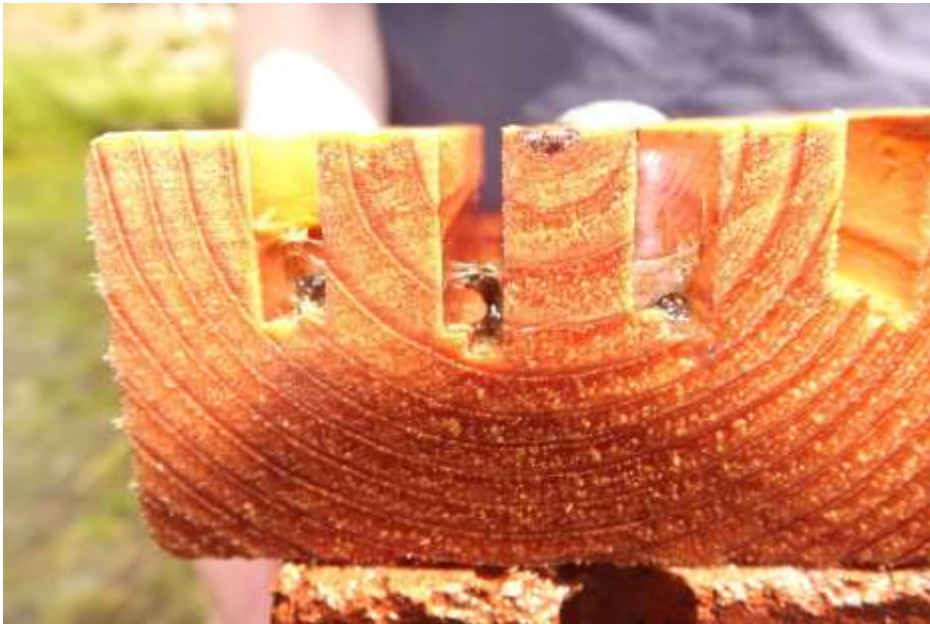
Goals

- Determine a method to colonize *Hydropsyche* caddisfly larvae
- Determine whether conditions inside experimental chambers are conducive to feeding by *Hydropsyche*



Collection Tiles

- 4x4x2 inch wood blocks with ~1/4 inch grooves along the length of the tile



Experimental Chambers

- Plastic containers with wire mesh top and sides
- 4x4x2 inch wood tile with ~1/4 inch grooves inside the container for the *Hydropsyche* to inhabit
- Secured on a brick in the water



Set-up

EXPERIMENT 1

- 12 experimental chambers
- 7 days
- Randomly placed

EXPERIMENT 2

- 6 experimental chambers
- 5 collection tiles
- 5 days
- Randomly placed

Results

Experiment 1

- Experimental chambers
- 24.1% retention rate

	Start	End
Number of <i>Hydropsyche</i>	29	7



Experimental Chambers

- 38.5% retention rate

	Start	End
Number of <i>Hydropsyche</i>	13	5



Collection Tiles

- 91.7% retention rate

	Start	End
Number of <i>Hydropsyche</i>	12	11



Discussion

- Collection tiles were more successful outside than inside the experimental chambers.
- In future field experiments, different experimental chambers will need to be used.



Thank you

- EPSCoR Fellowship
- My advisor: Dr. Amy Krist
- Graduate Student: Daniel Greenwood

