Does response to stressful temperature differ among clones of pitcher plant rotifers?

Alex A. Mendelson*, Casey P. terHorst
Department of Biology | California State University, Northridge

Background

When faced with rapid global change, many populations are likely to rely on rapid evolution to avoid extinction.

The potential for a population to rapidly adapt to new stressful conditions relies on diverse responses to stress.

Does response to stressful temperature differ among clones of pitcher plant rotifers?

Habrotrocha rosa:

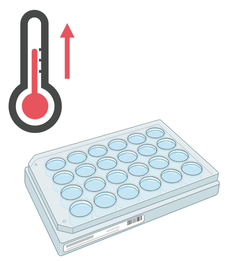
- Common name: "Pitcher plant rotifer"
- Obligately parthenogenetic (asexual)
- Filter-feeding bacterivore

Sarracenia purpurea, Purple Pitcher Plant (L) and *Habrotrocha rosa*, Pitcher Plant Rotifer (R)

Methods

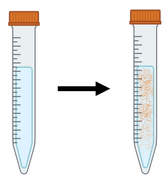
Thermal Performance:

- Six clones of *H. rosa*
- *n* = 12 per clone
- Temp increased by 2.5°C every 1 h (25–47.5°C)
- Scored for activity hourly



Growth Rate:

- Six clones of *H. rosa*
- *n* = 8 per clone
- Grown at 24–35°C, 12h/12h day/night cycle
- Abundance measured daily by removing and counting a 0.15 ml sample



Results

Response to temperature differs among clones

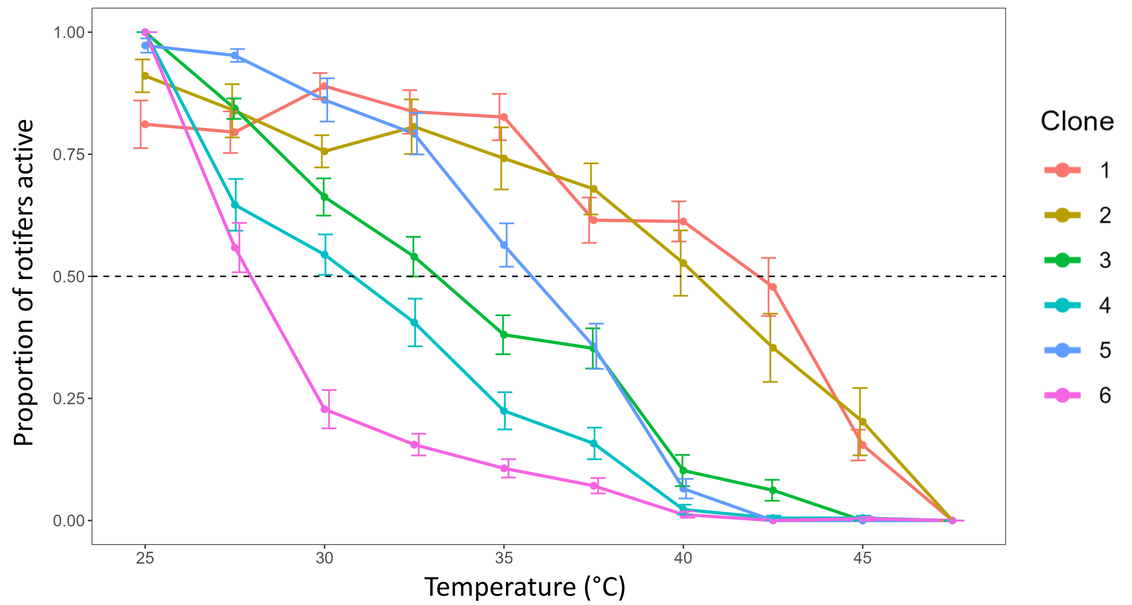


Figure 1: Proportion of active rotifers (mean +/-SE, n=12) across a gradient of 10 temperatures; 6 clonal lines (color/shape).

Growth rate among clones differs at a stressful temperature

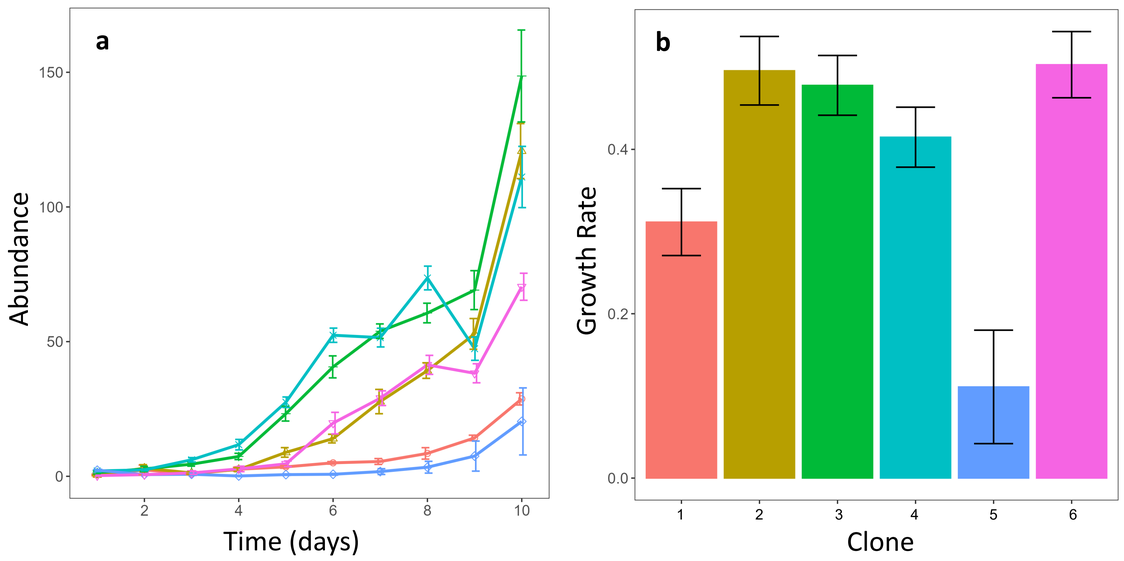
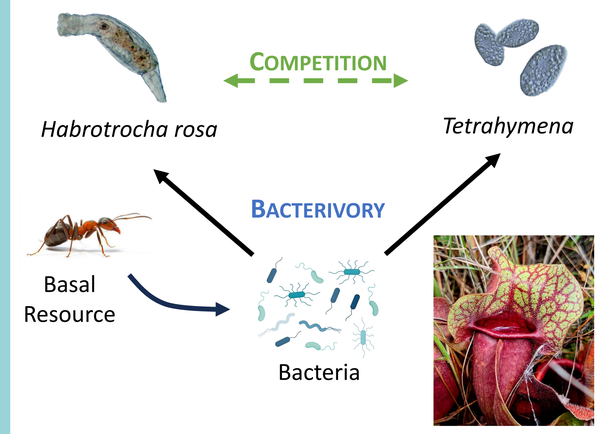


Figure 2: (a) Daily abundance of rotifers (mean +/-SE, n=8); 6 clonal lines (color/shape). (b) Growth rates (+/-95% CI) for each clone estimated by slope of log-transformed abundance.

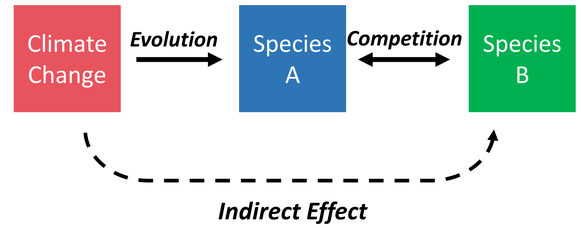
Next Steps

Evolution over short time periods can have an important impact on ecology.

Changes in traits that are important for interspecies interactions might lead to fundamental changes in those interactions.



Indirect effects of climate change on ecology, mediated by evolution, may play an important roll on the trajectory of natural communities.



Acknowledgments

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