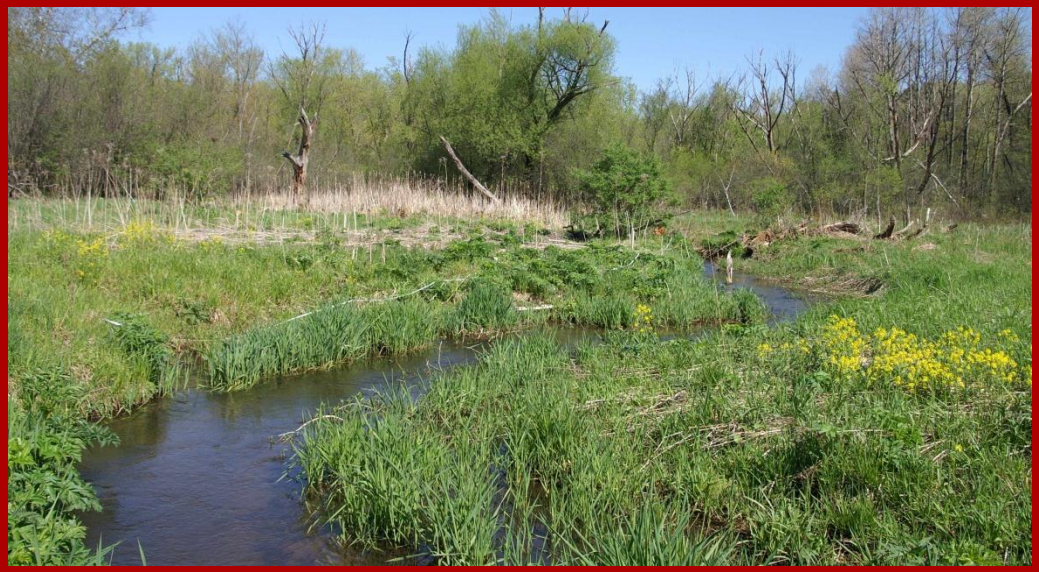


Riparian Buffers Affect Stream Temperature

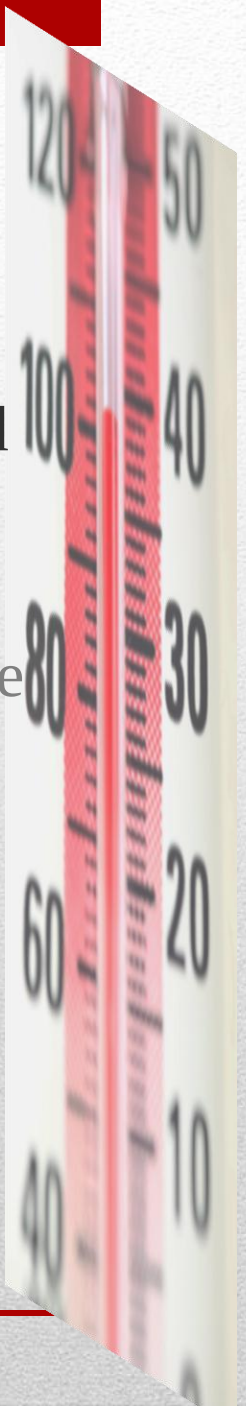
An EREN Lightning Project

Jeffrey Simmons, Project Leader

28 June 2012

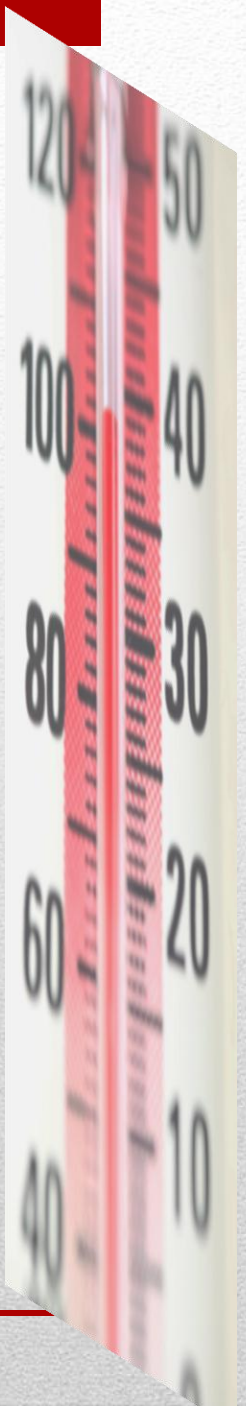
Objectives

1. Quantify the extent and nature of change in stream temperature regime caused by the presence of vegetated riparian zones.
2. Identify the components of the energy budget that have the greatest influence on stream temperature over a wide geographic range
3. Determine the best methods for managing stream temperatures
4. Examine the implications of harmful temperature regimes for biota
5. Establish a dataset of baseline stream temperatures at each of the study sites.



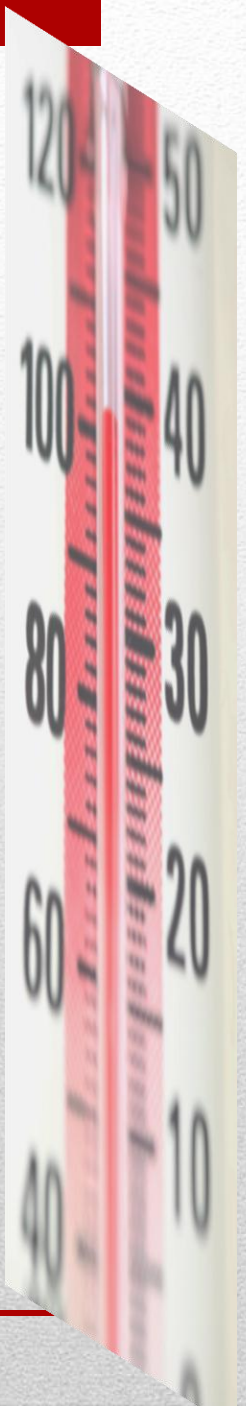
Rules

- Collect data and write up a manuscript in 1 to 2 years
- Low budget
- Authorship policy
- Data sharing policy



Participants

Michelle	Anderson	University of Montana Western
Bill	Dress	Robert Morris University
Jennifer	Frick-Ruppert	Brevard College
Catie	Hanna	Robert Morris University
Dan	Hornbach	Macalaster College
Alida	Janmaat	University of the Fraser Valley
Frank	Kuserk	Moravian College
Jamie	March	Washington and Jefferson College
Tom	Murray	Elizabethtown College
John	Niedzwicki	Belmont University
Darlene	Panvini	Belmont University
Bob	Pohlad	Ferrum College
Jeffrey	Simmons	Mount St. Mary's University
Carolyn	Thomas	Ferrum College
Liette	Vasseur	Brock University
Craig	Zimmerman	Rogers State University



Participants

Experimental Design

Phase I

12 Sites (5 high-intensity, 7 low-intensity)

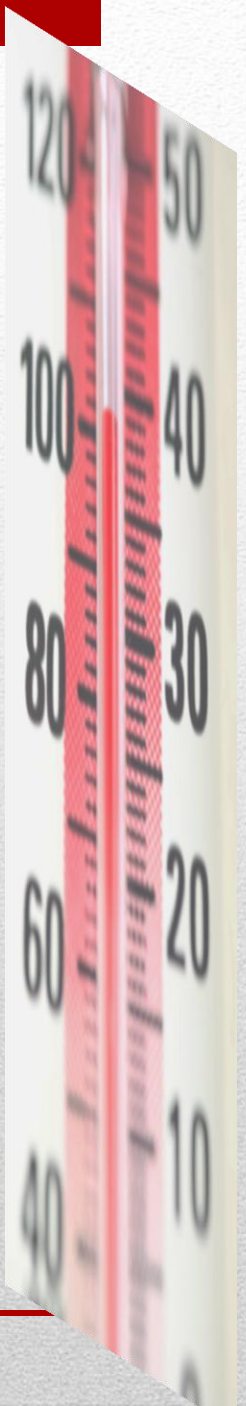
Collected data from 1 June – 30 September 2011

- Variable success due to vandalism and floods

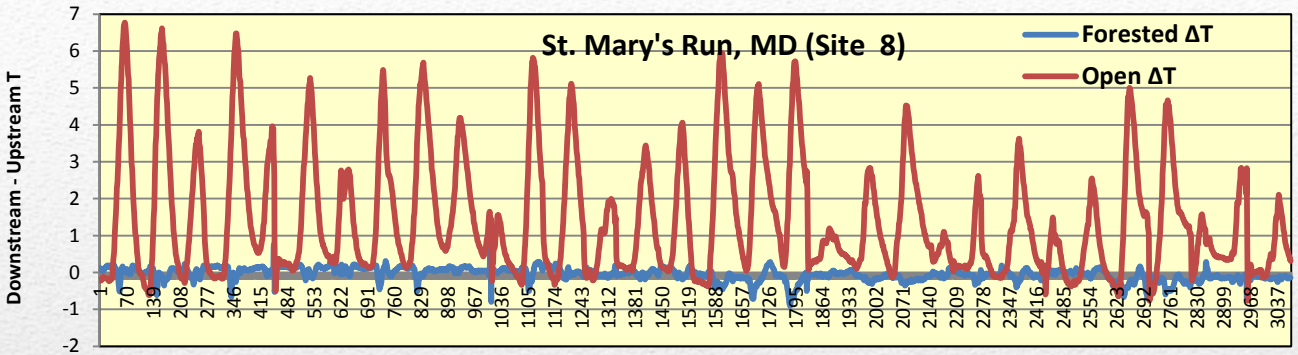
Manuscript in progress (draft to be circulated in July)

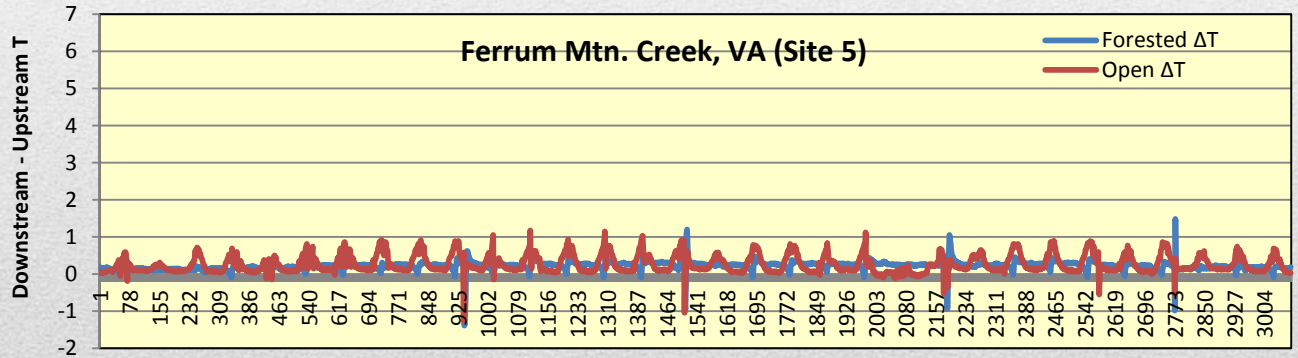
Poster presented here and at ESA in August

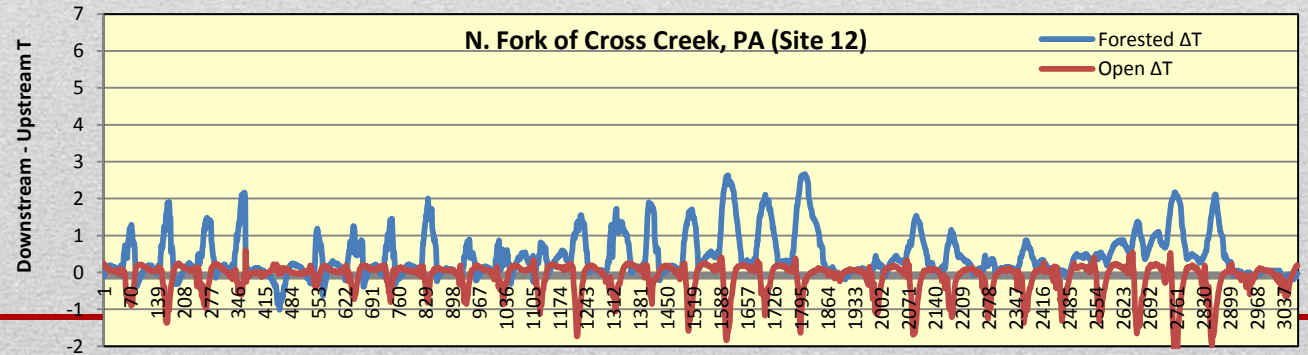
Lab exercise in progress



Results


St. Mary's Run, MD (Site 8)
Forested ΔT
Open ΔT
Downstream - Upstream T

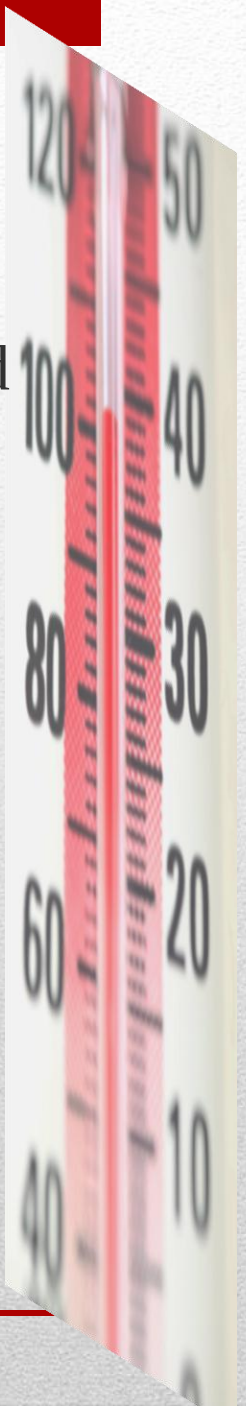

Ferrum Mtn. Creek, VA (Site 5)
Forested ΔT
Open ΔT
Downstream - Upstream T


N. Fork of Cross Creek, PA (Site 12)
Forested ΔT
Open ΔT
Downstream - Upstream T

Conclusions

- The removal of riparian vegetation does not always lead to stream warming

- Solar radiation is the main driver of daily stream temperature at a site, but at a continental scale it is less important



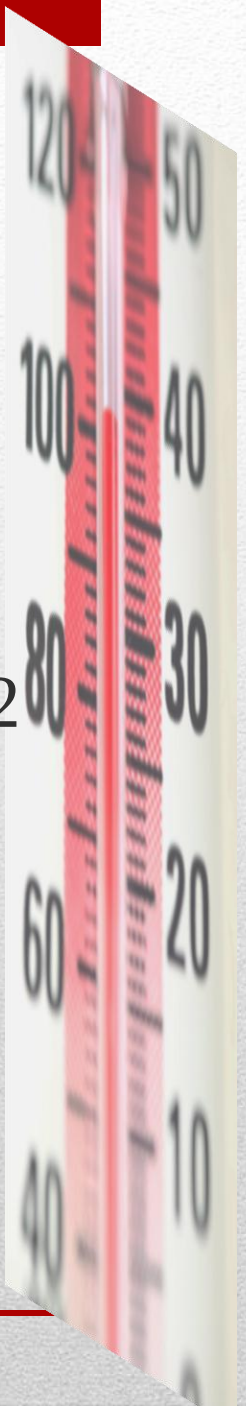
Phase II

13 Sites (5 high-intensity, 8 low-intensity)

Collect data from 1 Oct 2011 – 30 November 2012

Write manuscript and poster (Spring 2013)

Submit manuscript in summer 2013



Questions?