

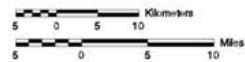
A Study of the Effects of Storm Events on Macro-invertebrate Communities in the Mettawee River



Burr and Burton
Academy,
Manchester, Vermont

Ethan Marsh, Teja Pammi,
and David A. Spero, Ph.D.

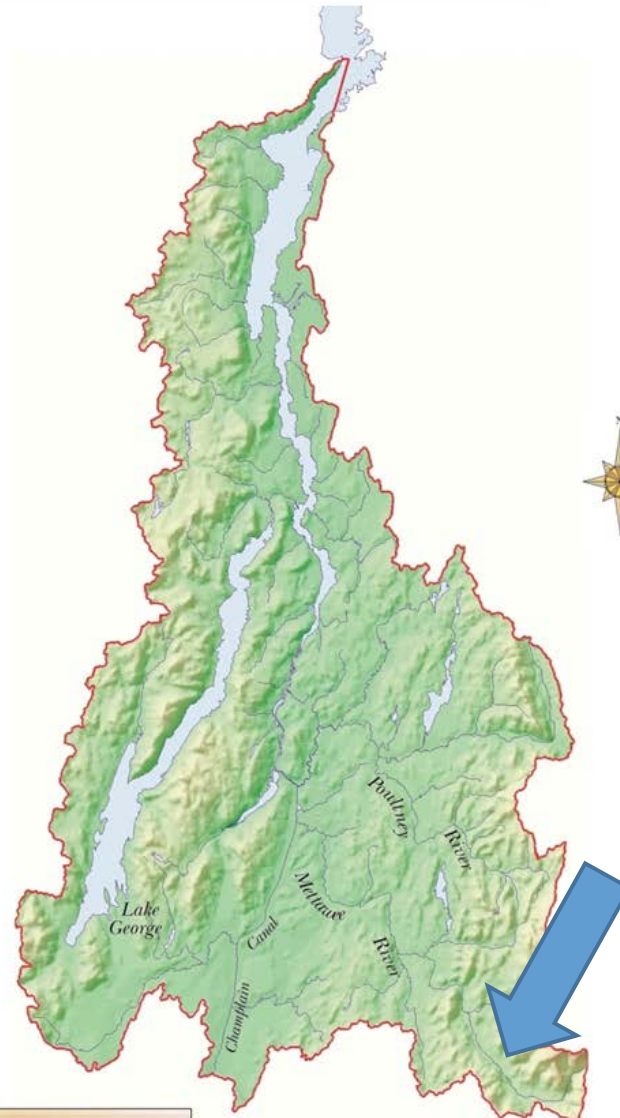
Poultney-Mettawee/South Lake Basin



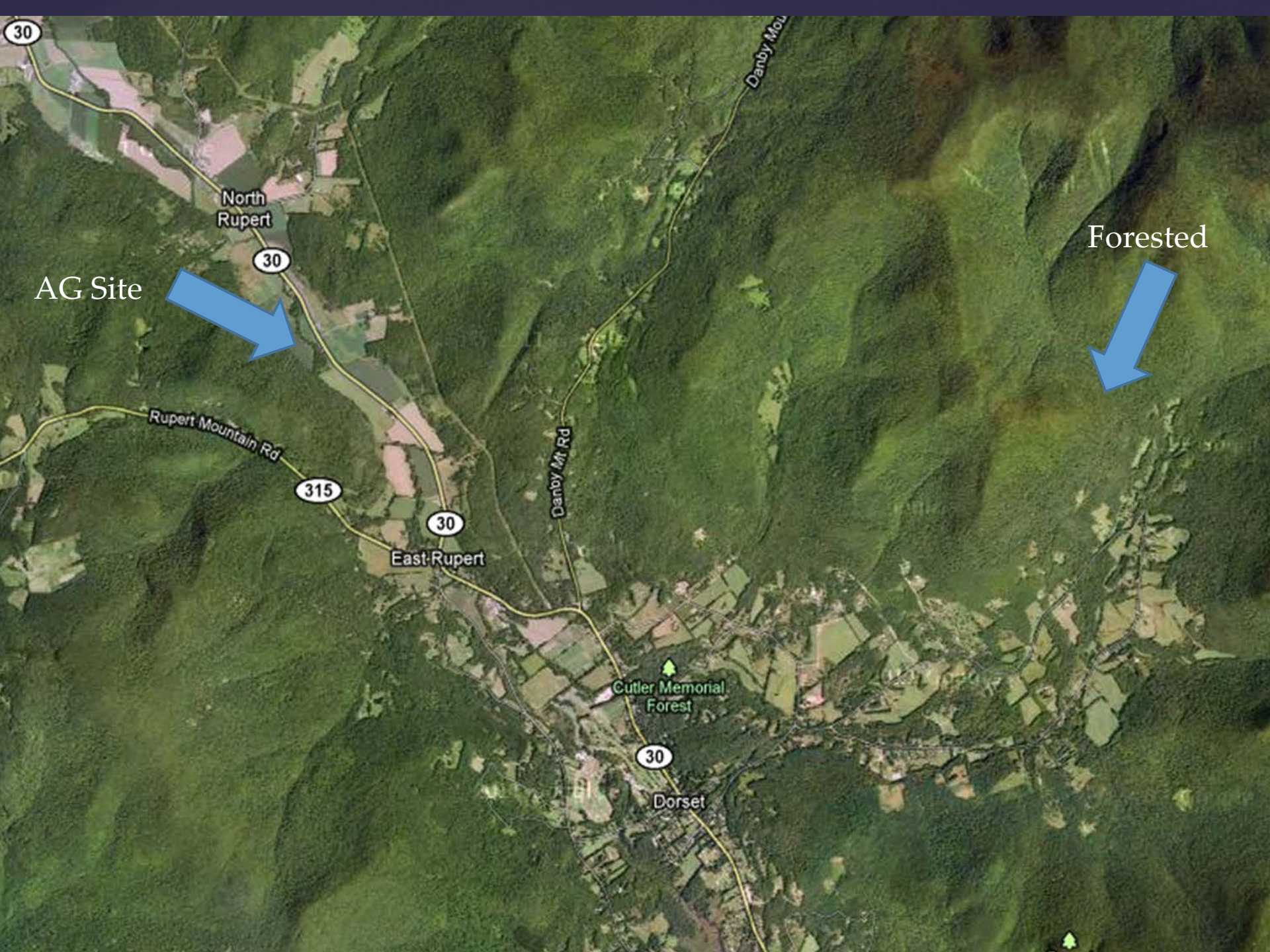
Elevation Above Mean Sea Level



Feet 0 500 1000 1500 2000 2500 3000 3500 4000 4500
Meters 150 300 450 600 750 900 1050 1200 1350



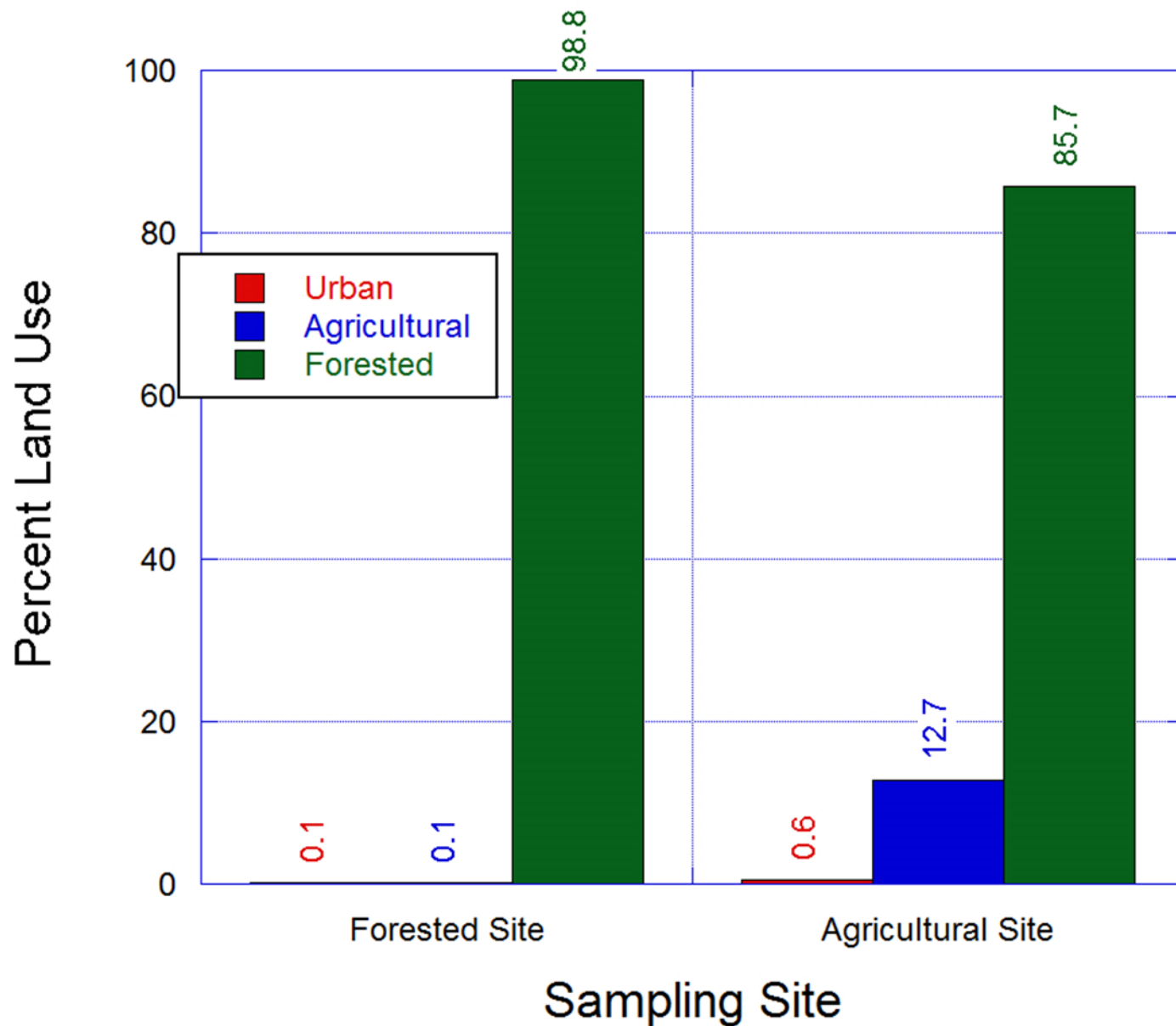
Map by Northern Cartographic



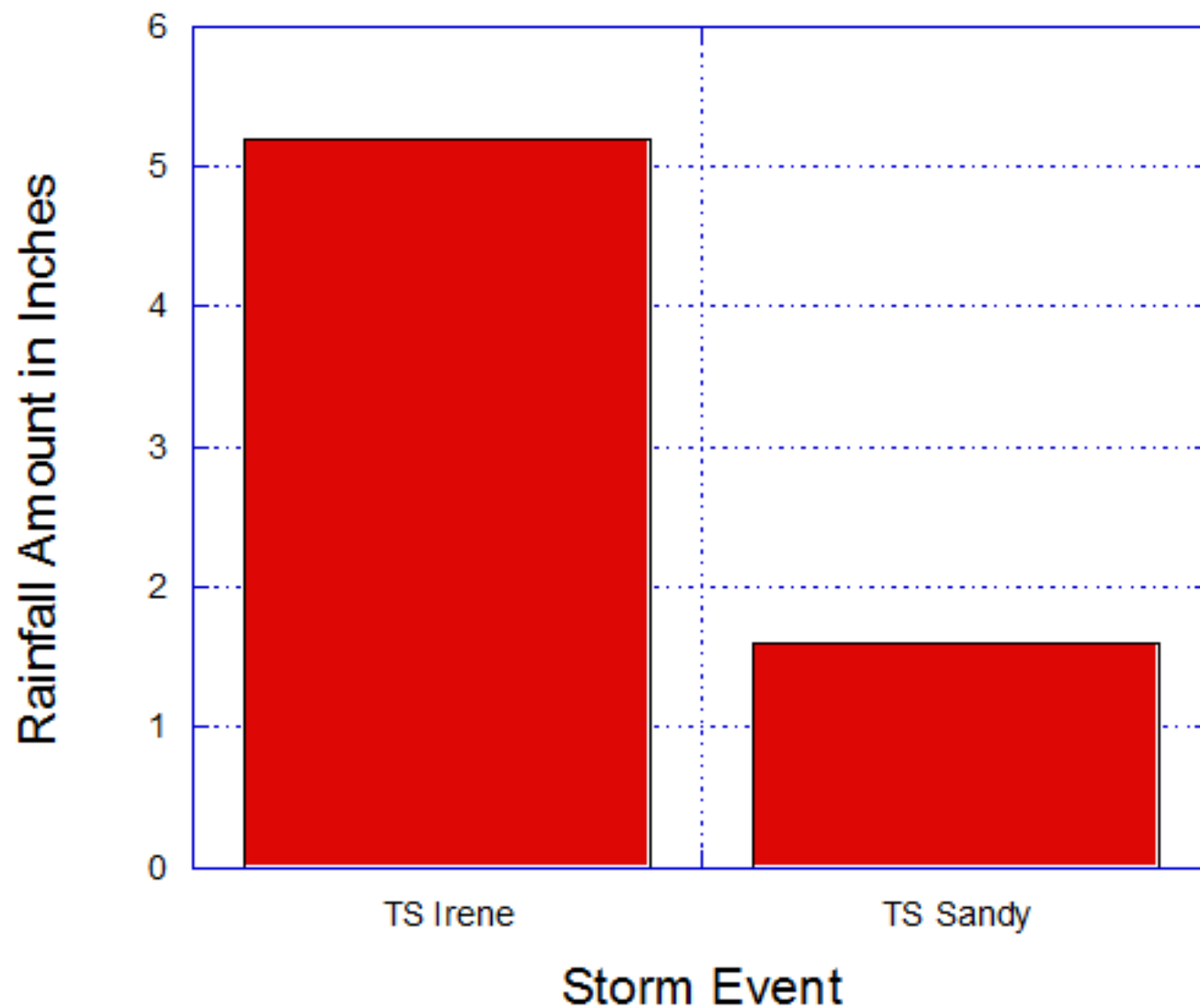
AG Site

Forested

Land Use Within Watershed of Sampling Site



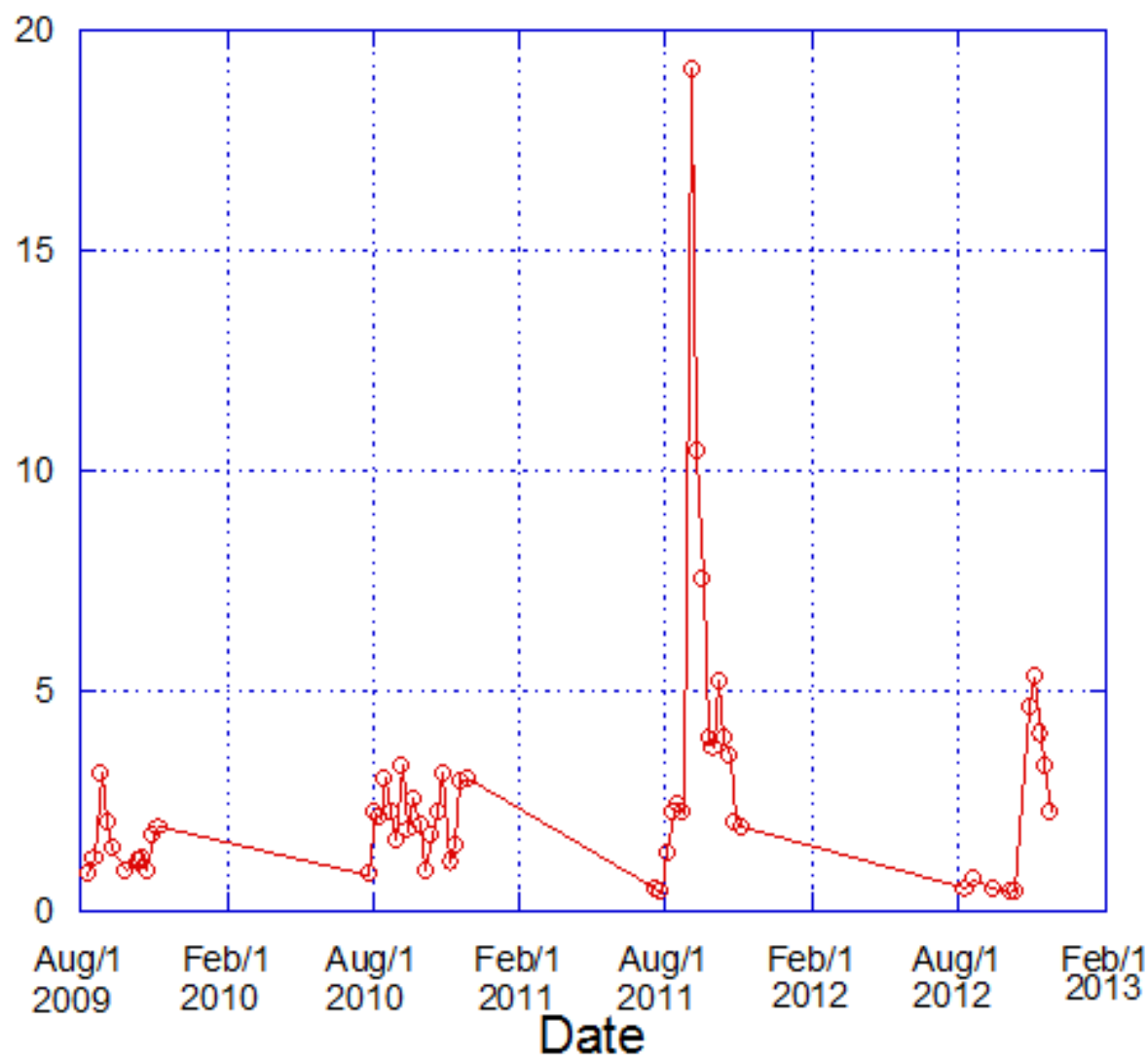
Rainfall Amounts in Rutland County, Vermont



Cubic Meters/Second

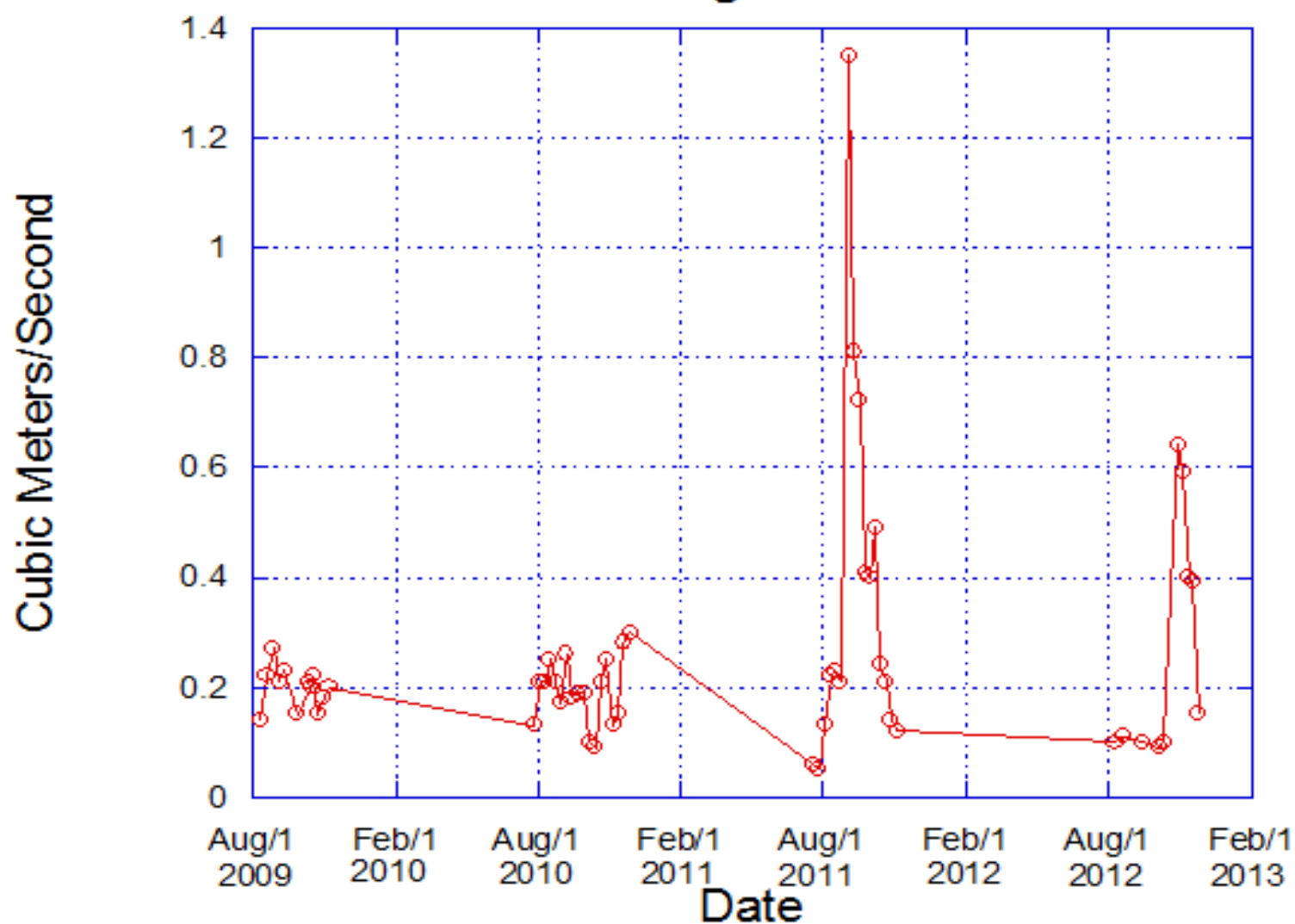
—○— Ag Site

Stream Discharge at Ag Site



—○— Forested Site

Stream Discharge at Forested Site

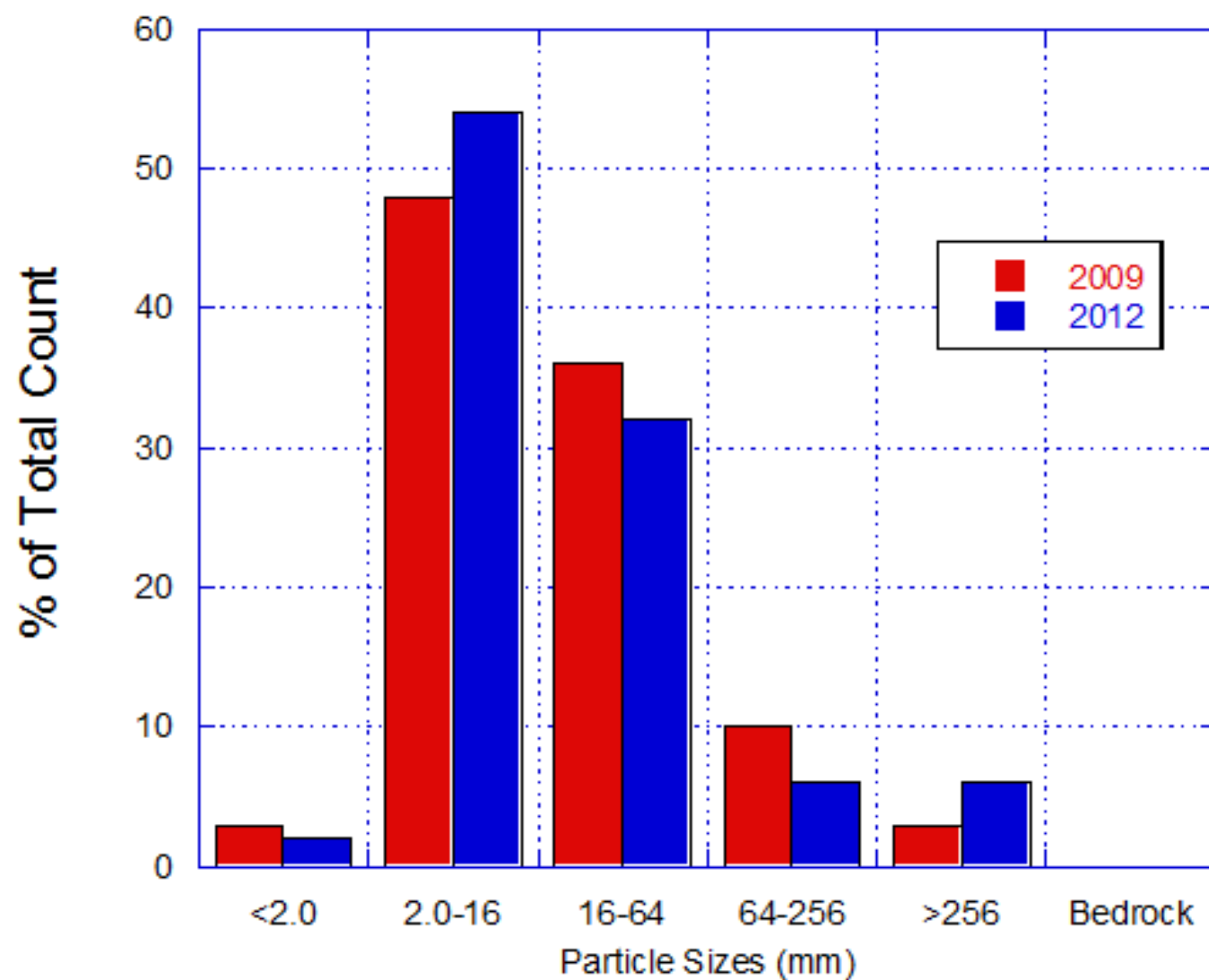


Macro-Invertebrate Data - Agricultural Site					
Metric	2009	2010	2011 Post Irene	2012	2012 Post Sandy
Mean Density Of Animals	202.6 (±16.1)	181.3 (±12.0)	54.8 (±7.7)	191.4 (±15.6)	214.3 (±18.5)
Number of Taxa*	18.5 (±1.3)	18.0 (±0.8)	12.0 (±1.1)	14.3 (±1.2)	15.8 (±1.3)
EPT** Index	9.0 (±0.8)	9.5 (±0.7)	7.5 (±0.9)	8.3 (±0.8)	8.1 (±0.8)
EPT/EPT + Chironomidae	0.82 (±.05)	0.88 (±.07)	0.95 (±.07)	0.78 (±.06)	0.83 (±.07)
% EPT	75.2 (±8.2)	69.7 (±7.8)	68.7 (±6.5)	55.1 (±8.2)	59.2 (±8.3)
HBI	3.01 (±0.3)	3.30 (±0.4)	3.25 (±0.4)	3.51 (±0.5)	3.86 (±0.4)

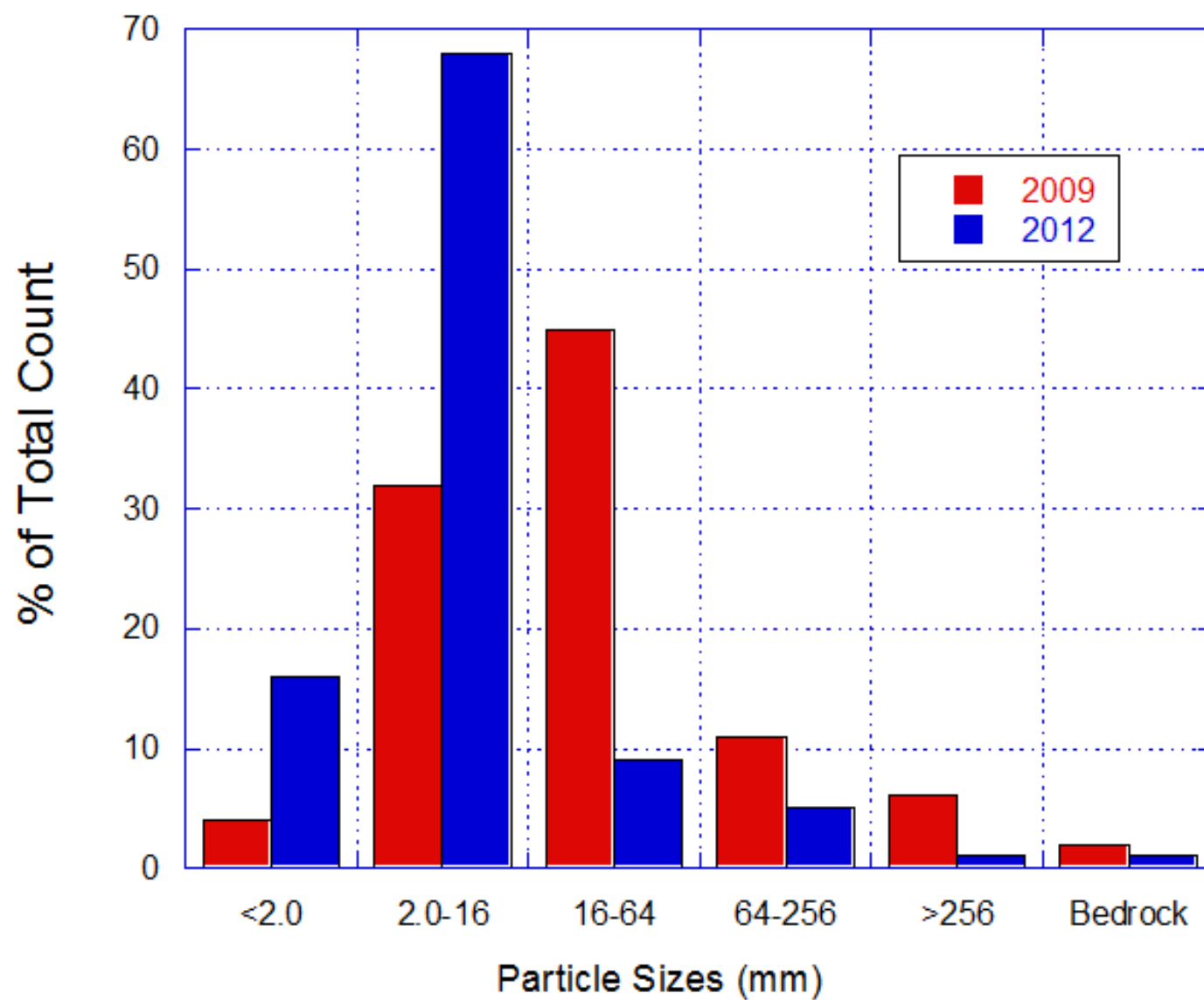
Macro-invertebrate Data Collected From The Forested Site

Metric	2009	2010	2011 Post Irene	2012	2012 Post Sandy
Mean Density Of Animals	72.2 (±5.3)	63.8 (±4.0)	31.8 (±7.1)	33.5 (±6.3)	30.9 (±7.1)
Number of Taxa*	14.0 (±0.9)	15.0 (±0.8)	10.3 (±1.2)	9.2 (±0.9)	8.6 (±1.3)
EPT** Index	8.2 (±0.7)	7.0 (±0.5)	6.2 (±0.6)	5.9 (±0.7)	6.3 (±0.5)
EPT/EPT + Chironomidae	0.93 (±.01)	0.87 (±.07)	0.89 (±.05)	0.78 (±.07)	0.75 (±.06)
% EPT *	76.5 (±8.2)	66.7 (±7.8)	78.4 (±6.2)	58.9 (±7.2)	64.6 (±6.0)
HBI	2.97 (±0.3)	3.47 (±0.4)	2.90 (±0.3)	3.30 (±0.6)	3.45 (±0.5)

Substrate Size From Agricultural Site



Substrate Size From Forested Site



Conclusions:

- TS Irene was associated with a significant reduction in the number of animals per sample and the number of taxa in both the agricultural and forested sites.
- We observed a recovery in the agricultural site, but not the forested site.
- We did not observe any significant changes associated with TS Sandy.
- These results suggest the idea of a “threshold effect” of storm events on macro-invertebrate communities.
- Future studies will be directed toward confirming this suspected “threshold effect” and determining the level of the threshold.

Special Thanks to:

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