

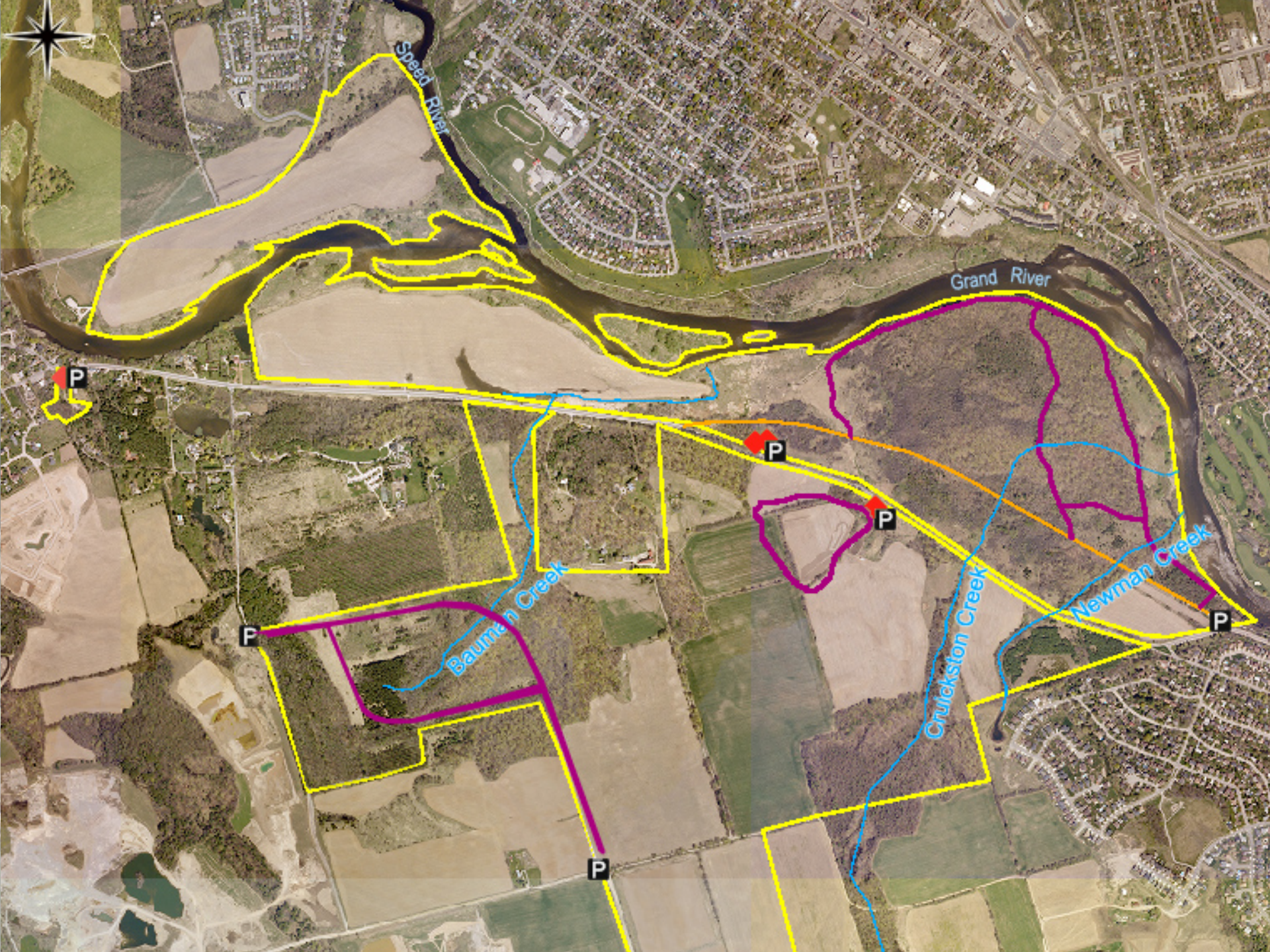
# Cold Water Streams at *rare*: Health and Importance

Water Symposium  
*rare* Charitable Research Reserve

June 8<sup>th</sup>, 2013







Speed River

Grand River

Bauman Creek

Churckston Creek

Newman Creek

P

P

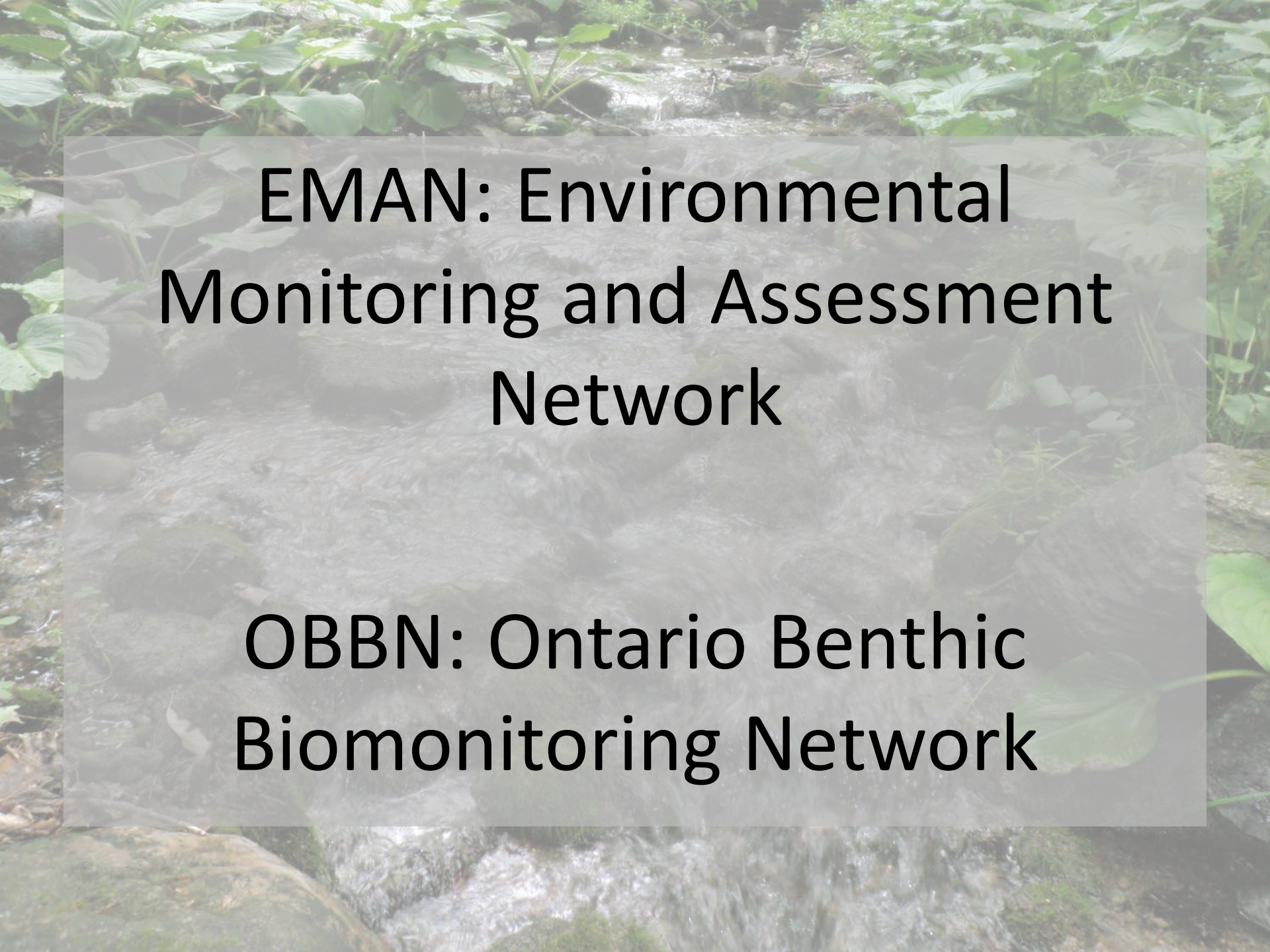
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**EMAN: Environmental  
Monitoring and Assessment  
Network**

**OBBN: Ontario Benthic  
Biomonitoring Network**



# What are Benthic Macroinvertebrates?

- Animals without backbones measuring greater than  $\frac{1}{2}$  mm
- Live within the stream on rocks, sediment, debris or plants at some point in life cycle
- Includes Crustaceans, clams, snails, and immature stages of many common insects - i.e. dragonflies, damselflies, mayflies, and black flies



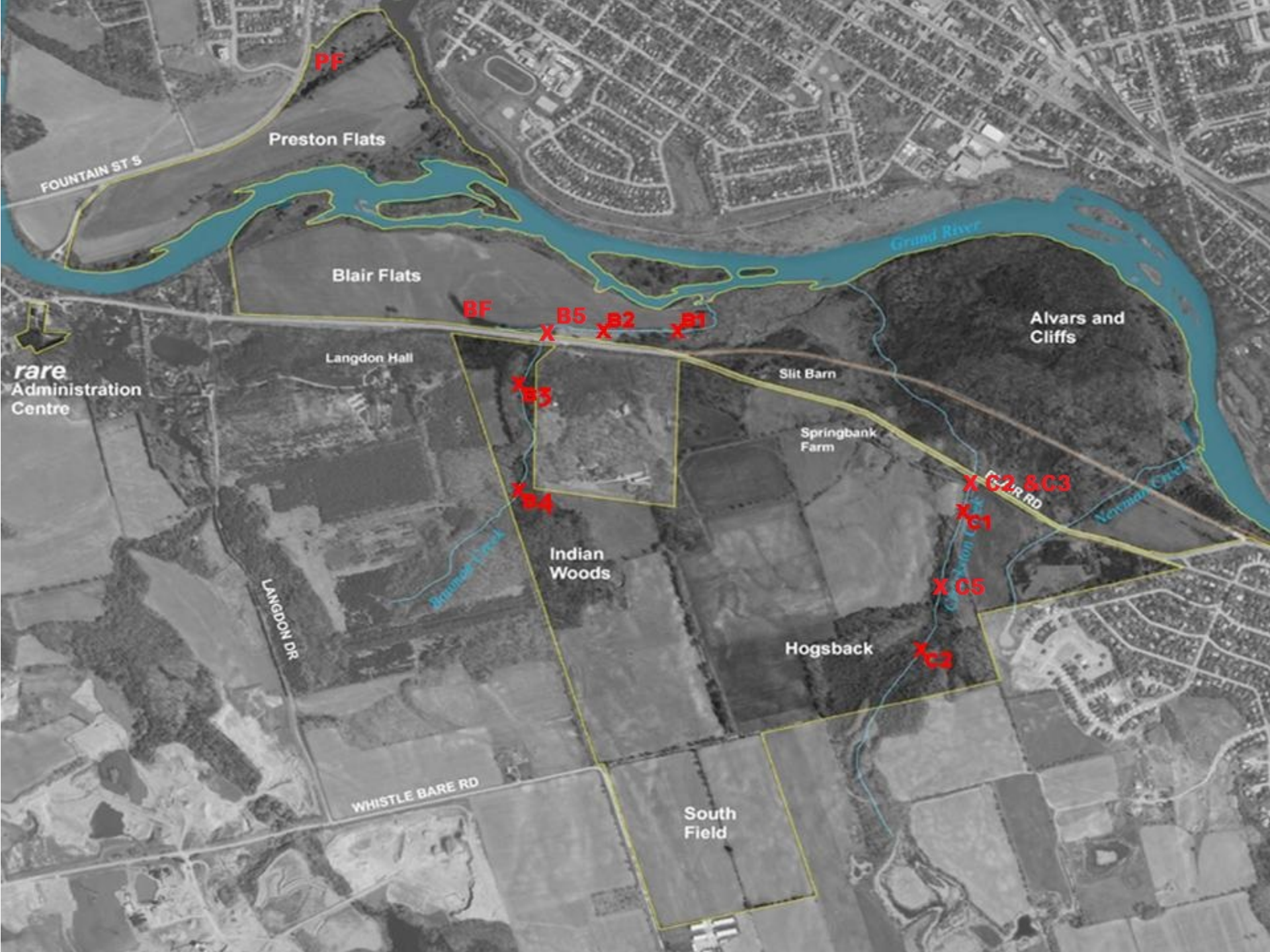


# Why Monitor Benthic Macroinvertebrates?

- Critical links in all aquatic food webs
- Abundant in most aquatic systems
- Diverse populations – wide range of needs and tolerance levels
- Localized populations







PF

Preston Flats

FOUNTAIN ST S

Blair Flats

BF

B5

B2

B1

Alvars and Cliffs

Grand River

rare  
Administration  
Centre

Langdon Hall

Silt Barn

Springbank  
Farm

Indian  
Woods

G2, G3

G1

G5

Hogsback

G3

LANGDON DR

WHISTLE BARE RD

South  
Field

Braamhoek  
Creek

Vermaak  
Creek



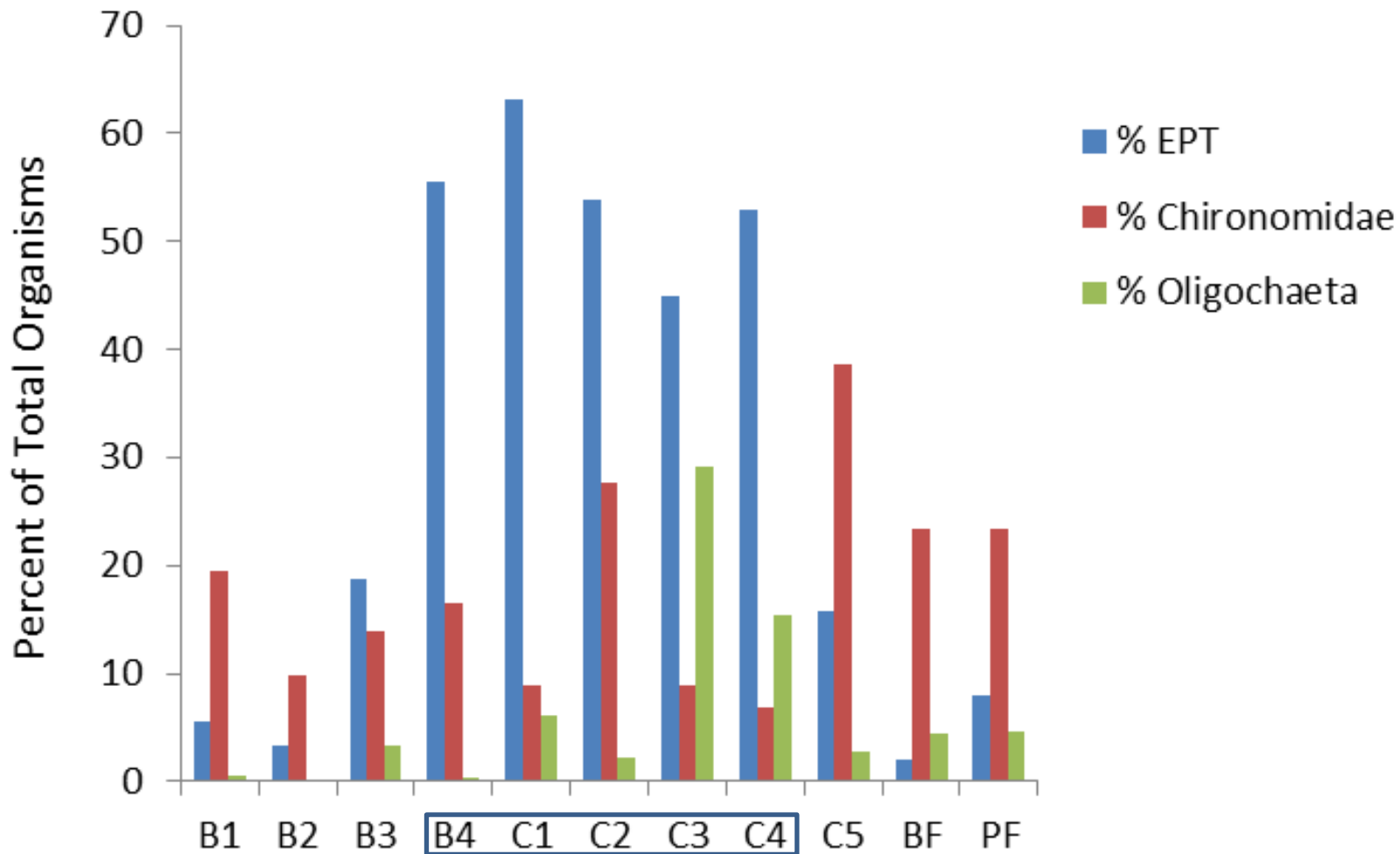


# Biotic Indices

- Total # of organisms at each site
- Taxonomic richness
- Percent Oligochaetes
- Percent EPT (Ephemeroptera, Plecoptera, Trichoptera)
- Percent chironomids
- Dominant Taxa
- Shannon-Weiner Index



# 2009 Spring





# 2009 Fall

