

Mosquito monitoring at Slocan Valley restoration sites

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Project Goals:

- Assess the ratio of mosquito to natural enemies within the aquatic invertebrate population in local wetlands using Canadian Aquatic Biomonitoring Methods (CABIN)
- Verify CABIN results and increase search effort by quick dip sampling

What are macroinvertebrates?

- Organisms without a backbone
- Visible to the naked eye
- Variable tolerances to stressors
- The suite of invertebrates indicates health
- Mosquitoes are one type of macroinvertebrate



Mosquito larvae



Kick-net sampling



Larval dip sampler



Inspecting the site



Wetland restoration



Dip sampling



Meta-data



Examining Kick-net sample



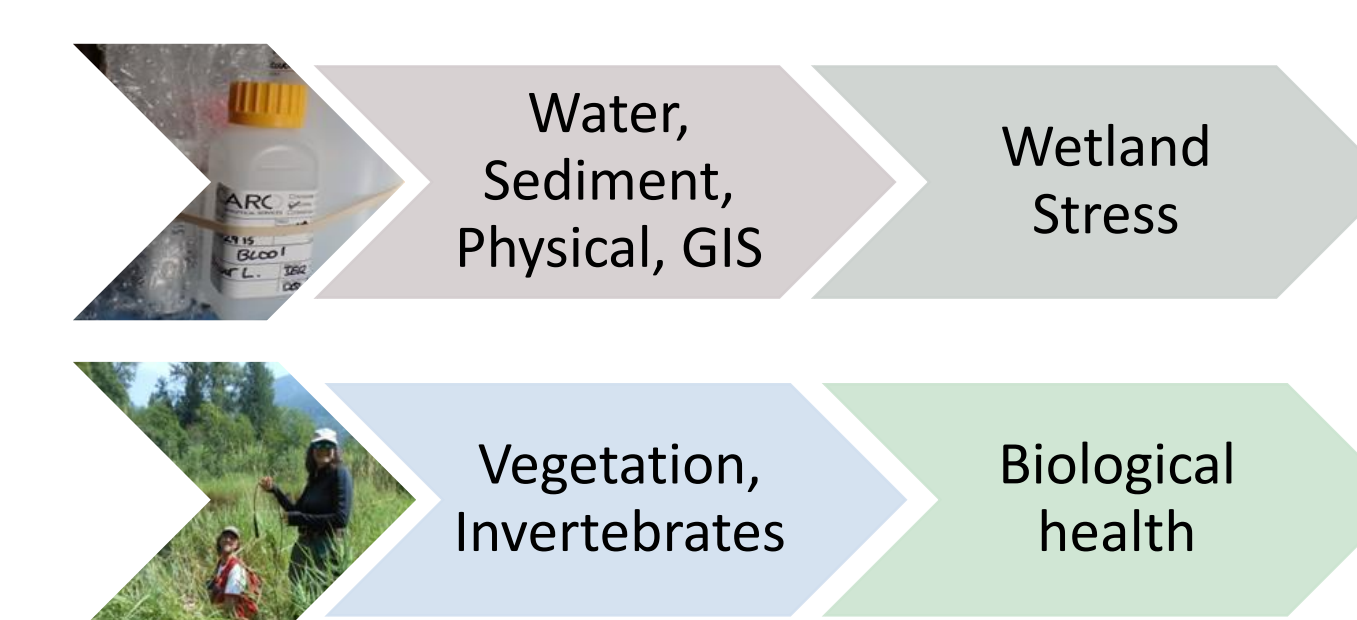
Dragonflies, adult & larvae: natural enemies

Methods:

Parameters monitored in July sampling included:

- Mosquitoes from emergent vegetation
- Water & sediment chemistry
- % Composition of emergent vegetation
- Habitat variables & stressors

Indicators

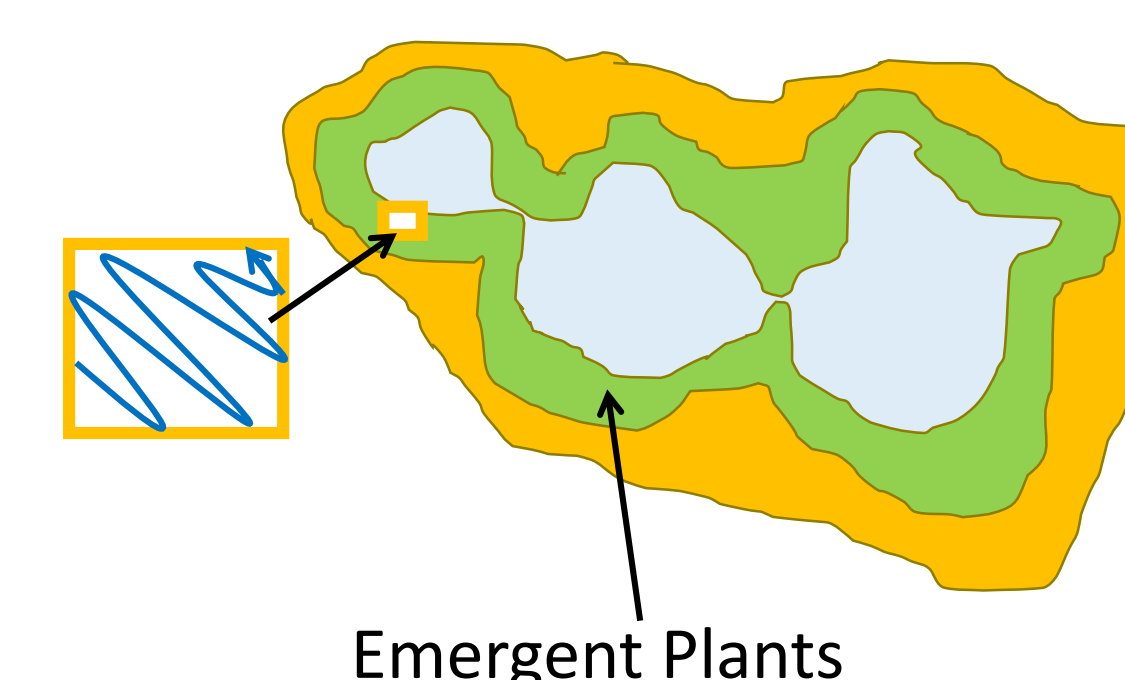
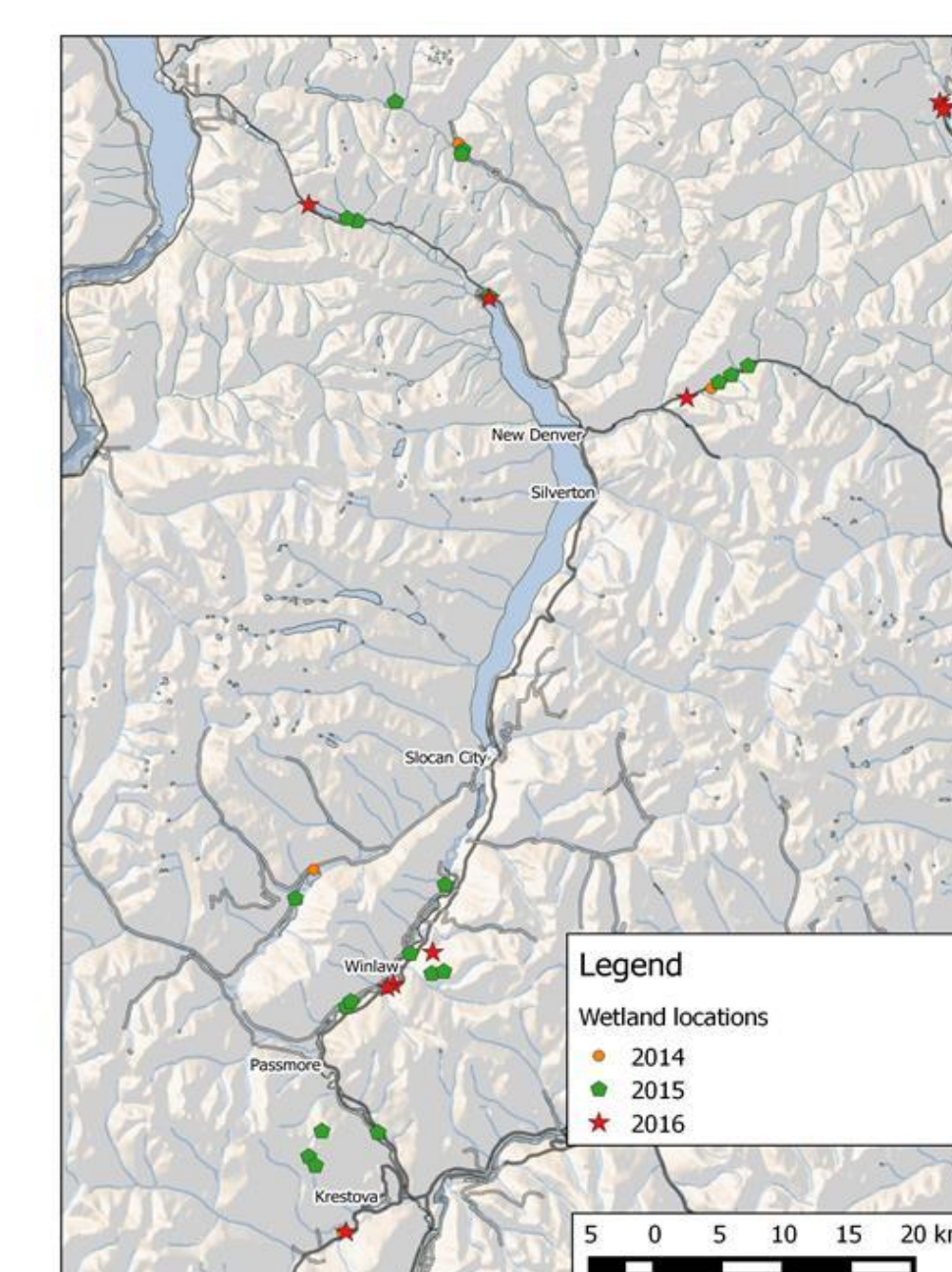


Collection:

- Kick-net: -3 minute kick sample
- Standard area (25m²)
- Larval dip sampler (350 mL)



Site locations



Emergent Plants

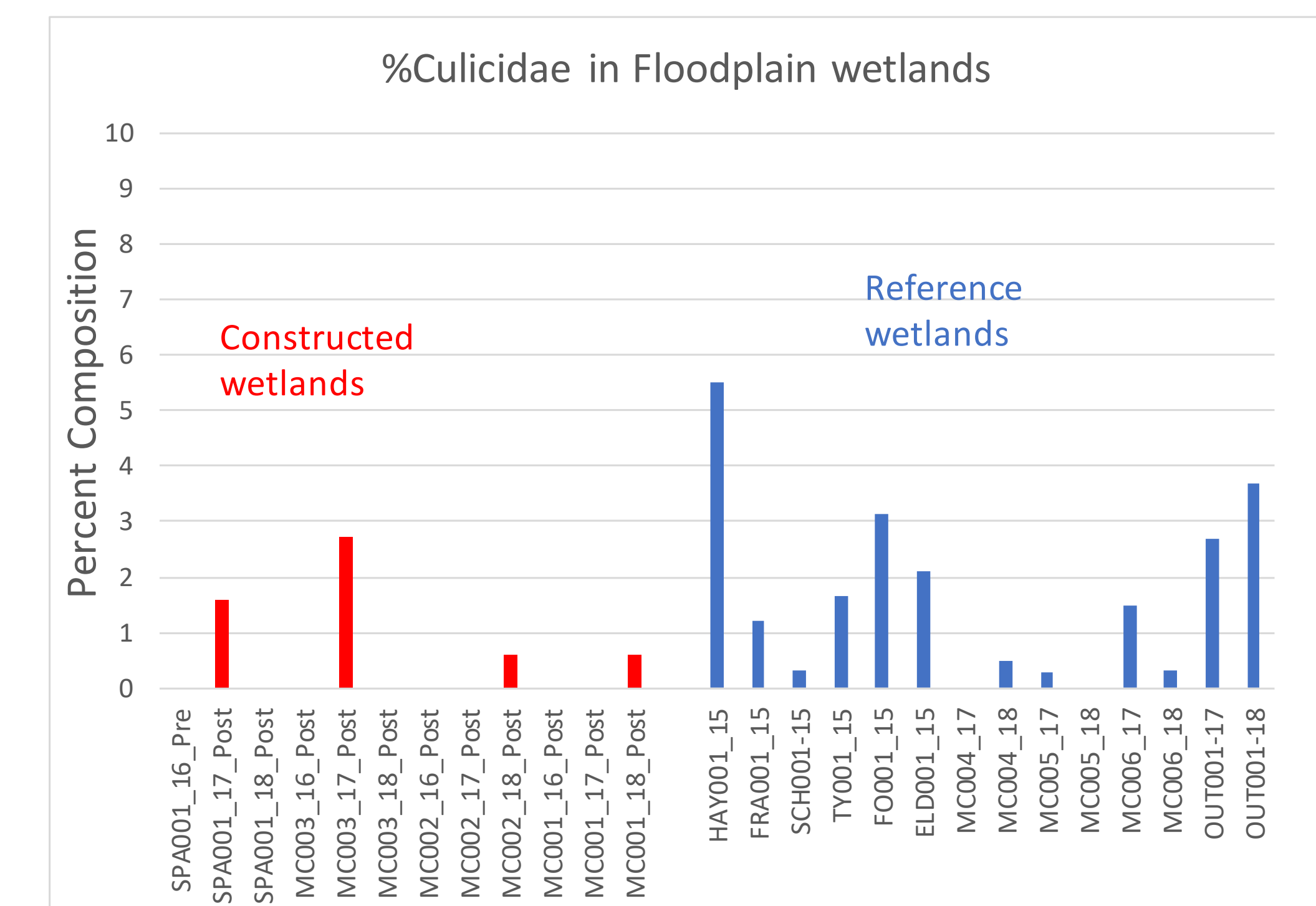
Conclusions:

- Mosquitoes (n=51 kick net samples) comprised 0-6% of all invertebrates in emergent vegetation (2014-18) at all sites in July sampling.
- Mosquitoes comprised <2% of all invertebrates in 2016-18 at Crooked Horn Farm in pre and post-restoration monitoring (Kick-net, n=1 per year)
- Post-restoration monitoring in 2017 using 350mL dip sampler found zero larvae in 18 samples within the wetland & none in ditches (6 samples).
- Post-restoration monitoring in using 350mL dip sampler found 2 larvae in 24 dips within the wetland in 2018 and 2 larvae in 20 dips in 2019 at Crooked Horn Farm
- No mosquitos were found in 20 dips at GT wetland when monitored in July 2019 of the first-year post-restoration

Results:

Mosquitoes at all sites were in the genus *Anopheles*

Methods will be used to track restoration goals



% Mosquitoes in constructed vs reference sites at subset of sites located in valley bottoms, Lotic_Floodplain sites (n=26)

Further analyses to be carried out:

- Calculation of predator : mosquito ratios
- Correlations with environmental variables such as degree days, and water level indices

Encouraging wetland stewardship and restoration

If you have a backyard wetland and want to be part of an innovative study please contact: Darcie Quamme, Integrated Ecological Research, quamme@ecological.bc.ca, full report at slocanswamp.org