

Louis Creek, British Columbia: A Biological Study Following Streambank Restoration

Jessica M^cQueen

Supervisor: Dr. Brian Heise

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Land Acknowledgement

Thompson Rivers University is on the traditional lands of the Tk'emlúps te Secwépemc; Louis Creek study sites are on the Simpcwúl'ecw traditional lands, both of which are part of the traditional and unceded territory of the Secwépemc.

Study Outline

- Value of Restorations
- Project overview
- Louis Creek (& study sites)
- Sample management
- Results
- Future restorations



Streambank Restorations

Photo: J. McQueen, 2021

Taking a damaged or degraded ecosystem & returning functions of a typical healthy stream ecosystem



Restored

Not restored

Project Overview

Innovative Habitat Restoration Demonstration Project - Louis Creek
Biological Study

- multiple groups and organizations

- handful of students

- multiple years of work including physical restoration efforts and post-restoration stream monitoring



0 20.32 40.64 km

1: 1,000,000



iMapBC Mapping



Louis Creek Study Sites

Louis Creek Sampling Locations

Google Earth, 2019

CONTROL SITE (20m)

TREATMENT SITE (20m)



(51°02'08"N 120°01'40"W) 1 km

STREAM FLOW DIRECTION

Control Site

Photo: J. McQueen, 2021

Photo: B. Heise, 2021



Photo: J. McQueen, 2021



Treatment Site



Photo: B. Heise, 2021

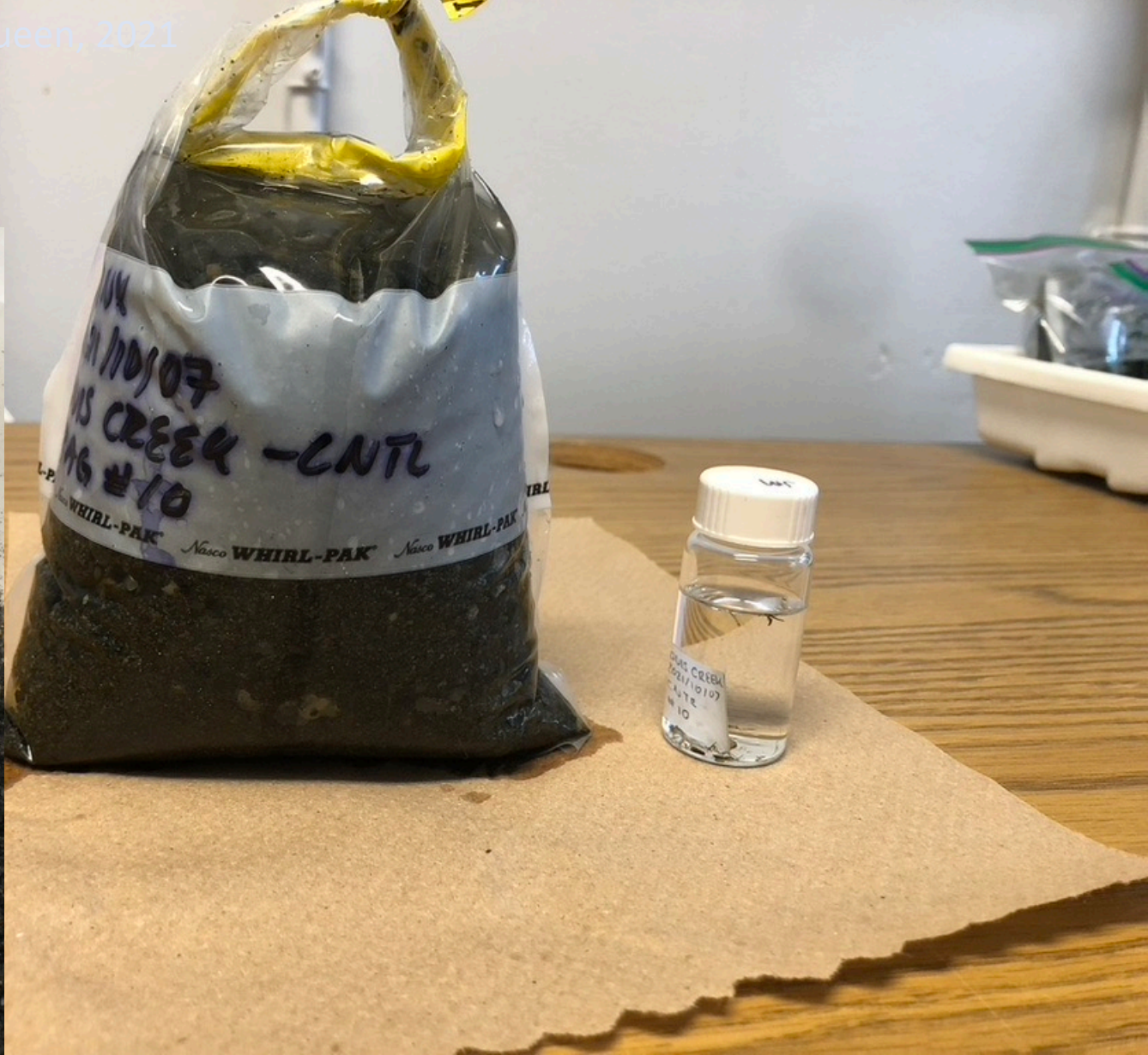
In-field Sample Processing



Sample Sorting

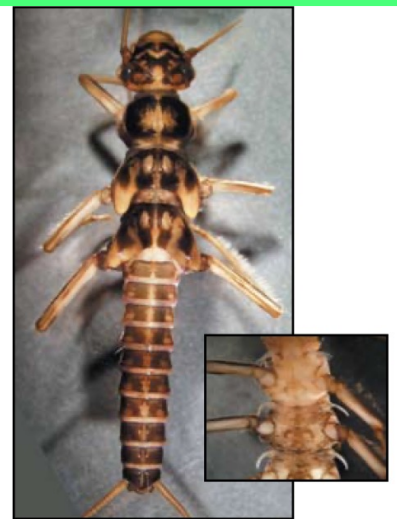


Photo: J. McQueen, 2021





Plecoptera: Perlidae
(golden stoneflies)



Plecoptera: Perlodidae
(little yellow stoneflies)

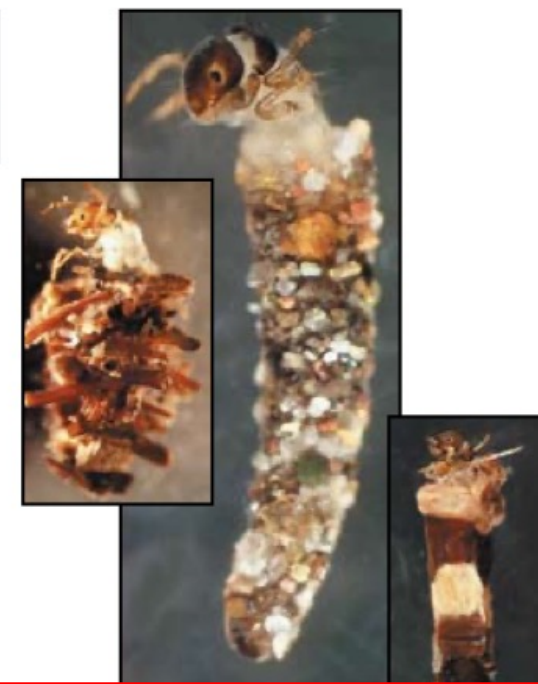


Plecoptera: Chloroperlidae
(little green stoneflies)

Vaugh
from:
Macro



Trichoptera



Macroinvertebrate Identification and le



Ephemeroptera: Baetidae
(small minnow mayflies)



Ephemeroptera: Ameletidae
(ameletid minnow mayflies)



Ephemeroptera: Ephemerellidae
(spiny crawler mayflies)



Ephemeroptera: Leptophlebia
(prong-gill mayflies)



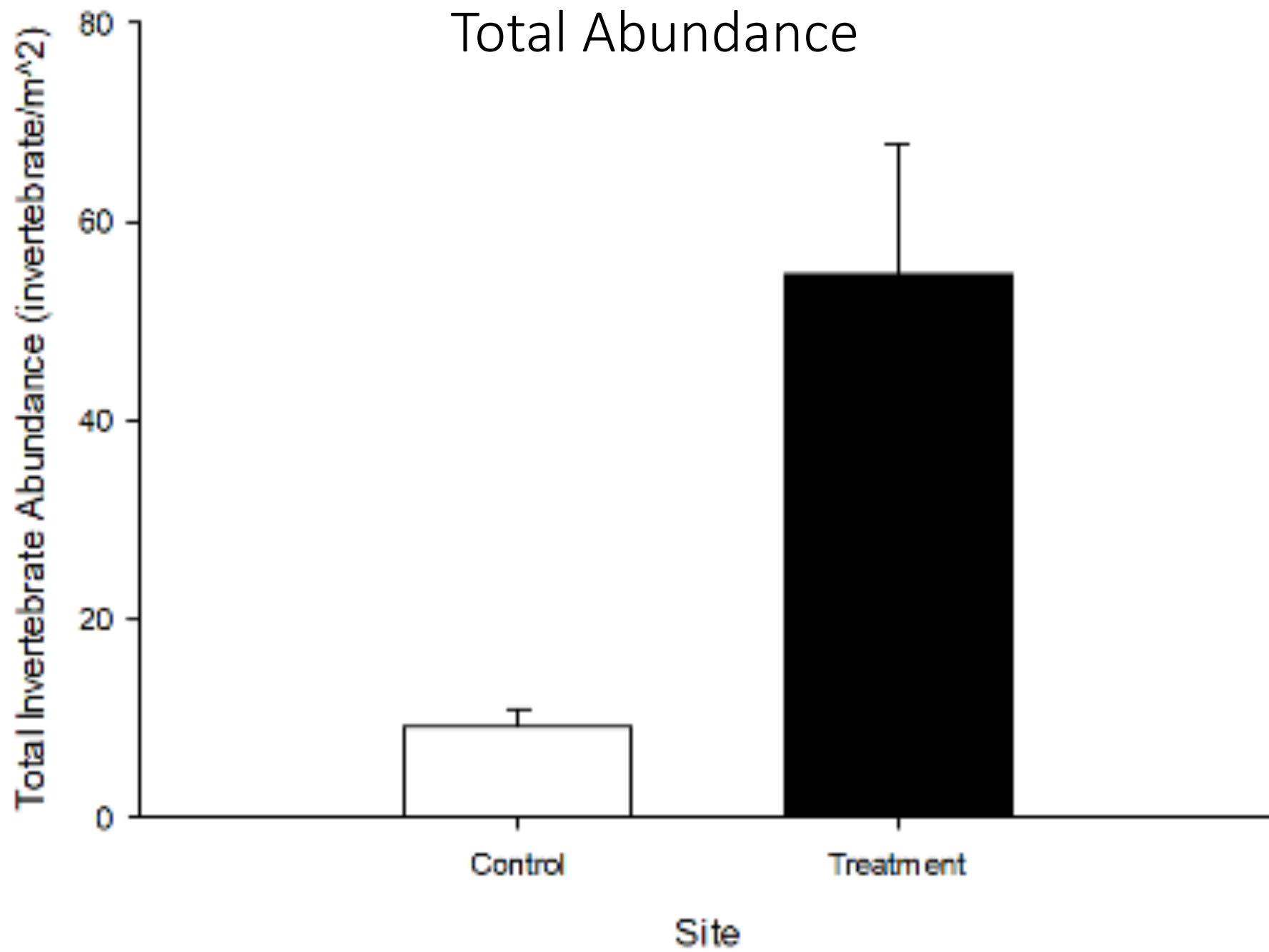
Diptera: Chironomidae
(midges)



Diptera: Ceratopogonidae
(biting midges)

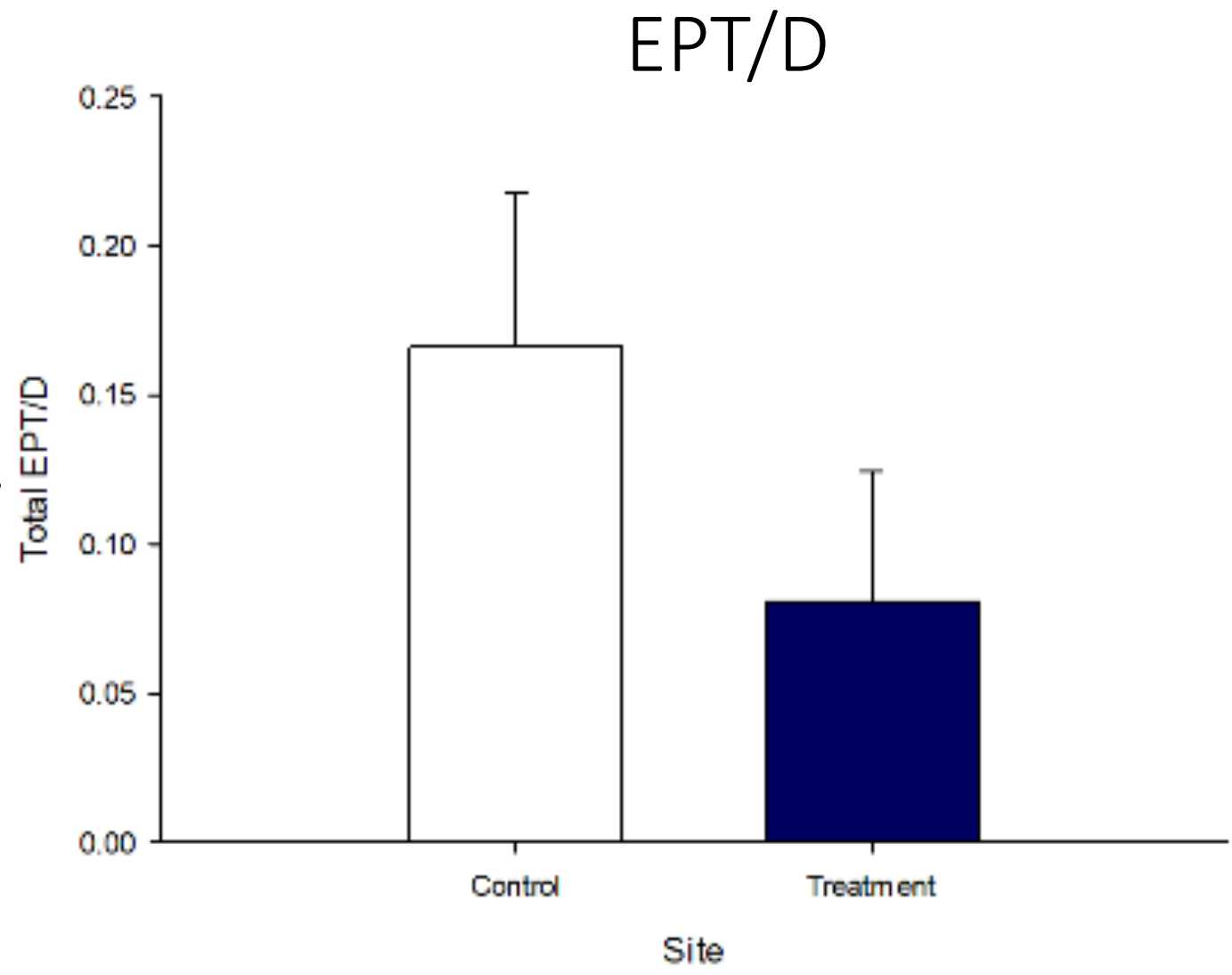
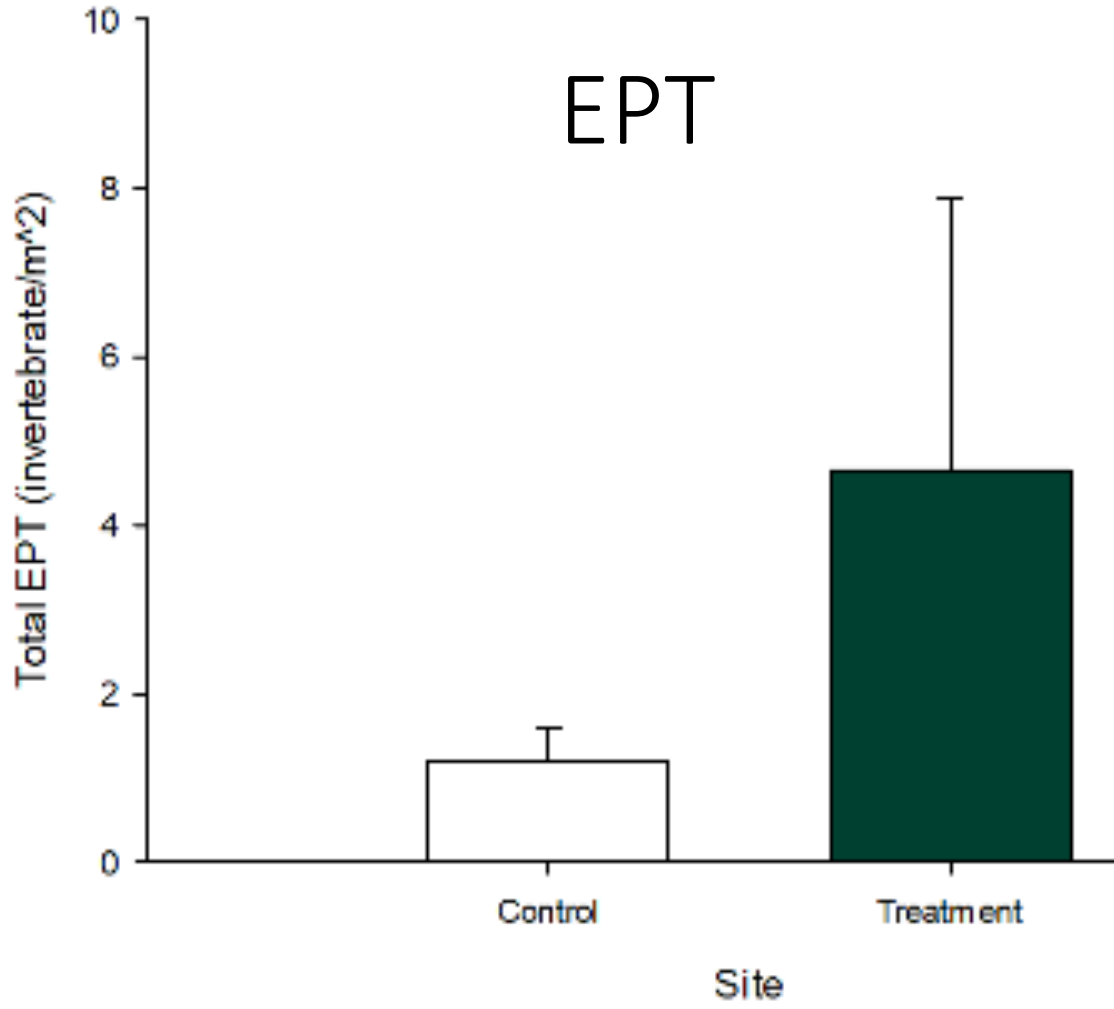
Results

- Four main categories that were looked at:
 1. Total Abundance
 2. Total Biomass
 3. Total Ephemeroptera/Plecoptera/Trichoptera Taxa (EPT)
 4. Total Ephemeroptera/Plecoptera/Trichoptera/Diptera Taxa (EPT/D)



Total Biomass





Remember...

1. These results are from less than one year of recovery, post-restoration efforts and these things take time
2. The results support the value of restoring highly eroded streambanks

Future restoration direction

Using riprap (boulders) and large wood along the streambank, planting grasses

- Is this technique good, bad?
- Where do we go from here....



Photo: J. McQueen, 2021



Photo: B. Heise, 2021

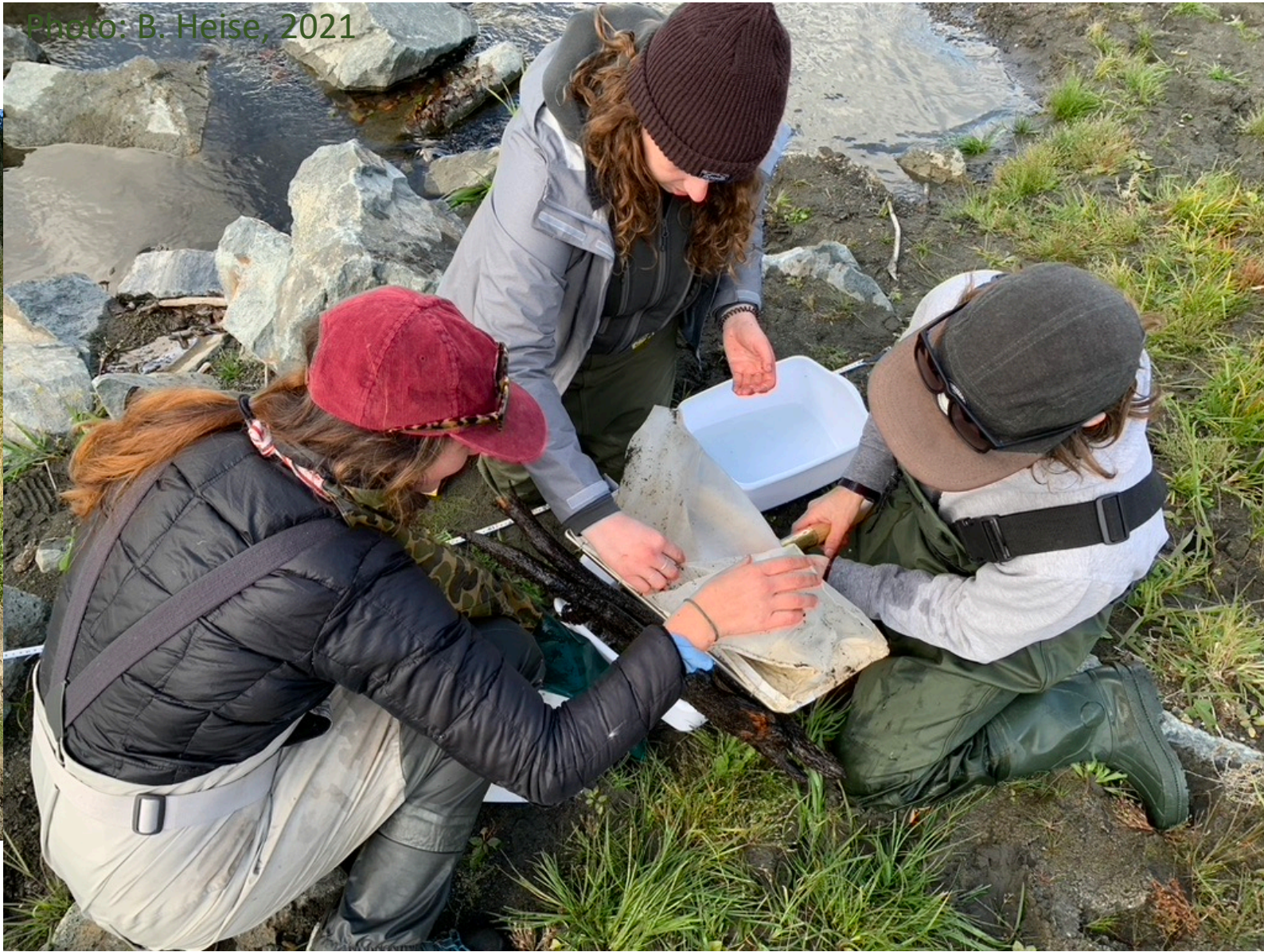
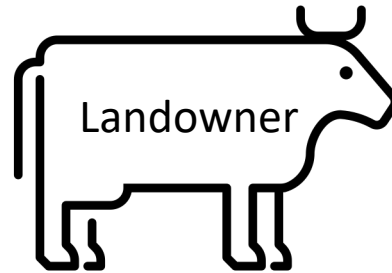


Photo: B. Heise, 2021

Thank You!



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