EFFECT OF CHANNELIZATION ON MACROINVERTEBRATE SPECIES

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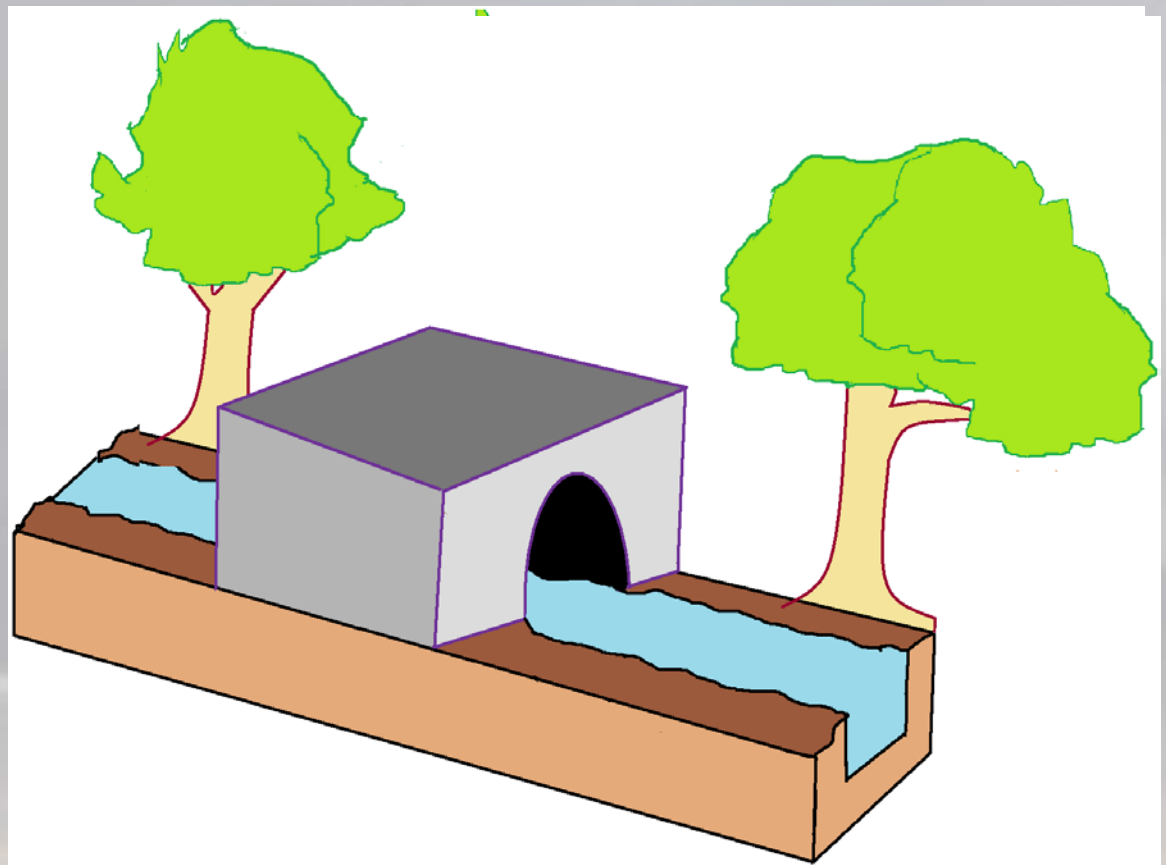
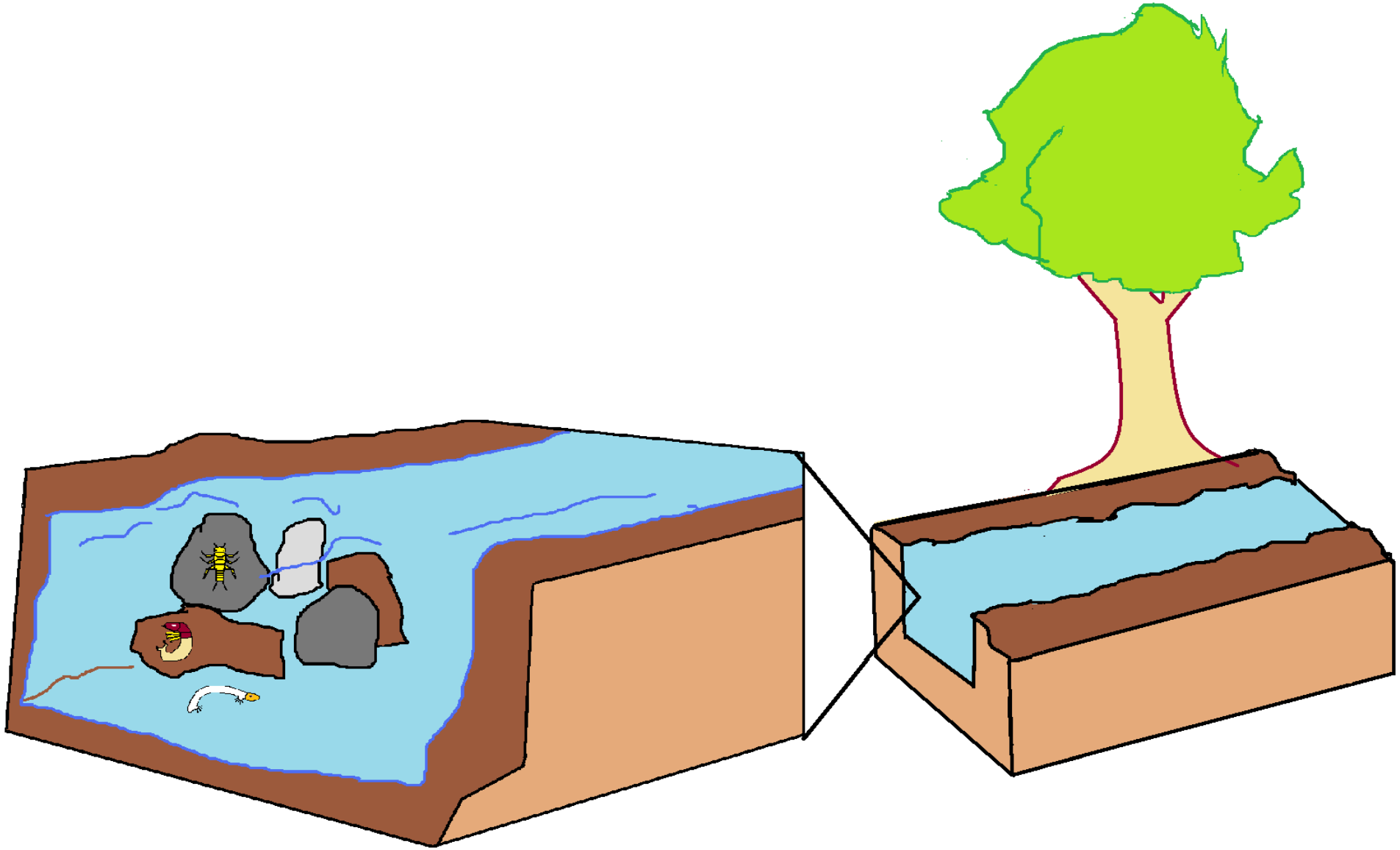
Introduction

❑Bridged streams and rivers can be conveniently divided into three areas: the upstream area, the channelized area, and the downstream area.



Introduction



Introduction

Macroinvertebrates live in the riffles of streams with normal ecology but channelized areas have a different substrate patterns.

Can this factor affect macroinvertebrate communities' distribution?

How can this effect be measured?

Objectives

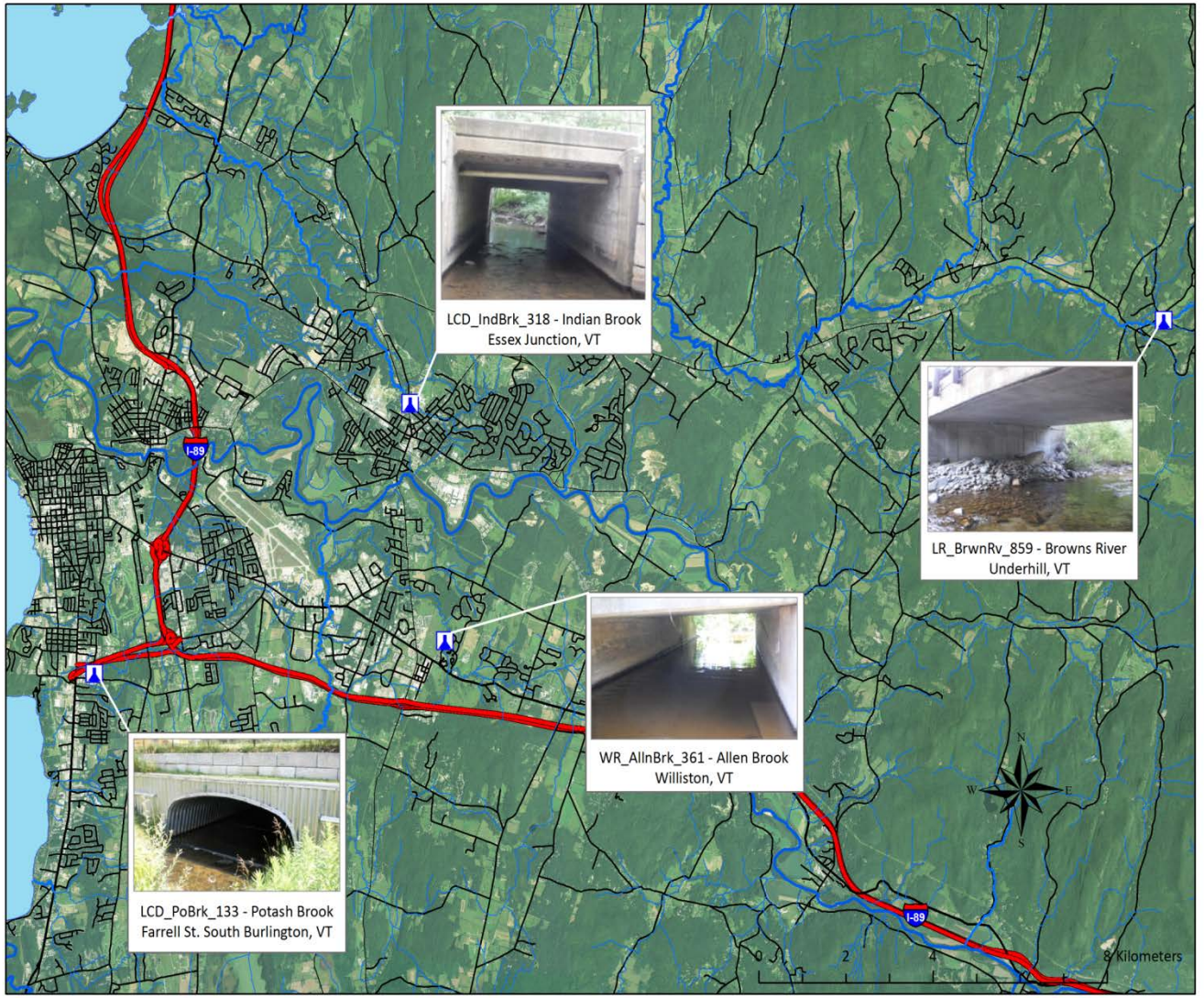
- Measure the effect of small-scale channelization caused by bridges on macroinvertebrate communities.

- Characterize the macroinvertebrate communities distributed in upstream of bridges, in channelized area under bridges, and the area downstream of bridges at four sites.

- Determine if macroinvertebrate abundance, dominance, evenness, and species richness differed among sampled areas.

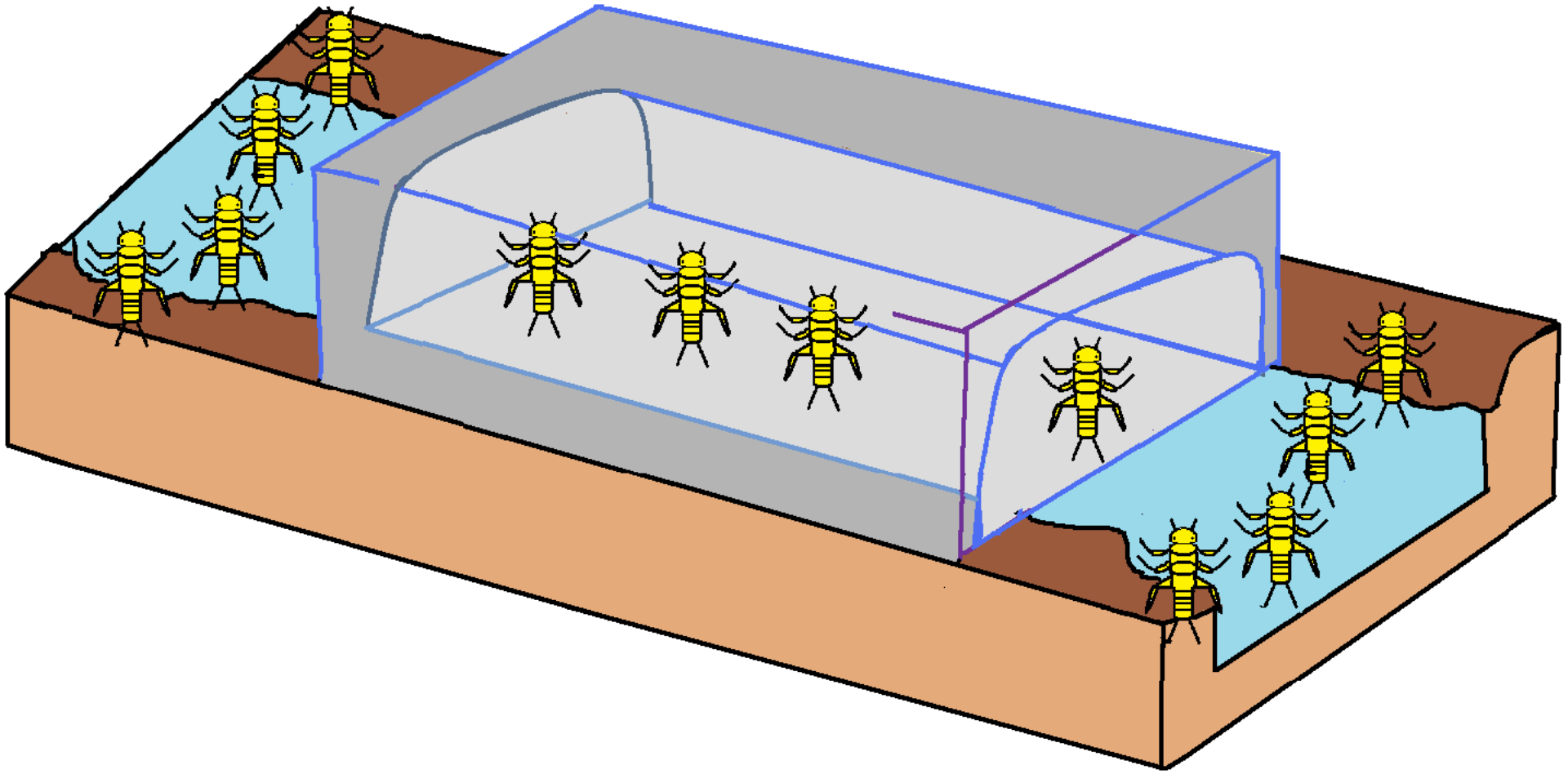
Materials and Methods

- Four sites with different channelization structures were chosen: Allen Brook, Browns River, Indian Brook, and Potash Brook.



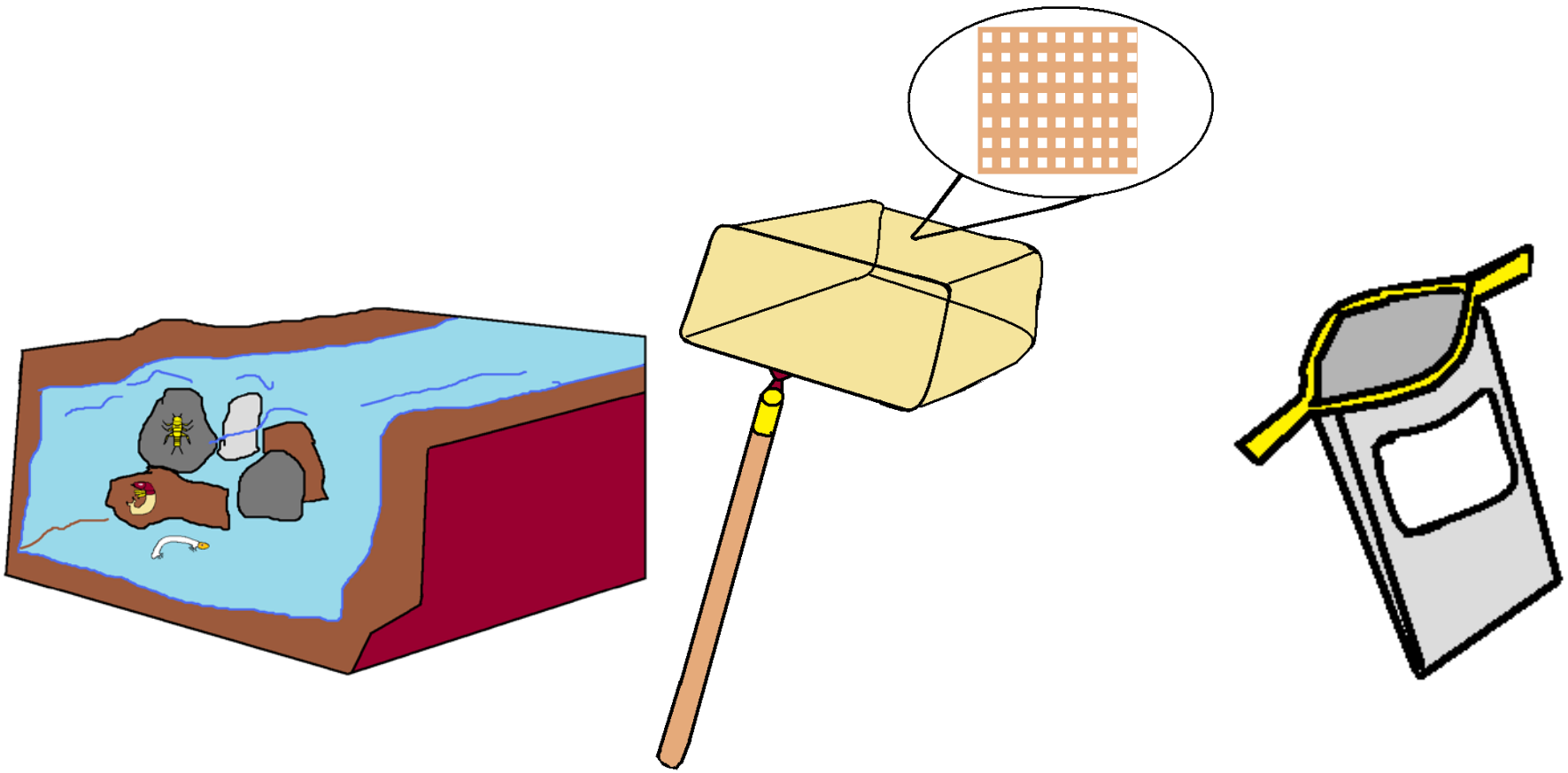
Materials and Methods

- Four macroinvertebrate samples were taken upstream of the bridge, under the bridge, and downstream (twelve samples per site).



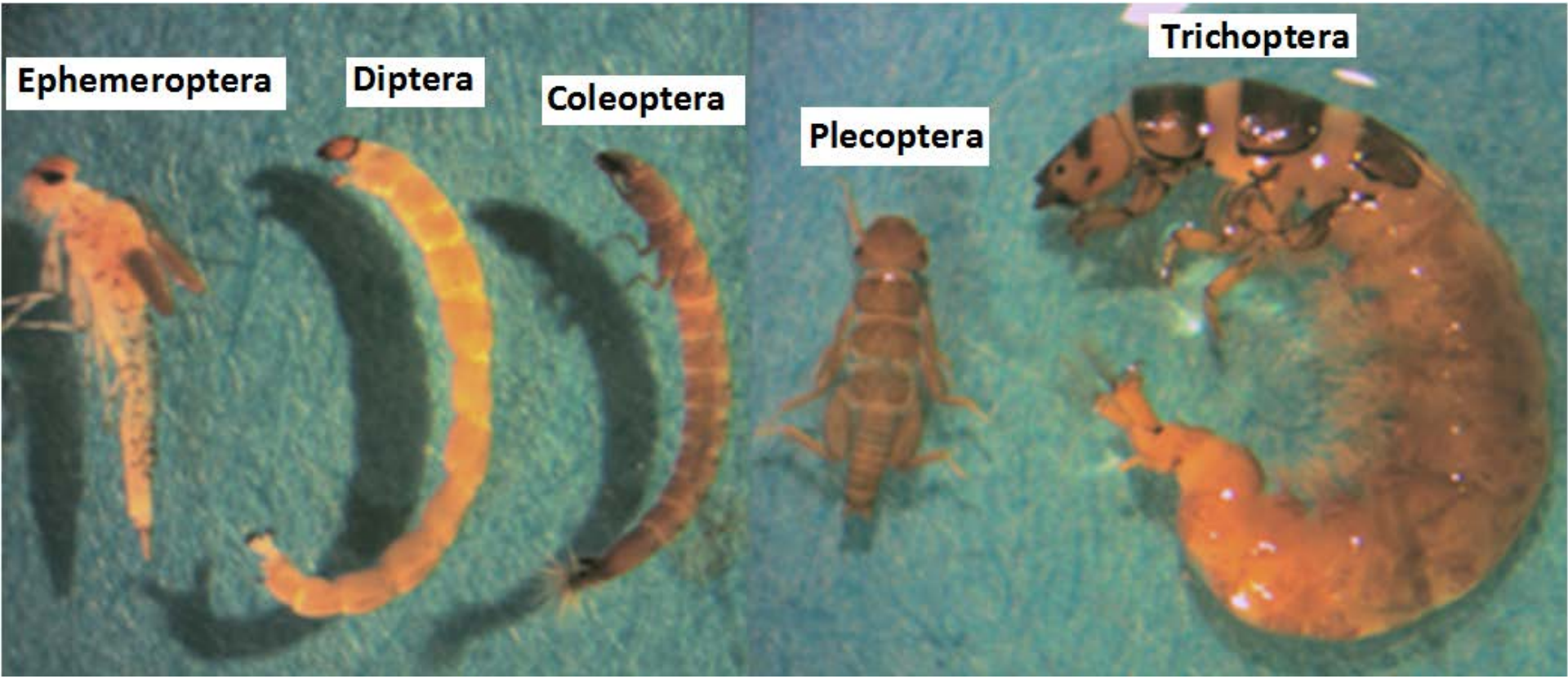
Materials and Methods

- Macroinvertebrate samples were taken in riffles with a 500 micron mesh size kick net and preserved in labeled Whirl packs.



Materials and Methods

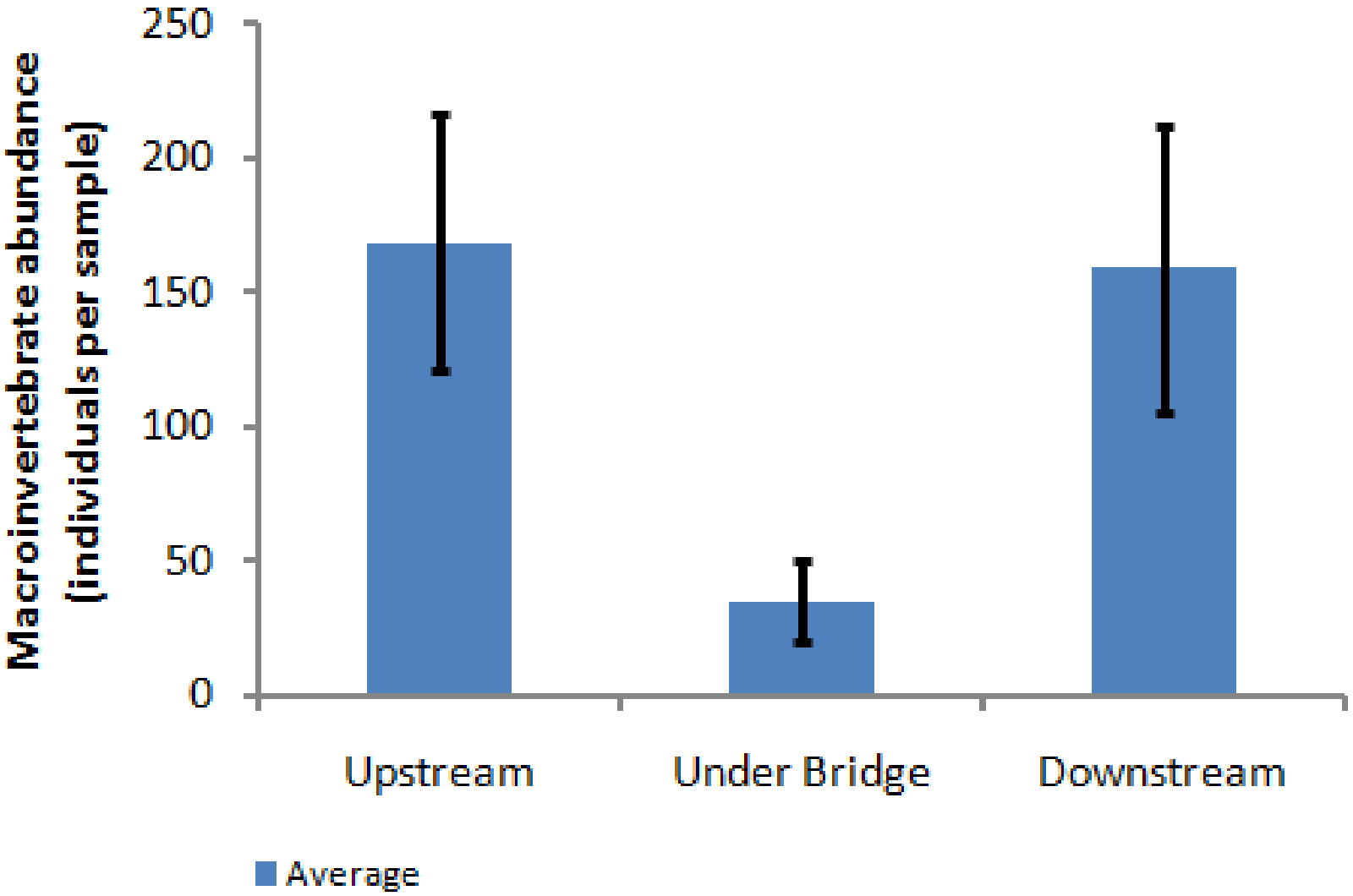
- Macroinvertebrates were counted and identified to genus using a stereoscopic microscope.



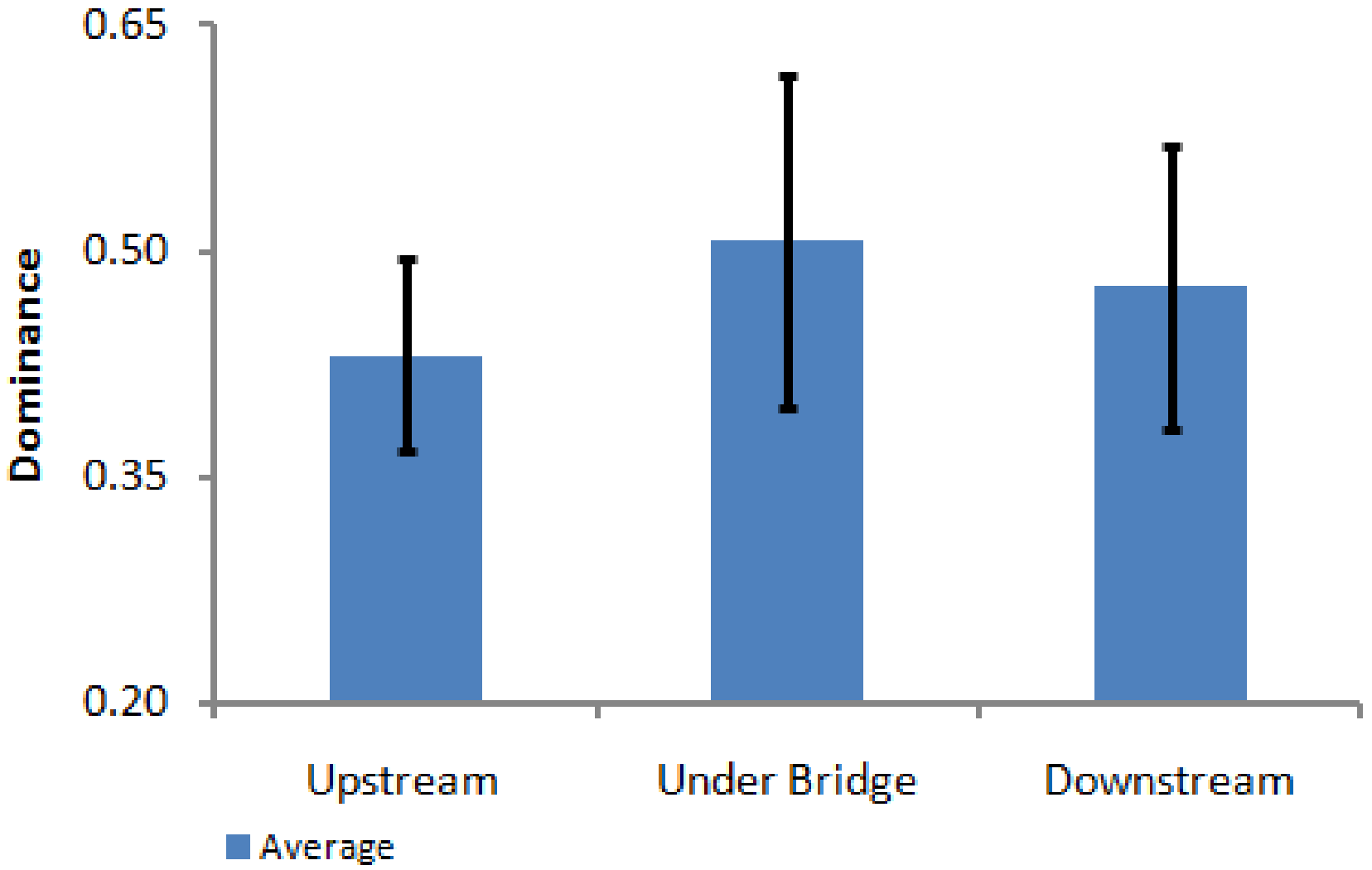
Materials and Methods

- Abundance (number of individuals per sample), Species richness (number of distinct taxa in a sample), Dominance (proportional abundance of the most common taxon), EPT richness (summed richness of the most polution-sensitive orders : Ephemeroptera, Plecoptera, and Trichoptera), and evenness (a measure of how equally the samples are divided among taxa).

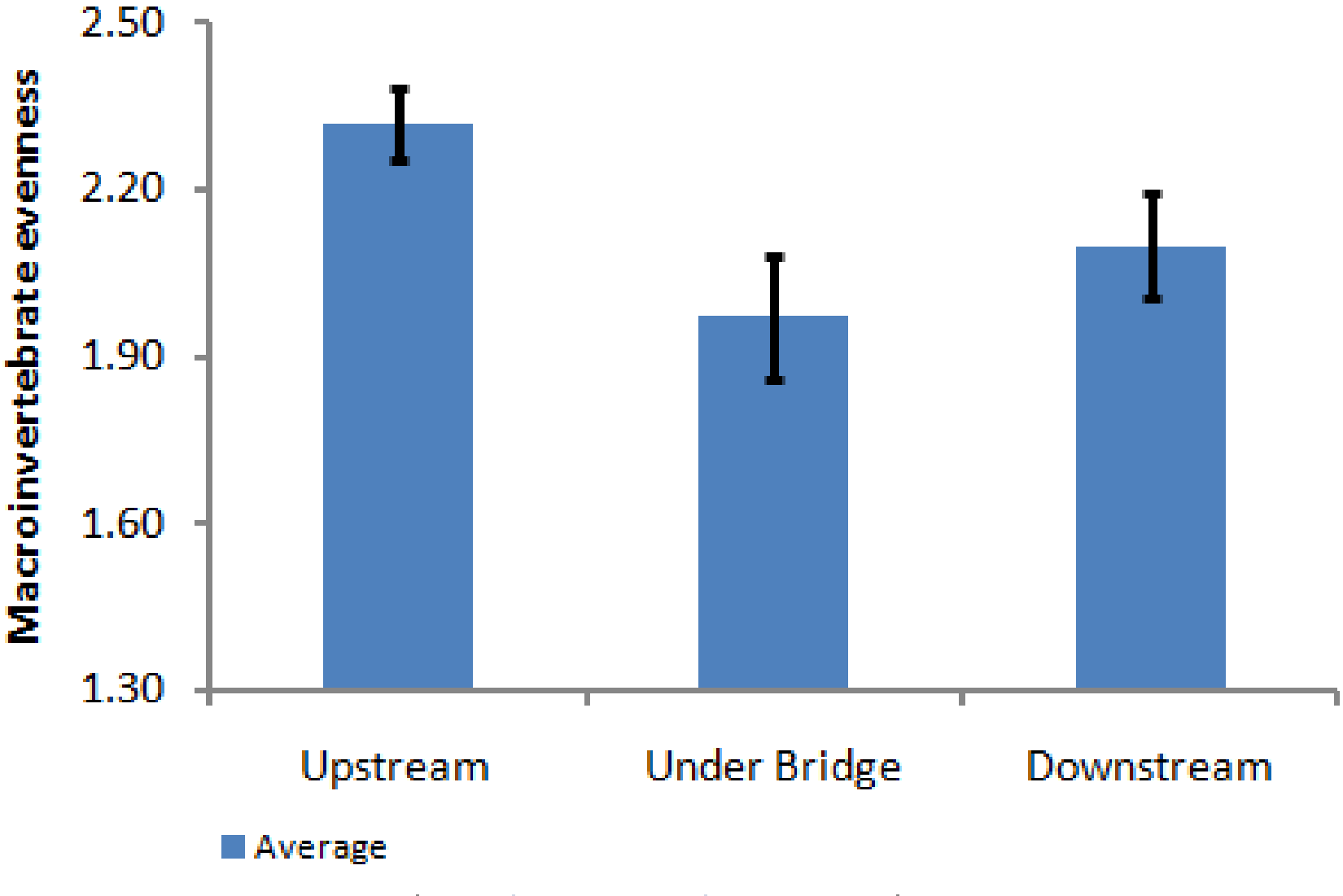
Results and discussion



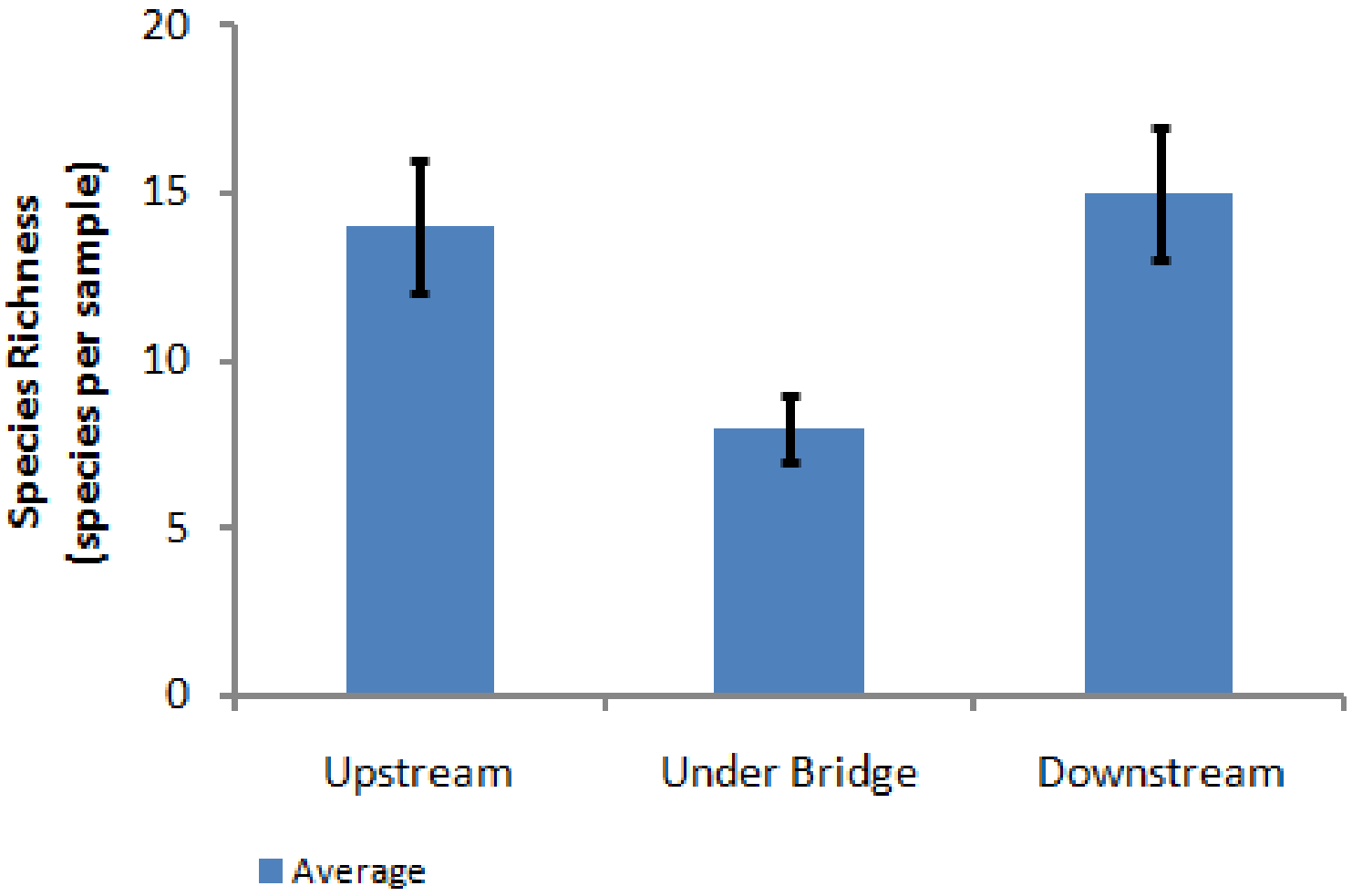
Results and discussion



Results and discussion



Results and discussion



Conclusion

- Studies on the effects of bridges on macroinvertebrates communities are scarce. The measurement of this effects is crucial in ecological and biological surveys of streams because many such studies are performed close to bridges. This research demonstrates that the “bridge effect” factor on macro invertebrate population should be taken in consideration while designing studies.

Future work

- In the future, I would like to work with the channelization water quality effects on macroinvertebrate communities.

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