

Summary of Stream Sampling for Macroinvertebrate Diversity at Amherst College 2019-2020

In both 2019 and 2020 we sampled stream macroinvertebrates at Mill River, Adams Brook, and Buffam Brook in Amherst and Pelham, Massachusetts. In 2019, our introductory biology students immensely enjoyed discovering these organisms and exploring the local ecosystem. In 2020, though students could not do the sampling themselves, they appreciated the opportunity to look at the organisms from local streams. Students immensely enjoyed the experience and were able to connections between local streams and broader scale environmental challenges.



We used dip nets to sample macroinvertebrates and measured flow at sample sites. Then, students used a dichotomous key to identify the types of organisms we collected in the lab. Students estimated richness, diversity, and density of macroinvertebrates and made inferences about stream health.

Across the sampled sites, we collected 655 organisms from 15 different taxonomic groups in 2020 and 886 from 12 different taxonomic groups in 2019. Environmentally sensitive species in both years included mayflies, stoneflies, and caddisflies. These were found in all sampled sites and their presence is one indication that these streams may be in good health.

Graphs of Organism Counts at Each Site

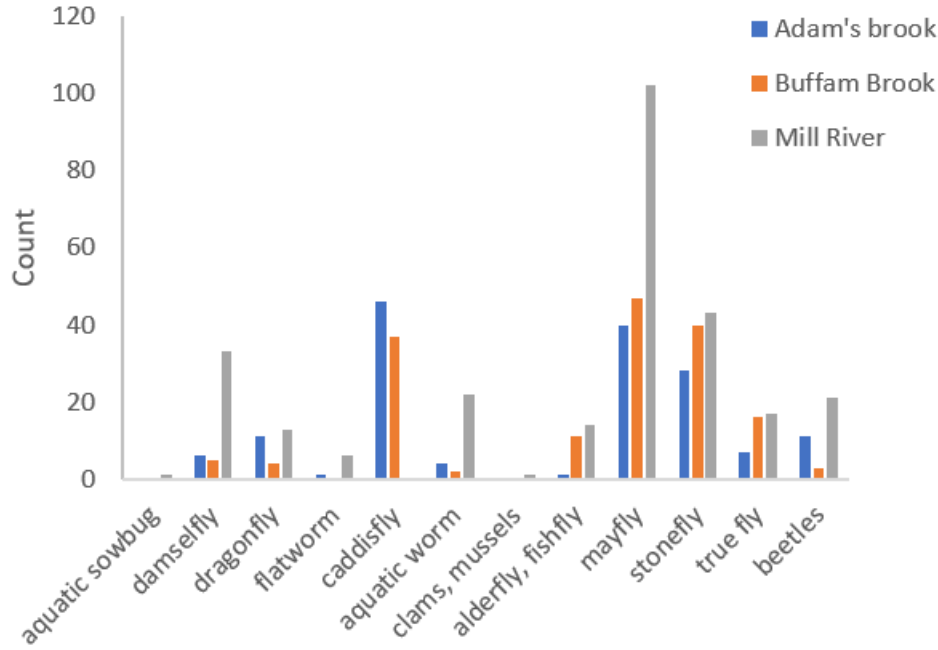


Fig. 1. Macroinvertebrates detected in streams in Amherst and Pelham, MA in fall 2019. *Note that 256 caddisflies were detected at Mill River, though this is not displayed.*

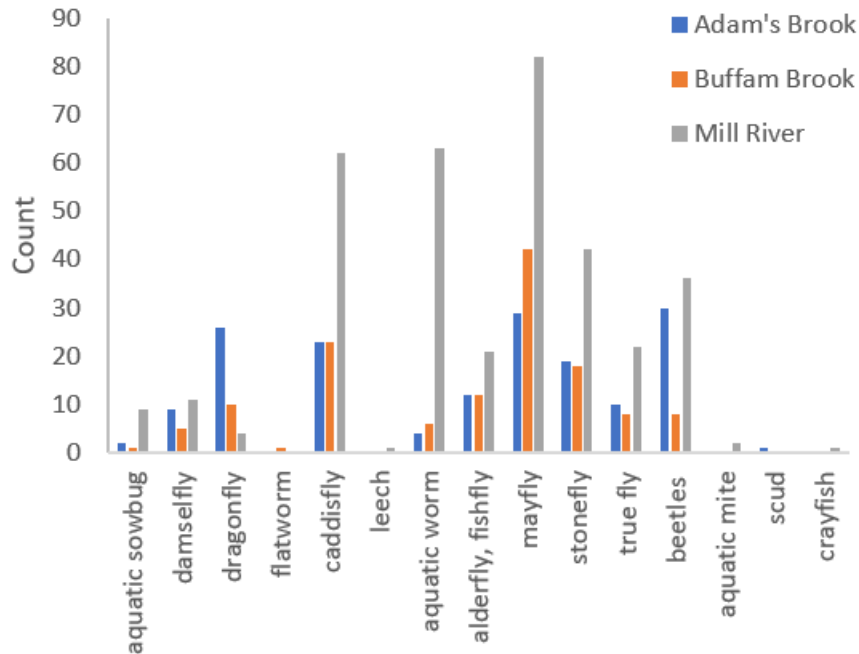


Fig. 2. Macroinvertebrates detected in streams in Amherst and Pelham, MA in fall 2020.

Patterns of Density and Diversity Over Time

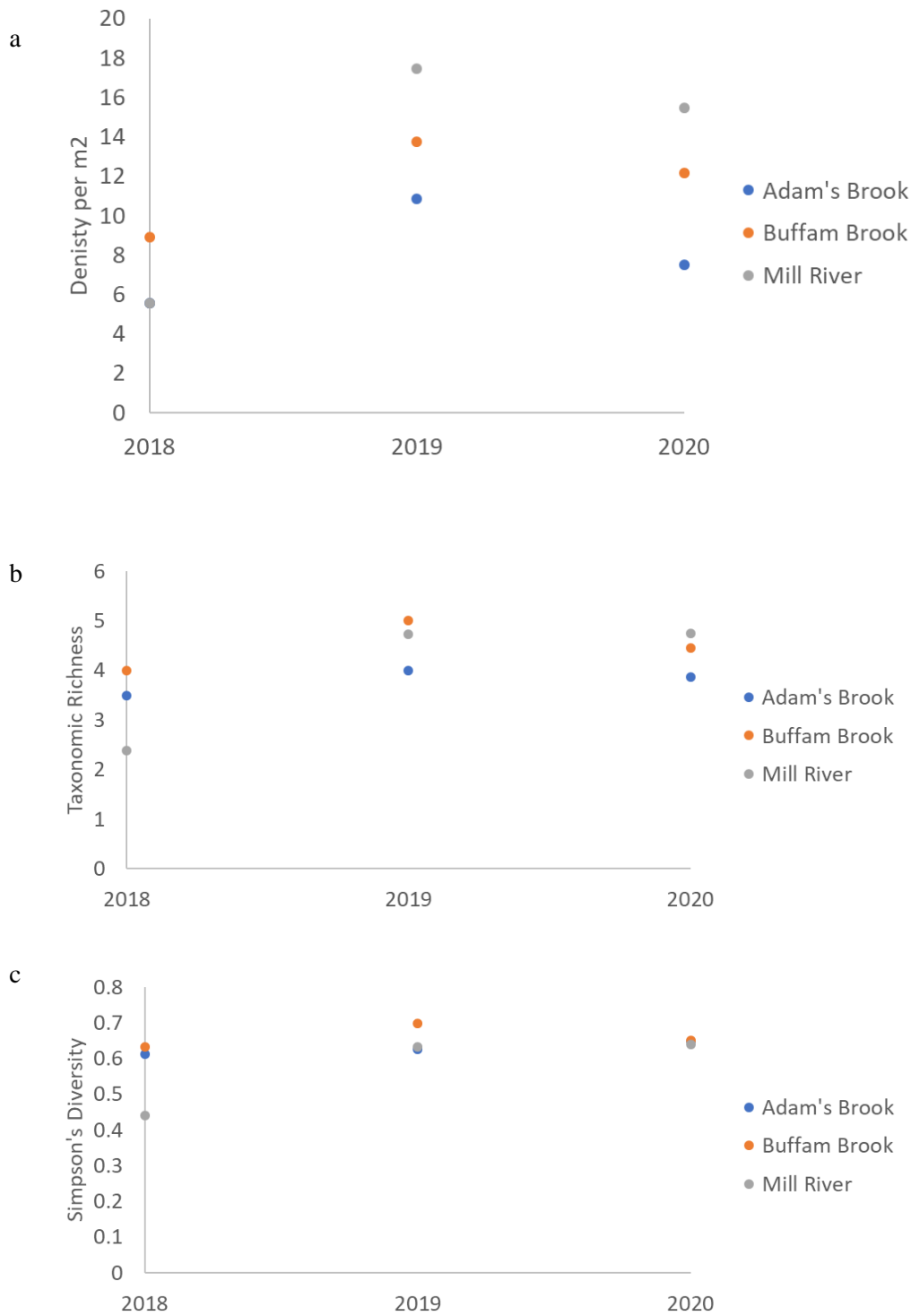


Fig. 3. Density (a), taxonomic richness (b), and Simpson's Diversity (c) of stream macroinvertebrates at streams in Amherst and Pelham, MA from 2018-2020. *Note that Mill river and Adam's Brook had the same density in 2018. Taxonomic richness typically refers to order or subclass level classification.*