



Opponent Testimony of Michael C. Miller
House Bill 175
Presented to the Ohio Agricultural and Conservation Committee
May 17, 2021

Chairman Koehler, Vice Chair Creech, Ranking Member Brent and Members of the Ohio House Agriculture and Conservation Committee, thank you for the opportunity to testify before this committee today on House Bill 175 (HB 175). My name is (Name) (Title) with (Organization).

As a Professor of Limnology I studied ephemeral, temporal and perennial streams in Hamilton County (Greater Cincinnati) with one of my graduate students, Hannah Lubbers now director of Environmental Services for Clermont County. Our study showed that the biota of temporary streams is not controlled exclusively by drying. In summery we showed:

“All 23 study reaches had continuous surface flow in the spring of 2007. Despite the record low rainfall during 2007, not all streams dried up during the summer. A total of 72,043 macroinvertebrate specimens were collected from all reaches. The most abundant taxa were, in descending order, Oligochaeta, *Lirceus fontinalis*, and *Chironomus spp.*, with maximum % abundances per reach at 84%, 76%, and 77% respectively. Chironomidae taxa comprised a large portion of the insect fauna, making up 74.5% of the total insect abundance. We collected 160 macroinvertebrate taxa (139 insect taxa) from all streams across both seasons. The richest taxonomic orders were Diptera (84 different taxa collected across all sites), Coleoptera (18 taxa), and Trichoptera (8 taxa). *Eurycea bislineata* (Northern two-lined salamander) was the only larval salamander species collected. Abundance of Isopoda was more strongly related (negatively) to % Isopoda in a spring following a normal precipitation year (2007) than in a spring following a drought (2008; Fig. 7).

This interaction between urbanization and antecedent condition (year) was unique to % Isopoda abundance. There were no significant interaction effects between permanence and antecedent condition (year) on macroinvertebrate metrics. Ranged from 0 salamanders (in 9 out of 20 reaches) to one site with over 31 larvae in just one pool. Catchment urbanization and associated stressors are important drivers of macroinvertebrate assemblages, and headwater stream biota are not exclusively controlled by seasonal drying.” **Urbanization influences on headwater biota** **The Biota of Urban Temporary Streams: Dual Influences of Urbanization and Drought on Headwater Stream Macroinvertebrates.** Hannah R. Lubbers¹, 312 Wilmington Dr., Loveland, OH 45140, Allison H. Roy², Department of Biology, Kutztown University, Kutztown PA 19530, Michael C. Miller³, Department of Biological Sciences, Univer. of Cincinnati.

Ephemeral and intermittent streams are functional assets to watersheds that determine stream morphology, water chemistry and biota of watersheds that are clearly regulated. The integrity of the system requires ephemeral regulation. As an Associate Supervisor of the Hamilton County Soil and Water Conservation District we regulate all urban watersheds for runoff of large developments both housing and commerce with retention/detention ponds that must hold 90% of a 1 inch rain and remove 75% of

turbidity before release in permanent streams. Clearly this is a regulated connection between developments in headwaters (in areas of ephemeral streams) and regulated intermittent and perennial streams downriver. Are we going to throw out all our development regulations from Federal EPA?

What time base will be employed in HB 175 to call a drainage 'ephemeral'? After a headland is developed, covered with impervious surface, most urban streams become ephemeral. The drying of urban streams in our parks, like Mt Airy Forest, is a man-made condition. Do we define ephemeral from predevelopment times, from the first aerial photos in 1937 of Hamilton County, the soils maps showing more streams than the 1:10000 Geological Survey maps, now in use to define blue-line streams. Clearly the definition in HB175 is variable on prior development. This bill will require adjudication to determine ephemeral on every construction site, since it is imperfectly defined in the bill. Developers are allowed to deforest their land for development with little regulation, thereby making all drainages more ephemeral before they apply for a building permit.

- 1) Ephemeral streams can be biologically diverse when flowing and improve downstream water quality.
- 2) Ephemeral streams are now regulated by Soil and Water Conservation Districts and by Farm Bills on construction sites and agricultural lands.
- 3) Ephemeral streams cannot be assigned that status after land clearance or development has occurred to make them ephemeral, when historically they were perennial.

In conclusion, Chairman and Members of the committee, thank you for considering our perspective and our recommendations. I would be happy to answer any questions if you have them.

Michael C. Miller, Ph.D
Professor Emeritus Biology and Environmental Studies, U. of Cincinnati
President of Rivers Unlimited
Associate Supervisor of Hamilton County Soil and Water Conservation District
Board of Directors, Oxbow Inc.
Ohio EPA Level 3 Water Chemist and Instructor
Leader of Volunteer Water Quality Monitoring of 200 sites monthly in Hamilton County.