

Jessie Wilson

I'm studying biological transport of microplastics at the world famous IISD Experimental Lakes Area. My project is part of a large scale and long-term study focusing on the fate and effects microplastics in freshwater ecosystems. With an estimated 335 trillion tons of plastics produced globally and roughly 80% of those plastics finding their way into the environment, I believe it is important to assess the fate, movement and effects this contaminant can have on biota.

I enjoy research in the field of Environmental Science as it provides the opportunity to enjoy and appreciate nature.



Transport of microplastics by aquatic organisms to land: experimental and field studies

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Objective: To determine whether amphibians move microplastics (particles < 5 mm in diameter) out of aquatic habitat and into surrounding terrestrial soil

Three common microplastics (MPs; polyethylene, polystyrene and polyethyleneterephthalate) were dyed distinct colours and ground to sizes 40-1200 μm .



Figure 1. Soil samples from frog tanks prepared for chemical digestion.

Wood Frogs: Wood Frog (*Lithobates sylvaticus*) tadpoles were raised in tanks with high concentrations of MPs (500,000 MP/L). Tadpoles metamorphosed into terrestrial frogs, moving out onto islands, and soil from those sites was collected and analysed for the presence of MPs.



Figure 2. Experimental microplastics on a 1.2 μm glass fiber filter.

Tree Swallows: A natural lake will receive MPs, starting with MP corrals followed by whole-lake dosing. Nest boxes were installed surrounding this and a control lake. I will test for MPs in the faeces of Tree Swallow (*Tachycineta bicolor*) chicks nesting surrounding both lakes.

