

Litter provides habitat for diverse animal communities in rivers, study finds

January 25 2021



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In a study of local rivers, experts at the University of Nottingham in the UK have discovered more invertebrates—animals without a backbone, such as insects and snails—living on litter than on rocks.

In [urban rivers](#) where there are no better alternatives, [litter](#) provided the largest, most stable and complex [habitat](#) available for invertebrates to live on.

The findings could have important implications for the management of urban rivers, including how river clean-up events are conducted.

The research team, in the School of Geography, studied three local rivers; the River Leen, Black Brook, and Saffron Brook, in Leicestershire and Nottinghamshire by collecting samples of rocks and litter from the riverbeds to compare in their laboratory.

The scientists found that the surfaces of the litter were inhabited by different and more [diverse communities](#) of invertebrates than those on rocks. Plastic, metal, fabric, and masonry samples consistently had the highest diversity, meanwhile, glass and rock samples were considerably less diverse than other material samples.

They observed that flexible pieces of plastic, like [plastic bags](#), were inhabited by the most diverse communities and speculated that the types of invertebrates they found on [flexible plastic](#) suggests it might mimic the structure of water plants.

The study is the first of its kind to evaluate the role of litter as a riverine habitat and has been published in the journal *Freshwater Biology*.

Hazel Wilson, project lead in the School of Geography at the University of Nottingham, said: "Our research suggests that in terms of habitat, litter can actually benefit rivers which are otherwise lacking in habitat diversity. A diverse community of invertebrates is important because they underpin river ecosystems by providing food for fish and birds, and by contributing to carbon/nutrient cycling."

"However, this does not justify people littering. We absolutely should be working towards removing and reducing the amount of litter in freshwaters—for many reasons, including the release of toxic chemicals and microplastics, and the danger of animals ingesting or becoming entangled with litter. Our results suggest that litter clearance should be combined with the introduction of complex habitat, such as tree branches or plants to replace that removed during litter picks."

The authors say that their findings highlight the poor environmental quality in many urban rivers, given that the most complex habitat left for [invertebrates](#) is litter. They hope to build on this research by investigating which characteristics of litter enable it to support greater biodiversity, and how it compares to complex natural habitats, like water plants or pieces of wood.

Hazel Wilson added: "This could help us discover methods and materials to replace the litter habitat with alternative and less damaging materials when we conduct river clean-ups".

More information: Hazel L. Wilson et al, Anthropogenic litter is a novel habitat for aquatic macroinvertebrates in urban rivers, *Freshwater Biology* (2020). [DOI: 10.1111/fwb.13657](https://doi.org/10.1111/fwb.13657)

Provided by University of Nottingham

Citation: Litter provides habitat for diverse animal communities in rivers, study finds (2021, January 25) retrieved 4 May 2024 from <https://phys.org/news/2021-01-litter-habitat-diverse-animal-rivers.html>

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