# Microplastics found in over 10% of UK insects, sparking food chain concerns



Research has unveiled alarming evidence that plastic pollution is infiltrating terrestrial ecosystems, affecting even the smallest of creatures. A recent study from Sussex and Exeter universities has found that microplastics are contaminating various insect populations in Britain. Notably, over ten per cent of the sampled insects were discovered to have plastic fragments within their bodies, raising severe concerns about the implications for the entire food chain.

The study took an in-depth look at more than 580 bug samples from 51 different locations across Sussex. It revealed that earthworms had the highest incidence of plastic ingestion, with 30 per cent of them containing microplastics, followed by slugs and snails at 24 per cent. Polyester was identified as the most common type of plastic found, largely assumed to originate from domestic clothing. The researchers expanded on the potential sources, suggesting that the plastics might stem from treated sewage sludge used as fertiliser on agricultural land, containing fibres shed from washing machines.

Lead author Emily Thrift, an Ecology Doctoral Tutor at Sussex University, expressed astonishment at the pervasive nature of plastic contamination, stating, “This is the first study to find plastics consistently turning up across an entire community of land invertebrates.” The findings suggest that microplastics not only affect the insects themselves but also enter the diets of larger animals, including birds and hedgehogs. Previous studies, such as one from Cardiff University, corroborate these findings, indicating that river-dwelling insects also grapple with similar pollution challenges. In fact, half of the insects sampled from South Welsh rivers were found to have ingested microplastics, outlining a broader issue affecting freshwater ecosystems.

The implications of these studies extend beyond immediate environmental concerns. Research conducted in the past has indicated that ingestion of plastic can result in adverse effects on growth, fertility, and overall organ function in various species. For instance, another study highlighted that certain river birds, known as dippers, are ingesting a staggering number of plastic particles daily, raising alarms about the cascading consequences of plastic pollution in food webs.

Further grim insights were presented in a 2020 study, which found that three in four fragments discovered in birds were smaller than 0.5mm, signalling the insidious nature of plastic pollution. Overall, Professor Fiona Mathews, an Environmental Biologist at the University of Sussex, underscored the urgent need to rethink our approach to plastic waste. She stated, “Attention is currently focused on litter as the main source of contamination, but these findings suggest multiple sources ranging from clothing to paint.”

The new findings only add gravity to ongoing discussions about the presence of microplastics not just in oceans, but across various terrestrial environments. The Centre for Ecology & Hydrology has commented on this issue, stating that while proposed bans on intentionally added microplastics in products are ambitious, they only tackle a portion of the problem. Most microplastics existing in the environment are secondary, originating from the breakdown of larger plastic items. This calls for comprehensive research on their long-term ecological effects, emphasizing the necessity for implementing stricter measures to curb plastic pollution.

As researchers continue to unearth further evidence of microplastics contaminating wildlife, the urgency for action has never been clearer. It highlights the interconnectivity of ecosystems and the potential dire consequences of human activity extending into realms previously thought to be immune from such pollution. The implications could reshape how we view and manage ecological conservation efforts in an increasingly plastic-laden world.

## Reference Map:

* Paragraph 1 – [[1]](https://www.independent.co.uk/news/uk/home-news/microplastics-found-insects-bugs-uk-b2759057.html), [[3]](https://www.cardiff.ac.uk/news/view/2396716-scientists-find-first-evidence-of-microplastics-passing-from-insects-to-predators-in-rivers)
* Paragraph 2 – [[1]](https://www.independent.co.uk/news/uk/home-news/microplastics-found-insects-bugs-uk-b2759057.html), [[2]](https://www.cardiff.ac.uk/news/view/1301891-plastics-found-in-fifty-percent-of-freshwater-insects), [[4]](https://www.theguardian.com/environment/2018/sep/19/microplastics-can-spread-via-flying-insects-research-shows)
* Paragraph 3 – [[1]](https://www.independent.co.uk/news/uk/home-news/microplastics-found-insects-bugs-uk-b2759057.html), [[6]](https://pubmed.ncbi.nlm.nih.gov/40244820/)
* Paragraph 4 – [[1]](https://www.independent.co.uk/news/uk/home-news/microplastics-found-insects-bugs-uk-b2759057.html), [[5]](https://www.ceh.ac.uk/news-and-media/blogs/microplastics-ban-ambitious-only-tackles-part-problem), [[6]](https://pubmed.ncbi.nlm.nih.gov/40244820/)

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## Bibliography

1. <https://www.independent.co.uk/news/uk/home-news/microplastics-found-insects-bugs-uk-b2759057.html> - Please view link - unable to able to access data
2. <https://www.cardiff.ac.uk/news/view/1301891-plastics-found-in-fifty-percent-of-freshwater-insects> - A Cardiff University study revealed that microplastic fragments were ingested by half of the insects sampled from South Wales rivers. The research found that plastics were widespread in river organisms, indicating that microplastics are entering rivers from various sources, including urban and rural areas. The study highlights the need for further research to understand the sources, movement, and effects of microplastics in freshwater ecosystems.
3. <https://www.cardiff.ac.uk/news/view/2396716-scientists-find-first-evidence-of-microplastics-passing-from-insects-to-predators-in-rivers> - Research by Cardiff University and the University of Exeter's Greenpeace Research Laboratories found that dippers, a species of river bird, ingest hundreds of plastic fibres daily through their insect prey. The study provides the first clear evidence of microplastics transferring from insects to predators in river food webs, raising concerns about the impact of plastic pollution on freshwater ecosystems.
4. <https://www.theguardian.com/environment/2018/sep/19/microplastics-can-spread-via-flying-insects-research-shows> - A study published in Biology Letters demonstrated that mosquito larvae ingest microplastic particles, which remain inside them as they transform into flying adults. This research indicates that microplastics can spread via flying insects, contributing to environmental contamination. The study underscores the need for further research on the impact of microplastics on wildlife and ecosystems.
5. <https://www.ceh.ac.uk/news-and-media/blogs/microplastics-ban-ambitious-only-tackles-part-problem> - The UK Centre for Ecology & Hydrology discusses the European Chemicals Agency's proposal to ban intentionally added microplastics in products. The blog highlights that while the ban is ambitious, it only addresses the directly manageable part of the issue. The majority of microplastics in the environment are secondary, derived from the breakdown of larger plastic items, and the blog calls for comprehensive research on their environmental and ecological implications.
6. <https://pubmed.ncbi.nlm.nih.gov/40244820/> - A study published in Environmental Toxicology and Chemistry assessed the contamination of terrestrial food webs by microplastics. The research found that 11.8% of invertebrate samples from 51 sites in England contained plastic, including all tested taxonomic groups and trophic levels. The study highlights the widespread presence of microplastics in terrestrial ecosystems and the need for further research on their ecological impacts.
7. <https://www.york.ac.uk/news-and-events/news/2022/research/larvae-litter-microplastics/> - Researchers from the University of York found that caddisfly larvae, common in freshwater environments, chew through plastic litter to build protective casings. This behaviour generates microplastic particles, contributing to pollution in rivers and waterways. The study suggests that insect larvae may inadvertently contribute to microplastic pollution by interacting with plastic waste.