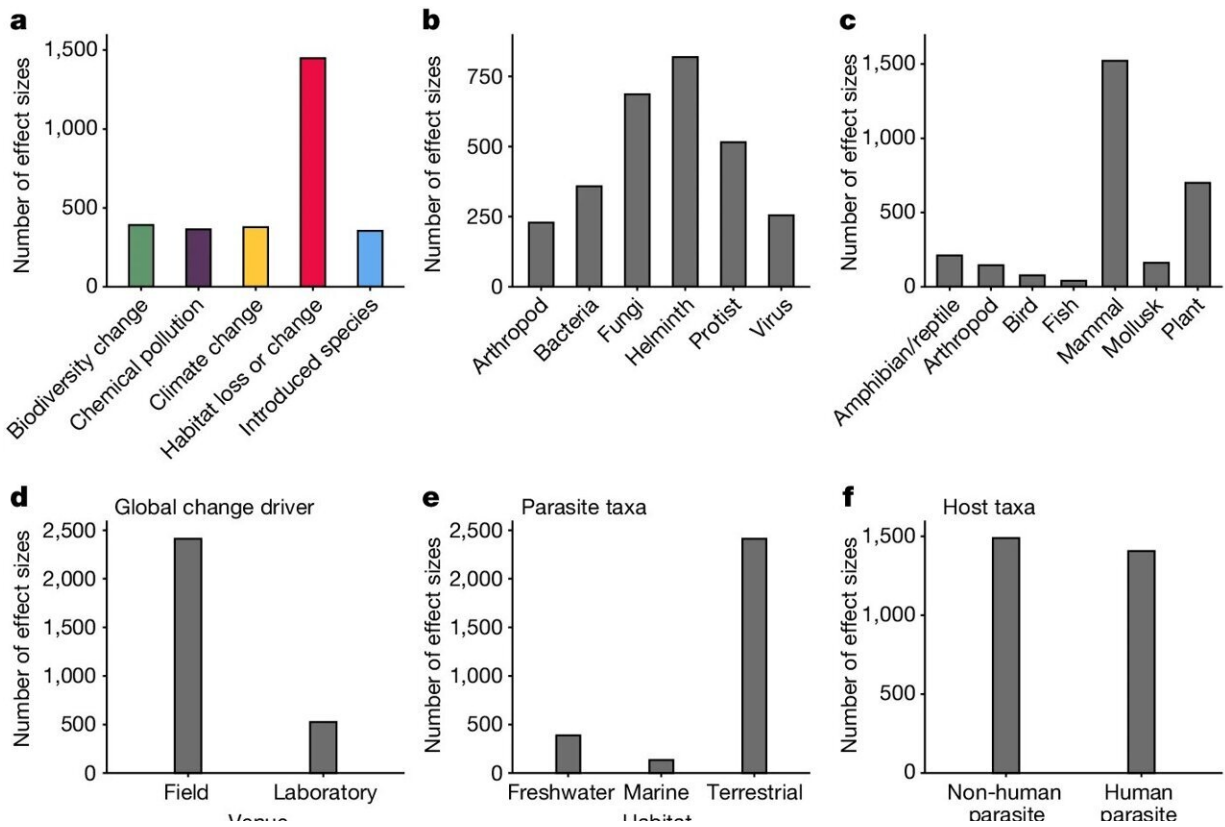


Big data helps determine what drives disease risk

May 8 2024



The number of observations across ecological contexts. **a–f**, Summary of the number of observations (that is, effect sizes) in the infectious disease database across the following ecological contexts: global change driver (**a**), parasite taxa (**b**), host taxa (**c**), experimental venue (**d**), habitat of the study (**e**) and human parasite status (**f**). **g**, The locations of field studies show broad global coverage of studies included in the database. See Extended Data Fig. 2 for the number of parasite taxa as well as the number of parasite taxa in the database partitioned by ecto- and endoparasites, ecto- and endothermic hosts, vectors and non-vectors,

vector-borne and non-vector-borne parasites, complex and direct transmission parasites, parasites with and without free-living stages, parasites that do and do not infect humans, microparasites and macroparasites, and zoonotic and non-zoonotic parasites. Credit: *Nature* (2024). DOI: 10.1038/s41586-024-07380-6

Working with nearly 3,000 observations across almost 1,500 host-parasite combinations, researchers at Notre Dame University have found that biodiversity loss, chemical pollution, introduced species, and climate change, but not urbanization, are driving increases in infectious disease risk.

As the number of emerging [infectious diseases](#) in organisms across the tree of life, including humans, rises, it is becoming increasingly important to understand what drives disease spread and whether human actions are part of the cause. This information will aid in disease management strategies and predicting the potential for disease spread given a set of environmental or other changes.

These efforts are important not only for diseases that could infect humans but also for diseases in other animals that can lead to human disease. Diseases in plants can also have a massive impact on agriculture and food security.

Specifically, the new study published in [Nature](#) points to lowering [greenhouse gas emissions](#) and enhancing ecosystem management efforts as key steps in limiting the burden of diseases in humans, other animals and plants.

More information: Jason Rohr, A meta-analysis on global change

drivers and the risk of infectious disease, *Nature* (2024). DOI:
[10.1038/s41586-024-07380-6](https://doi.org/10.1038/s41586-024-07380-6).
www.nature.com/articles/s41586-024-07380-6

Provided by National Science Foundation

Citation: Big data helps determine what drives disease risk (2024, May 8) retrieved 26 June 2024
from <https://phys.org/news/2024-05-big-disease.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.