

Biodiversity, people and pollution



Chemicals are an essential part of life, their mismanagement causes pollution



Pollution is one of the top five drivers of biodiversity loss¹



Chemical pollution has toxic effects on humans and wildlife



Pollution (including air pollution) is responsible for 9 million human deaths annually²



Air pollution impacts plant communities by changing species composition, nitrogen deposition is estimated to be attributable to the loss of a third of UK habitat species richness³



Regulation, nature-based solutions and integrated pest management can reduce pollution and its impact

Pollution and climate change



Some pollutants directly contribute to climate change



Flooding events increase spread of pollution



Drought/reduced water in rivers leads to higher concentrations of pollutants



Extreme weather events increase run off and soil erosion, transporting pollutants from terrestrial to aquatic environments



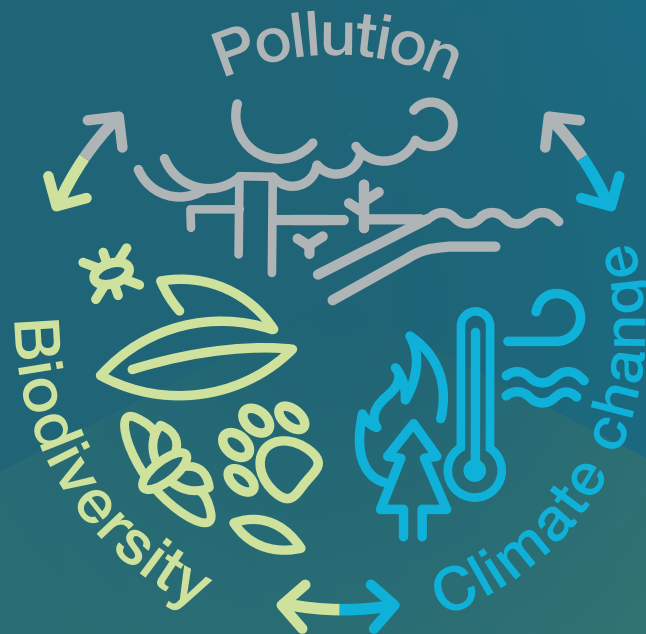
Climate change alters pest distributions and land use leading to increases in chemical use



Warmer temperatures increase ammonia emissions



Reduction in ocean pH and altered salinity dynamics changes chemical toxicity



Climate change and Biodiversity



Climate change increases the pressure on vulnerable species and increases the likelihood of extinctions, in 2019 nearly 11,000 species on the IUCN Red List of Threatened Species were recorded as being affected by climate change⁴



Climate change alters the timing of lifecycle events interrupting time dependent relationships such as between flowering and pollinators



Changing climates and shifting habitats can lead to changes in species distribution including pest species and disease



Climate change reduces crop yield leading to land being converted to agriculture to make up for shortfall in crop production

¹ IPBES, 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Diaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. 1148 pages. <https://doi.org/10.5281/zenodo.3831673>

² Fuller, R., Landrigan, P.J., Balakrishnan, K., Bathan, G., Bose-O'Reilly, S., Brauer, M., Caravanos, J., Chiles, T., Cohen, A., Corra, L. and Cropper, M., 2022. Pollution and health: a progress update. The Lancet Planetary Health. [https://doi.org/10.1016/S2542-5196\(22\)00090-0](https://doi.org/10.1016/S2542-5196(22)00090-0)

³ Payne, R.J., Dise, N.B., Field, C.D., Dore, A.J., Caporn, S.J. and Stevens, C.J., 2017. Nitrogen deposition and plant biodiversity: past, present, and future. Frontiers in Ecology and the Environment, 15(8). <https://doi.org/10.1002/fee.1528> pp.431-436.

⁴ IUCN, 2019. Species and climate change. International Union for Conservation of Nature; Issues Brief. ONLINE. Available at: https://www.iucn.org/sites/default/files/2022-04/species_and_climate_change_issues_brief-2019-12.pdf. Accessed February 2023.