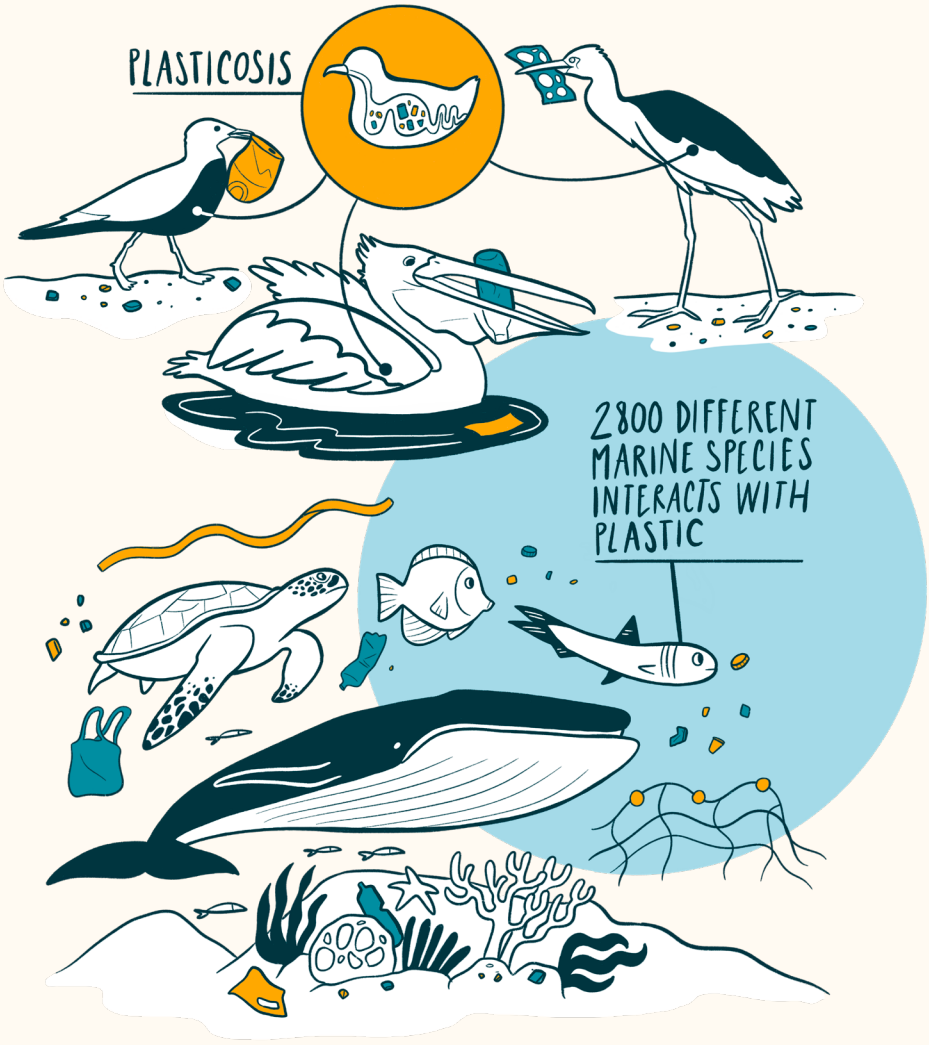
Plastics and Nature entwined

How plastic pollution drives biodiversity loss



Plastics have become ubiquitous in our modern world and plastic pollution has reached all corners of the planet, including the most remote areas. Plastic production, use and disposal fuels climate change and pollution, but it also drives biodiversity loss, on land and at sea, with a variety of ecosystems and species declining. Did you know that there is even a new disease impacting seabirds ingesting plastic that has been evidenced and named “Plasticosis”? That is how severe plastic impacts on biodiversity are!

Plastic and Biodiversity

It is estimated that close to 2800 different marine species, such as turtles, seabirds, fish, marine mammals and coral reefs, are known to interact with plastic debris, often becoming entangled, trapped or suffocated by it. Abandoned, lost or discarded fishing gear poses a significant threat, causing physical harm and even death to numerous marine species through entanglement and other injuries.

Small plastic fragments and microplastics, such as plastic pellets, pose a significant threat to ecosystems. When in the environment, they can be mistaken for food by birds and other animals, filling their stomachs and potentially causing starvation. This ingestion leads to scarring and deformities in seabirds' digestive tracts, impairing digestion, growth and survival. This is "Plasticosis"! Plastic pellets can also make their way into coastal and other habitats, destabilising ecosystems.

Microplastics, originating from sources like cosmetics, textiles, paints and tyre abrasion, are present in very high quantities in wastewater and subsequently contaminate sewage sludge, commonly utilised as fertiliser in agriculture. This contamination is altering the composition and properties of soil - a crucial habitat for over half of the planet's species.

In addition to direct physical impacts, the chemical pollution stemming from plastic production, use and disposal profoundly affects both land and marine ecosystems, as well as the species inhabiting them. **Chemical emissions associated with plastic production and waste management pollutes air, water and soil.** Chemicals present in plastics can transfer to animals upon ingestion, and leach into various ecosystems, impacting living organisms in that ecosystem. Further, plastics in aquatic systems adsorb and concentrate pathogens and persistent environmental pollutants in the water, creating an even more harmful chemical cocktail for species that interact with them. Also non-indigenous species can be transported on microplastics through the ocean to areas where they could become invasive, jeopardising biodiversity and ecosystems.

What does it mean for Europeans?

The health and resilience of many habitats, including coastal and sea habitats, and of the species relying on those habitats is negatively impacted by plastic pollution. This is impacting the ecosystem we are part of as humans. It is also impacting certain professional and recreational activities. And the more plastic piles up, the worse it gets.

Reducing plastic production and consumption would contribute to reducing pollution, a major driver of biodiversity loss. This would reduce negative impacts on ecosystems and species, which are already under increased pressure due to climate change and overexploitation, and contribute to ensuring a healthy planet for all living organisms now and in the future.

Resources to go further

Marine plastics - a threat to biodiversity and conservation efforts - Fauna & Flora (2023)

Underwater dumps: the plastic siege on biodiversity - Oceana (2022)

Hayley S. Charlton-Howard, Alexander L. Bond, Jack Rivers-Auty, Jennifer L. Lavers: 'Plasticosis': Characterising macro- and microplastic-associated fibrosis in seabird tissues, Journal of Hazardous Materials, Volume 450,2023,131090,ISSN 0304-3894

Tekman, M. B., Walther, B. A., Peter, C., Gutow, L. and Bergmann, M. (2022): Impacts of plastic pollution in the oceans on marine species, biodiversity and ecosystems, 1–221, WWF Germany, Berlin. Doi: 10.5281/zenodo.5898684

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