

Plastic pollution kills half a million hermit crabs on remote islands

Experts fear species decline after huge number of deaths on Henderson and Cocos

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Thu 5 Dec 2019 00.01 GMT



Hermit crabs trapped in plastic containers. The species is an important part of tropical environments. Photograph: NHM

More than half a million hermit crabs have been killed after becoming trapped in plastic debris on two remote island groups, prompting concern that the deaths could be part of a global species decline.

The pioneering study found that 508,000 crabs died on the Cocos (Keeling) Islands archipelago in the Indian Ocean, along with 61,000 on Henderson Island in the **South Pacific**. Previous studies have found high levels of plastic pollution at both sites.

Researchers from the Institute for Marine and Antarctic Studies (Imas) at the University of Tasmania, the Natural History Museum in London, and the community science organisation the **Two Hands Project**, found one to two crabs per metre squared of beach were being killed by litter.

They surveyed sites across four Cocos Islands and Henderson for open plastic containers, with the opening sloped upwards in a way that would prevent the crab from leaving, and counted the number of entrapped crabs in each. They then extrapolated their results across another 15 islands in the Cocos archipelago.



Wildlife experts have called for an urgent investigation into the death rate of hermit crabs. Photograph: NHM

The problem is exacerbated as hermit crabs use the odour of recently deceased crabs to track down newly available shells, leading to multiple crabs becoming trapped in the same area – in one instance, 526 crabs were found in a single plastic container.

Dr Alex Bond, a senior curator at the Natural History Museum and one of the report’s researchers, said: “The problem is quite insidious really, because it only takes one crab.

“Hermit crabs do not have a shell of their own, which means that when one of their compatriots die, they emit a chemical signal that basically says there’s a shell available, attracting more crabs ... essentially it is this gruesome chain reaction.”

Hermit crabs are an important part of tropical environments as they disperse seeds and aerate and fertilise soil, so their decline could have a significant impact on surrounding ecosystems.

The Cocos Islands and Henderson Island are highly polluted, with 414m and 38m pieces of debris respectively, found on their beaches and in nearby vegetation.

Bond said the potential for plastics to cause damage on land was under-acknowledged: “In the ocean, it entangles and is ingested by wildlife; on land it acts as a trap, as we’ve seen, but can also be a physical barrier to species moving along the ground.”

The Imas researcher Dr Jennifer Lavers, who led the study, said: “These results are shocking but perhaps not surprising, because beaches and the vegetation that fringes them are frequented by a wide range of wildlife.

“It is inevitable that these creatures will interact with and be affected by plastic pollution, although ours is one of the first studies to provide quantitative data on such impacts.”

The research team say their findings show the need for an urgent investigation into the death rate of hermit crabs worldwide.