

Alien predators are more dangerous than native predators

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Introduced predators such as foxes and cats are twice as deadly as native predators to Australia's unique native animals, a new study has found.

The new finding, published this week in the prestigious journal *Proceedings of the Royal Society B*, is the first confirmation of what has been a long-held hypothesis among scientists.

It also highlights the heavy continuing impact of these predators long after their introduction and that Australia's fauna has been among the hardest hit in the world.

Experts believe that introduced "alien" predators are more dangerous than native predators because their prey, such as numbats and bettongs, are naïve to the hunting tactics of alien predators.

In contrast, where predators and prey have coexisted for long periods, prey often respond by developing behaviours and bodily defences such as camouflage colouring that reduce detection or help them escape if they encounter a familiar predator.

"The finding brings new insight and urgency to the challenge of how best to target management programs aimed at protecting native species from predation," says Dr Peter Banks, UNSW biologist and report co-author.

"More than a century after the introduction to Australia of predators such as the fox their impact continues, and ongoing predation pressure

means that remnant populations of prey animals like numbats and bettongs are more vulnerable to extinction from other pressures such as diseases and habitat loss."

The study assessed the impact on alien predators on populations of animals, birds and reptiles by evaluating 80 high-quality research studies from around the world. Predators ranging in size from wolves, lynx and coyotes down to rats were included.

The research reveals that alien predators have done the most damage in Australia, whose native fauna have long been protected by the continent's geographic isolation. According to the World Conservation Union, Australia has nine of the world's 14 worst invasive mammals (domestic cat, goat, grey squirrel, mouse, pig, rabbit, red deer, red fox, ship rat).

Scientists believe that more frequent contact between predator and prey populations in contiguous continents such as Eurasia, Africa and the Americas has made prey populations less naïve to alien predators by exposing them to similar predator "archetypes".

In contrast, Australia's unique marsupial fauna have never had predatory species like feral foxes and cats until recently. Such alien predators were shown to have worse negative impacts than some classic predators, including large carnivores such as wolves.

Case study: foxes and the brush-tailed bettong

In the early 1800s, Australia's brush-tailed bettong - a medium-sized kangaroo-like marsupial - was commonplace in central New South Wales, South Australia and the southern regions of the Northern Territory and Western Australia.

However, the population and range of bettongs began shrinking during the 1900s following the release and spread of foxes and rabbits across the continent. Many other species – up to two dozen -- are thought to have become extinct during this initial wave of invading alien species.

By the 1970s, the bettong was considered as an endangered species with the only surviving mainland populations found in small pockets of forest in Western Australia. However, even these remnant populations were still being preyed upon by foxes and by the late '70s the species was threatened with extinction.

Following an intensive program of fox-control initiatives, bettong numbers eventually rebounded by more than 20-fold, demonstrating that fox predation had continued to have a devastating impact on bettongs after more than 150 years. No native predator anywhere on earth has had such a profound negative impact on their prey.

Source: University of New South Wales

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