

Predator Free 2050 campaign has major benefits for human health

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A native NZ bush rat. University of Otago, Wellington researchers say ridding NZ of pests like these have benefits for human health as well as for the environment. Credit: University of Otago

The Predator Free 2050 campaign to rid New Zealand of rats and possums will have major benefits for human health as well as for native plants and animals, says University of Otago, Wellington public health

researcher Dr. Mary McIntyre.

In New Zealand rats carry infections such as salmonella, toxoplasma, giardia, campylobacter and several others that can be spread to humans, through contact with the animals or their waste or through contaminated food and water.

"Possums carry bovine TB, which is also an ongoing and expensive livestock problem. It is less well known that possums also provide a potential reservoir for mosquito-borne diseases such as the Ross River Virus. This was one of the reasons why the southern saltmarsh mosquito, which came here through the Port of Napier in the late 1990s, was eradicated after 10 years of effort and at a taxpayer cost of about \$71 million.

"Nearly three out of five (58 percent) known infectious diseases in humans across the world are estimated to be caused by 'zoonotic' (shared with other animals) pathogens," says Dr. McIntyre.

"About three-quarters of the new diseases emerging to date are zoonotic, and their emergence is closely linked with environmental change and agricultural intensification.

New Zealand is part of this global picture, but there are also some particular issues.

"New Zealand has been a 'land of milk and honey' for the rats, which were introduced largely unwittingly, and possums introduced in the 19th century to establish a fur industry. We have a moderate climate, abundant food, and possums have few natural enemies. What's more, and in contrast to their native Australia, the possums average a kilogram heavier and give birth twice a year in New Zealand.

"The spread of diseases is largely a cost to society of our globalising travel habits. This greatly increases the chances of spreading new pests such as [mosquitoes](#) and ticks. Travel also increases the spread of pathogens carried by people – who may or may not know they are infected," says Dr. McIntyre.

The establishment of mosquito-borne disease by infected people is a particular concern for New Zealand since there are already mosquitoes here which carry infections such as dengue fever and West Nile and encephalitis viruses overseas, as well as native ones of unknown capacity.

"One of these is a minor vector of Dengue virus in Australia, and we think this could work together with related Australian or Pacific mosquitoes to spread zika or chikungunya virus – should these mosquitoes come here.

"In the right conditions people travelling from overseas could infect the local mosquitoes – instead of the other way around. Global warming increases chances of this as higher temperatures increase reproduction of the disease carriers such as rats and insects, as well as increasing the rates at which a pathogen multiplies inside an insect such as a mosquito or tick.

Warmer climates also assist the spread of carriers such as rodents and mosquitoes, with the pathogens they carry, into areas that were previously too cool for their numbers to build up to levels where infection would be transmitted. These concerns are additional to the risk of new mosquito breaching biosecurity measures.

Another concern for New Zealand comes with the mass fruiting and seeding (masting) of some native forest and grassland vegetation that occurs in some years. This leads to dramatic increases of rodent

populations, followed by a build-up in populations of their predators such as stoats and feral cats. These animals are potential vectors for human [disease](#), especially in rural areas and around urban fringe areas.

Eradicating possums, rats and stoats could also have the additional benefit of removing the need to use 1080 poison for pest control, says Dr. McIntyre. This would be a benefit not only for conservation, but also for some public perceptions of this practice as a threat to [human health](#).

"We believe it is in everyone's interests to support the eradication of these introduced creatures, not just for the sake of New Zealand's native plants and animals, but also for the health concerns of our human population."

Provided by University of Otago

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