

New thinking required on wildlife disease

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A wild water buffalo in the Northern Territory. Credit: flickr

A University of Adelaide scientist says much more could be done to predict the likelihood and spread of serious disease - such as tuberculosis (TB) or foot-and-mouth disease - in Australian wildlife and commercial stock.

Professor Corey Bradshaw and colleagues have evaluated freely available software tools that provide a realistic prediction of the spread of disease among animals.

They used a combination of models to look at the possible spread of TB among feral water [buffalo](#) in the Northern Territory.

Buffalo can harbour bovine tuberculosis, which poses a threat to commercial cattle livestock. They were introduced to northern Australia

in the 1800s from Timor-Leste. In the 1980s and 1990s the government of the time began a broad-scale culling program, culling tens of thousands of buffalo.

"The cull successfully reduced or eradicated buffalo from major pastoral lands in the Northern Territory, taking tuberculosis with it, but since then there has been no major follow-up culling. The buffalo population is re-invading the formerly culled areas," says Professor Bradshaw, who is Director of Ecological Modelling at the University of Adelaide's Environment Institute.

"Although Australia now trades its livestock under the 'TB-free' banner, the disease is prevalent throughout Africa, southern Europe, the Middle East and parts of Asia. Realistically, it's only a matter of time before it rears its ugly head again here. If it does, it could potentially cost our cattle industry billions of dollars."

Professor Bradshaw says Australia needs to implement tools such as those combining disease and population models to help plan the response to any potential return of TB - or other, nastier diseases, such as foot-and-mouth.

"We found that the probability of detecting a [disease](#) as well known as TB in buffalo was extremely small, even for thousands of 'sentinel' animals culled each year. Current monitoring programs by the [Northern Australia](#) Quarantine Strategy (part of the Australian Quarantine and Inspection Service - AQIS) could definitely benefit from the use of these software tools, which are freely available for anyone to download," Professor Bradshaw says.

"If the goal of culling programs is to reduce prevalence of TB to near-zero, our prediction is that somewhere between 30-50% of the current buffalo population would have to be culled each year for about 15 years.

That's a lot of buffalo - at least 100,000 killed over the first five years."

The team's work has been published in the [Journal of Applied Ecology](#).

Provided by University of Adelaide

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