

## Progress

The dingo has had a bad rap in Australia, but new research on its benefits for native ecosystems may give the dingo something to howl about.

Ninian Stewart-Moore and his wife, Ann, run Dunluce, a 46 500 hectare sheep and cattle station in north-west Queensland. Their decision to purchase 24 Italian Maremma guardian dogs has transformed their lives.

'We used to lose up to 10 sheep a night to dingoes and we were in a constant state of anxiety about whether to keep running sheep at all. Now dingoes wouldn't take more than 10 sheep a year.'

'We've gone from thinking the only good dingo is a dead one, to feeling quite happy about living alongside them,' says Stewart-Moore.

The guardian dogs' stunning success with the flock of 12 000 sheep demonstrates that Maremmas can be effective dingo deterrents at scale in the pastoral zone. It also means fewer dingoes will be exterminated.

This is good news for Australia's small mammals, as scientific research is revealing that dingoes are playing a vital role in their conservation.

Eighteen Australian mammal species have gone extinct in the last 200 years, which is almost half of all mammal extinctions worldwide. Introduced foxes and cats are largely to blame. Dingoes naturally kept them in check but once dingoes were removed from large tracts of the country these feral predators wreaked havoc in the landscape.

In a study published in 2007,<sup>1</sup> Professor Chris Johnson from James Cook University showed that the presence of dingoes is the most powerful predictor of the survival of ground-dwelling marsupials across Australia.

The loss of the mala (rufous hare-wallaby) from mainland Australia is a graphic example. In 1987 there were two remaining populations. Both were in the Tanami Desert where dingoes were plentiful. As dingoes are known to eat the occasional mala, the Wildlife Commission baited the dogs to give the hare-wallaby a better chance. Within a fortnight a fox moved into one of the population zones and scooped the lot. The tragedy was observed by a PhD student who was in the field at the time. The disappearance of the second population soon followed.



In the central deserts, dingoes may be important regulators of feral foxes and cats. On Kalamurina and Newhaven Sanctuaries, AWC ecologists are studying the relationships between dingo, cat and fox activity, and the abundance of smaller native fauna. Ecopic; AWC



AWC ecologists Malcolm Kennedy, Daniel Swan and Steve Murphy fit a GPS radio collar to a dingo at Mornington Wildlife Sanctuary as part of a research project to examine whether dingoes affect the behaviour and abundance of feral cats. Joanne Heathcote; AWC

**PLAY** VIEW A SHORT VIDEO OF A DINGO (10 MB)

<sup>1</sup> Johnson C, Isaac J and Fisher D (2007) Rarity of a top predator triggers continent-wide collapse of mammal prey: dingoes and marsupials in Australia. *Proceedings of the Royal Society B* 274, 341–346.

\* This online version has been altered from the original.



**Dingoes naturally kept them [foxes and cats] in check but once dingoes were removed from large tracts of the country these feral predators wreaked havoc in the landscape.**

Dingoes are classified as wild dogs and regarded as pests in all states. They are protected in the Northern Territory and late last year the Victorian Government announced it would declare the dingo a threatened species, but landholders would still be free to kill it on their own land.

Each year \$6.5 million is spent on poisoning, trapping, shooting or fencing wild dogs because of the devastating damage they do to livestock. In 2004 the total cost to the economy of wild dogs was estimated at \$66.3 million. The persecution of the dingo and hybridisation with wild



**Italian Maremma guardian dogs have dramatically reduced sheep losses to dingoes on Dunluce station.** Ninian Stewart-Moore

‘There is a compelling list of anecdotal evidence in favour of the dingo’, says Professor Johnson, but it is only in the last few years that scientific data to demonstrate this has started to be collected.

The dingo came to Australia about 3500 to 4000 years ago with south-east Asian seafarers. Unlike the domestic dog that breeds twice annually, the dingo breeds only once a year and howls rather than barks. Wild domestic dogs have, however, inter-bred with dingoes.

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**The endangered dusky hopping mouse is more abundant where dingoes occur.** Mike Letnic

dogs means purebred dingo populations are diminishing in large parts of southern Australia.

The endangered dusky hopping mouse, in the remote sand dunes of the Strezleki Desert, is one of those species benefiting from the dingo’s presence. In a study in press in the *Journal of Conservation*, Dr Mike Letnic from the University of Sydney has found the threatened mouse does better where dingoes are active. If dingoes are absent, foxes move in and mouse numbers decline.

Dr Letnic’s project took him from the Great Australian Bight to Coopers Creek in south-west Queensland on both sides of the dingo barrier fence. He found clear evidence that dingoes are beneficial.

‘Where dingoes were active I found less kangaroos, more grass, less foxes and more small mammals. Where dingoes were missing I saw more kangaroos, less grass, more foxes and less small mammals.’

The next step is to understand the mechanisms behind how dingoes interact with the system and benefit native species.

While kangaroo numbers are reduced by dingo predation, Dr Letnic suggests the mere presence of the predator may have a greater effect. If kangaroos are more cautious because of dingoes, their access to food resources is diminished and they’ll be less productive. Less grazing pressure and more grass mean more energy for small native animals. Grasses will have a greater chance to set seed, with flow-on effects for grain eating mammals, insects, birds and reptiles.

The Australian Wildlife Conservancy (AWC) is researching dingo interactions on nine of its reserves. It is looking at the interactions between dingoes and cats rather than foxes on its northern properties. ‘Results are fairly preliminary’, says National Conservation and Science Manager Dr Sarah Legge, ‘but it’s unlikely to be a case of one size fits all.’

‘I think we’ll find that dingoes are generally good for native fauna and diversity in the arid and semi-arid regions and in the rangelands. But where species plague and plummet we could see dingoes prey-switching to native species with negative consequences. Dingoes are also likely to have less impact in more complex habitats such as tall wet forests.’

The dingo is a highly intelligent animal, like the wolf, and when in stable packs, hunts cooperatively in a sophisticated manner. But baiting with 1080 poison by farmers and land managers can disrupt a pack’s stability and allow young rogue males to move in and do far worse damage to livestock.

Professor Johnson and his team have an Australian Research Council grant which will allow them to test this and other questions by comparing cattle properties that do and do not bait.

To help resolve the sheep producer’s problem with dingoes, they are also investigating the effectiveness of livestock guardian dogs under Australian conditions.

● **Alexandra de Blas**