



Keeping the dog from the dingo

SINCE the early days of European settlement, dingoes (*Canis lupus dingo*) have been seen as outlaws in Australia. Their wild nature makes them unsuitable as domestic pets, and their harassment of sheep and cattle has raised the ire of pastoralists, prompting repeated attempts at the dingo's eradication.

Many millions of dollars have been spent in the past 150 years on control measures including scalp bonuses; hunting with traps and guns; poisoning; and construction of the world's longest fence. But these efforts have been largely unsuccessful, and probably won't cause the dingo's demise. Instead, cross-breeding with the domestic dog (*Canis lupus familiaris*) looms as a larger threat to the dingo's survival.

The urgent need for action to save the pure dingo gene pool is highlighted in *The dingo in Australia and Asia*, a new book by CSIRO ecologist Dr Laurie Corbett of the Tropical Ecosystems Research Centre at Darwin. In the book's final chapter, Corbett outlines the dingo's plight and suggests measures to curb the increasing rate of hybridisation in Australia.

Dingoes are primitive dogs that evolved from a species of wolf 6000-10 000 years ago and became widespread throughout southern Asia. Asian seafarers subsequently introduced dingoes to Indonesia, Borneo, The Phillipines, New Guinea, Madagascar and other islands including Australia 3500-4000 years ago.

The world's remaining dingo populations are concentrated in Australia and South-east

Asia. Surveys conducted in the past 20 years have shown that Thailand has the purest dingo populations, but this is changing rapidly as the ownership of domestic dogs in Thailand increases. Corbett says this may lead to the eventual extinction of Thai dingoes.

Barriers between domestic dogs and dingoes are being removed in Australia too. Cross-breeding, already common in populated coastal areas, is now increasing in the outback, and the pure dingo gene pool is being swamped. Already in the south-eastern highlands about one-third of the populations are cross-breeds.

'As access to the more remote areas of Australia such as the Top End becomes easier, the stage is set for hybridisation to skyrocket,' Corbett says. 'Unless there is a radical change in people's attitudes, pure dingoes may well be extinct before the end of the 21st Century.'

Corbett says hybridisation occurs either when dogs 'go bush', or when dingoes come to town. He says there is a trend for people to acquire hybrid dingo pups, but the 'pets' often roam, or are abandoned as adults because they are too wild. Their dingo genes make it easy for them to infiltrate wild dingo society and breed with pure dingoes. This process occurs frequently in semi-rural areas outlying large urban centres, such as Darwin and Alice Springs.

Apart from contaminating the dingo's gene pool, other problems exist with dingo-dog hybrids. They pose more of a threat to the pastoral industry than pure dingoes do.

Because hybrids can breed twice a year, they are capable of killing twice as many calves as pure dingoes can. And in urban areas hybrids are probably more dangerous to humans than most pure domestic breeds.

Protecting the gene pool

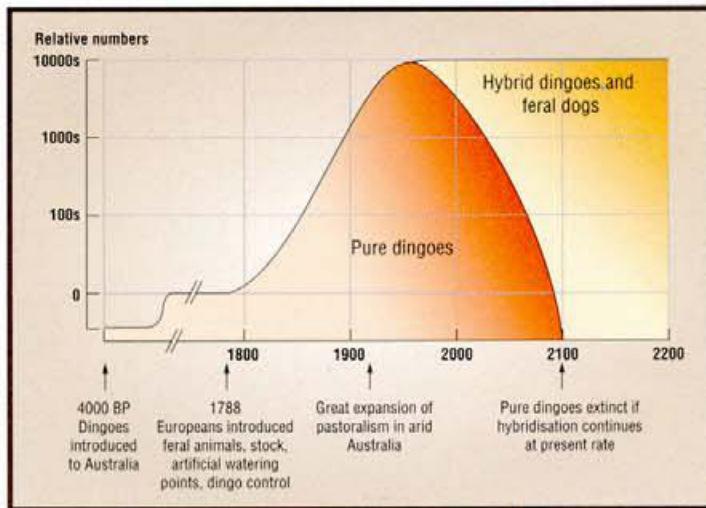
Corbett says developing a pure dingo gene pool – maintained by a limited number of registered dingo breeders – is a necessary first step towards protecting the purebred dingo. A second step would be to publicise the dingo's plight so that laws introduced to limit cross-breeding with domestic dogs will be understood and accepted. Such laws should include banning dingoes from being kept as pets, and sterilising dogs kept in remote areas, he says.

Ultimately, the goal would be to reintroduce pure dingoes to the wild, but Corbett acknowledges that this may never be practical.

'In an ideal world people would own only neutered domestic dogs or dingoes,' Corbett says. 'Adequate stocks of native dingoes and ova and sperm – representing dingo genetic diversity from all major Australian and Asian habitats – would be stored by dingo breeders; the bush would be cleared of feral hybrids and feral dogs; and stock would be protected from dingo predation. The dream of releasing pure dingoes into the wild could then begin.'

In the real world, however, a more pragmatic solution is needed. This means assuming that most Australian habitats will

Left: Islands off Australia's coast may offer the best hope for preserving dingoes in their natural habitat. This female dingo is pictured at Fraser Island which has a large dingo population living in conservation areas.



never again be freely available to dingoes, no matter how successfully dingo breeders stockpile their genes.

Corbett says the best hope for preserving dingoes in their natural habitat may be islands around Australia's coastline which represent many climates and are big enough for dingoes to breed in partly or completely natural conditions. The nature and confines of an island would make it possible to minimise and eventually eliminate hybrids.

'For example, Fraser Island off the Queensland coast has a large dingo population living in forest conservation areas,' Corbett says. 'Most residents are willing to comply with local laws requiring all domestic

dogs to be neutered, and when the dogs die they cannot be replaced. The preservation of dingoes on Fraser Island is vitally important, because before long it will probably be one of the few locations where dingoes will be seen in their natural environment.'

Back on the mainland, efforts should be made to educate pastoralists and governments about stock management and dingo control techniques that can maximise production and minimise pasture damage by rabbits, Corbett says. These include measures such as setting up buffer zones between pastoral and wilderness areas, and manipulating stock breeding so that fewer calves are born in the dingo mating season.

As well as examining the dingo's future, *The dingo in Australia and Asia* outlines the animal's origin, ancestry and world distribution, including cultural and other relationships between dingoes and indigenous peoples in Australia and Asia. It also describes the methods used to study dingoes; dingo characteristics, living areas and movements; behaviour and communication; social and population dynamics; feeding ecology; and interactions between the dingoes and their various prey.

The book is written for a wide audience and includes information bound interest both scientific researchers and non-specialist readers. Each chapter is laced with fascinating observations and anecdotes of dingo behaviour, gathered by Corbett during three decades of research. An extensive list of references is provided.

The book earned a commendation at the 1995 Whitley Book Awards as a joint winner of the Best Natural History Book division.

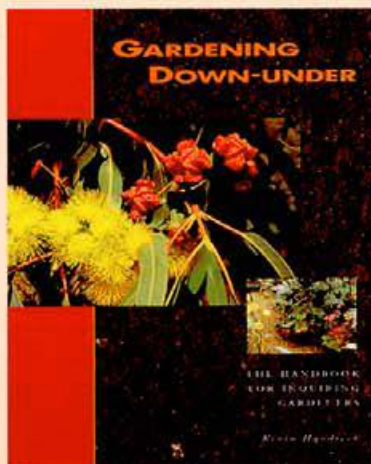
The dingo in Australia and Asia costs \$25.95 and is published by University of New South Wales Press, (02) 398 8900, fax (02) 398 3408. Laurie Corbett works at the CSIRO Tropical Ecosystems Research Centre, Private Bag No 44, Winnellie, NT 0821, (089) 22 1711, fax (089) 47 0052.

Bryony Bennett

Tips on saving water in the garden

WITH the onset of spring, many people are inspired to get to work in the garden. As water availability tightens, however, the amount consumed by thirsty plants and lawns is worth consideration. Following are some water-saving tips from CSIRO's own 'gardening guru' Kevin Handreck.

- Know your sprinklers and drippers. Measure the rate of water delivery (millimetres per hour) of each of them.
- Get a feel for how much water is being used each day by your garden, either by measuring evaporation, by guessing from the weather, or by reading *Gardening Down-under*.
- For general garden plants (not fruit trees, vegetables and annual flowers that must grow rapidly and produce prolifically) holding off water for as long as possible is the most powerful way of minimising water use.
- When you do apply water, fill the main part of the root zone (typically the top 300 millimetres of soil).
- These first four hints add up to a scheme of watering



gardens infrequently, but watering deeply on each occasion.

- For lawns, choose where possible only warm-season grasses.
- Group plants so that those that tolerate dry conditions and heavy users of water are on separate sprinkler systems.
- Mulch all garden beds.
- Remove weeds.
- As far as possible, apply water overnight and before sunrise.

Kevin Handreck, a researcher for the past 20 years with the Division of Soils in Adelaide, has become known to Australian gardeners through his *Discovering Soils* booklet series. Last year he wrote a book titled *Gardening Down-under*, published by CSIRO Publications.

Gardening Down-under is available for \$35 from the CSIRO Bookshop, PO Box 89 East Melbourne, Vic. 3002, (03) 9418 7217, toll-free 1800 645 051, fax (03) 94190459.

***An Ecos feature on water research begins on page 13.**