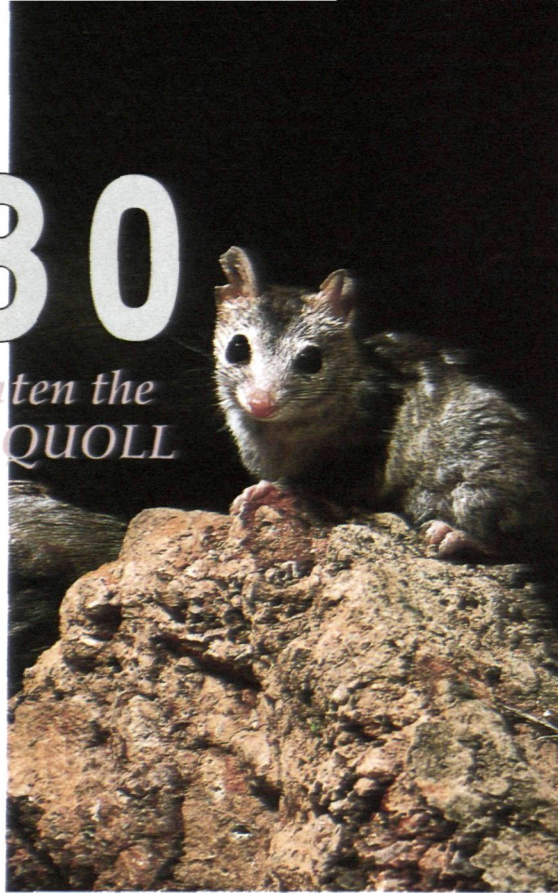


1080

does not threaten the
NORTHERN QUOLL

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A female northern quoll.
The species is widespread
in northern Australia.
Photograph by Sue Wilkins

The poison 1080 is used in baits to control animal pests such as dingoes, rabbits and, indirectly, foxes. There is always the risk that some "non target" animals, particularly our native animals, might eat the baits and die, although investigations indicate that many southern native mammals are tolerant of 1080.

*The compound 1080 is found in many native plants growing in southern Western Australia, in the genera *Gastrolobium* and *Oxylobium*, and over the centuries native animals have built up resistance to its effects.*

Until recently the tolerances to 1080 of only a few animals from the pastoral areas were known. The results of a two-year study showed that a native carnivorous marsupial, the northern quoll, was considered most likely at risk. However, a recent field study indicated that the northern quoll is not at risk from aerial baiting programmes to control dingoes.

Background

In the study, which was supported by the Wool Research Trust Fund from 1985 to 1987, the study team determined the sensitivity of 15 small species of native mammals to 1080 and estimated which species would be at theoretical risk from aerial baiting programmes to control dingoes. We studied captive animals from the Kalgoorlie, Sandstone and Karratha regions.

Of the six species of rodents and the nine carnivorous marsupials investigated, the northern quoll (*Dasyurus hallucatus*) was most likely to be affected by meat baits impregnated with 1080. Although it is reasonably tolerant of 1080, the northern quoll is a voracious feeder and can eat large quantities of meat. Its natural diet includes small mammals, reptiles, insects and some fruit. The actual hazard 1080 posed to the quolls in the wild was not known.



The trapping area near Mungowarra Pool along the Fortescue River.



Studies in the Fortescue area

The area chosen for the radio-tracking studies was near Mungowarra Pool along the Fortescue River. Rugged ironstone hills covered by spinifex, scattered acacias and eucalypts and many rock ledges and outcrops cover the landscape. Aerial baiting takes place in this West Pilbara area regularly in September and October.

An adult female northern quoll weighs between 300 and 500 g. The males are larger, weighing between 600 and 900 g. Animals of both sexes are large enough to carry collars containing radio transmitters.

During mid to late September we captured 13 quolls, fitted them with radio-collars and released them. Six of these quolls had been captured during a feasibility trip in July to test equipment and to determine whether there were enough quolls in the area for the study.

Quolls are active during the night. We attempted, but failed, to locate every animal each day when they were in shelter sites.

Two animals disappeared ten and three days before the baiting started, possibly because of radio failure. A third shed her collar around the time baiting started. We located the 10 other quolls by radio-tracking or trapped them on one or more occasions after the baiting but before the end of the trial. We then recaptured the 10 quolls between 12 and 14 days after baits were laid.

The weights of the baits used were lower than recommended (26 g versus 35 to 40 g), but they had been injected with the normal quantity of 1080, so that they contained more than the recommended concentration of poison.

The radio locations indicated that most animals moved over considerable areas, some as far as 3.5 km from the first 'tracked' location, others less than 250 m. Most quolls travelled a maximum of 1.3 km. The minimum area of activity for those animals which we captured regularly varied from five to 1100 ha. Since no animal's position was known for every day, they were probably active outside those areas, but how far outside them is not known. All animals appeared to have roamed over a large enough area to give them a good opportunity to encounter baits.

A male quoll in poor condition in late September after the breeding season.
Photograph by Gary Martin

In the Pilbara, quolls are born in September or October, which coincides with the baiting schedule for the West Pilbara. After mating, both male and female quolls lose weight and condition. The three females which were caught in July and September had lost 12, 20 and 33 per cent of their July body weight by September, and the three males had lost 26, 28 and 32 per cent of their body weight.

In September quolls were probably in their poorest condition. The males had lost a lot of fur and carried large numbers of ticks and lice. Being in such poor condition, they would be more likely to eat baits than at other times. Their low weight would also make them more susceptible to the poison.

No quolls killed

None of the monitored quolls was killed, despite their body weights being low and the high level of 1080 in the baits. Even though they are moderately tolerant of 1080, a small quoll which ate one poisoned bait or a large animal which ate two baits as its only food in a day would die.

The aerial baiting programmes for dingoes therefore do not appear to threaten the survival of northern quolls. Since the quoll is the 'non-target' species of mammal from the pastoral areas which is theoretically most at risk from aerial baiting programmes, other mammals which are less likely to be affected are unlikely to be at risk from such baits.

Further reading

King, D.R. (1984). 1080 - a selective poison for pests. *J. Agric. West. Aust.* 25: 12-14.

