

Taking the **bait**



A new sausage bait developed by innovative conservation managers is helping our native mammals to recover from the impact of introduced foxes.

by John Asher,
Nicky Marlow,
and Rob Brazell

Over the past 100 years 11 species of native mammal in Western Australia have gone extinct. A further five species have disappeared from the mainland but remain on a few offshore islands, and 29 species remain on the mainland but have declined significantly.

In the 1980s scientists from the Department of Environment and Conservation (DEC) (the then Department of Conservation and Land Management) conducted research that showed effective fox control could result in an increase in the abundance and distribution of several native mammalian species.

Western Shield

DEC initiated a broad-scale aerial fox control and research program called Operation Foxglove in 1994. This program involved baiting almost 570,000 hectares of the northern jarrah forest with poisoned dried meat baits for fox control. This project was so successful that in 1996 it was expanded and the *Western Shield* fauna recovery



program was launched. The *Western Shield* baiting program extends from Esperance in the south-east to Karratha in the north. It includes national parks and forests of the south-west, numerous Wheatbelt reserves, and encompasses an area of nearly 3.6 million hectares. As a result of these successful fox control programs the woylie (*Bettongia penicillata ogilbyi*) was removed from the WA and national threatened species lists in 1996 and the tammar wallaby (*Macropus*

eugenii derbianus) and quenda (*Isoodon obesulus fusciventer*) were removed from the WA threatened species list in 1998.

When the program first began, fox control was achieved by using baits made from chunks of fresh meat that were injected with sodium fluoroacetate (1080) and dried to 40 per cent of their original weight. The amount of 1080 was reduced to three milligrams in 2001. Fox baits are delivered from the air at an intensity of one bait to every 20 hectares (five baits per square kilometre), up to six times a year. Smaller reserves are ground baited every month. The toxin used in the baits (1080) occurs naturally in the WA environment in the *Gastrolobium* genus of plants. Native animals in WA have evolved a strong tolerance to 1080 while introduced animals, such as the fox and cat, are highly sensitive to it and succumb easily.

The dried meat baits have been manufactured by the Department of Agriculture and Food for many years and were the basis of success for the *Western Shield* program. However, the cost and difficulty in obtaining suitably cut chunks of meat to produce fox baits and the labour intensive bait-production process led DEC to look for alternatives. The *Western Shield* program uses around 750,000 fox baits a year and a continuing, reliable supply of cheap baits is essential for its success.

Pro-bait

In 1998 innovative staff at DEC's newly established bait-production research facility at Harvey, with advice from the small-goods processing

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Main Foxes are targeted with Pro-bait.

*Photo – Jay Sarson/Lochman
Transparencies*

Inset Dave Hawkes in the Harvey sausage-making factory.

Photo – Rob Brazell/DEC

Above Quenda.

Photo – Ann Storrie

Left The tammar wallaby is vulnerable to fox predation.

Photo – Jiri Lochman





Left Baits containing 1080 are dropped from planes.
 Photo – John Asher/DEC

Below left Prepared Pro-baits on pallets.
 Photo – Rob Brazell/DEC

Below right Pro-bait sausages are more uniform in shape and size than dried meat baits.
 Photo – John Asher/DEC



industry, developed a sausage bait ('Pro-bait') for foxes, based on the salami manufacturing process. Staff also developed an automatic injection system for the computerised sausage-making machine enabling a fast, accurate dose of 1080 to be injected into every sausage. The advantages of Pro-bait over the existing dried meat bait include the automated process, large production runs and minimal wastage. Moreover, the product's uniform shape and size allows improved packaging efficiency, reduced transport and storage costs and automated bait-laying procedures. Pro-bait is a cheap fox bait that can be used for both agriculture and conservation purposes and there are commercial opportunities for the State to sell it elsewhere in Australia.

Pro-bait was registered for use in WA by the Australian Pesticides and Veterinary Medicines Authority in 2002. In 2004 trials were conducted in WA's Midwest in which the uptake of the dried meat fox bait and Pro-bait were compared. There was no significant difference between the two baits with both having an excellent uptake by foxes of about 87 per cent.

Although native animals are highly tolerant to 1080, due to their small body weight, some species might succumb if they managed to consume a bait. Pro-baits were specially formulated to be too large and too hard for most native species to eat. The dentition and jaw size of our native fauna is such that most of them will have difficulty consuming large dried

meat baits. However, to be doubly sure, captive trials were undertaken on 14 native species including brush-tailed phascogales, chuditch, brushtail possums, woylies and bandicoots. Only chuditch and phascogales ate sufficient bait material to be at risk so field trials were undertaken to ensure they were not affected by operational baiting campaigns. Although both did consume baits, or parts of baits, they didn't die as a result. Significantly, the study was undertaken at a time when recently born chuditch were dispersing and growing.

In 2005 DEC approved the broad-scale use of Pro-bait for the *Western Shield* program with the aim of fully replacing the dried meat fox bait. The Harvey bait production research facility was expanded to enable the manufacture of sufficient Pro-bait for the entire *Western Shield* program. This expansion will also assist the Department of Agriculture and Food with supplies of wild dog sausage baits for the pastoral industry that are based on Pro-bait technology.

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