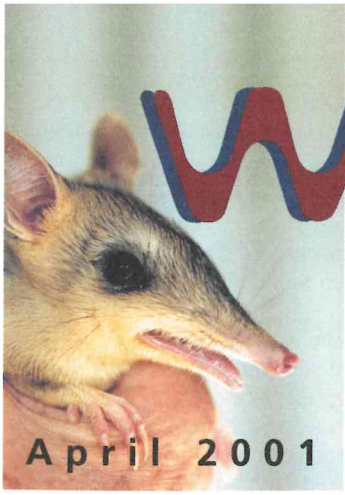


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Western Shield

April 2001

Sponsors essential for success of wildlife

Sponsorship of nearly \$1 million is helping the recovery of chuditch, woylies, bilbies, bandicoots and numbats into former habitats.

Western Shield was created in 1996 to save native animals headed for extinction unless something was done about the European fox.

"Sponsorship is the key to expanding *Western Shield*, increasing the benefits we get from feral predator control over a large area," Gordon Wyre, CALM's Acting Director of Nature Conservation, says.

"Each year we spend \$1.5 million to bait about 3.5 million ha but we want to bait five million ha. To do that we need more sponsors."

The main sponsors are mining companies—Cable Sands (WA) Pty Ltd, Iluka Resources Ltd, Alcoa World Alumina Australia and TIWEST Joint Venture. Each is allocated a geographical area and has a

program named for its sponsorship. TIWEST has sponsored *Western Shield* with \$300,000 over a five-year period to cover operations in the Jurien to Lancelin region.

"To sponsor a wildlife project so generously is an enormous gesture of commitment to the environment," Gordon says.

The money will be used to bait 100,000 ha of CALM-managed land between Lancelin, Jurien Bay and Dandaragan, and some unvested Crown lands. Included in the area are Nambung and Badgingarra National Parks, as well as Namming and Enemunga Nature Reserves.

It's hoped the quenda, woylie, tammar wallaby, western barred bandicoot, bilby and boodie will be able to be re-established.

TIWEST's Cooljarloo mine site will be hand baited.

Western Shield has the following major sponsors:

- Alcoa World Alumina Australia
- Iluka Resources Limited
- Cable Sands (wa) PTY LTD
- Tiwest Joint Venture

Thank you for your sponsorship.

Cable Sands

Cable Sands' \$180,000 sponsorship is assisting in the rejuvenation of around 200,000 hectares of the South Coast in the 'Cable Sands Coastal Storm' component covering D'Entrecasteaux and Shannon National Parks. Eight threatened or rare species including Western ground parrots, chuditch, dibblers, quokkas, brushtail possums and woylies are candidates for reintroduction.

Iluka

Iluka Resources Ltd has provided \$120,000 sponsorship for the 'Iluka Resources New Dawning' component covering the area between Margaret River, Augusta, Nannup, Donnybrook and Capel (the Sunlands), with the Leeuwin Naturaliste National Park and other forests and reserves around Bunbury and Busselton.

The chuditch, quenda, quokka, brushtail possum, ringtail possum, western brush wallaby and the woylie are responding well to fox control in this area.

Alcoa

Alcoa is another sponsor, sponsoring CALM with \$120,000 a year to assist with baiting of 550,000ha of northern jarrah forest from Dwellingup to Collie. Noisy scrub birds have been translocated to this area.

Continued page 5



Operation Foxglove research team member Marika Maxwell leads Pest Animal Control Co-operative Research Centre board members like the Pied Piper through sections of Dwellingup forest. Photograph Michelle Carden (PAC CRC). Story on page 2

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Operation Foxglove reaps rewards

By Paul de Tores and Suzanne Rosier

Late last year the Western Chapter of the Pest Animal Control Co-operative Research Centre (PAC CRC) was officially opened.

The PAC CRC is developing immunocontraception techniques to control three introduced pest species: the fox, the house mouse and the rabbit. The PAC CRC supports *Operation Foxglove*, the predecessor of CALM's *Western Shield*

fauna recovery program. Alcoa Worldwide Australia also supports *Operation Foxglove*.

Sponsorship support of \$60,000 from the joint venture partners of Boddington Gold Mine—Normandy Mining, AngloGold Australasia and Newcrest Mining, was also announced at the official opening of the western chapter.

The opening was followed by PAC CRC Board members making a trip to the Foxglove research sites.

Only a selection of the 550,000ha study area between Mundaring and Collie could be visited.

The first site was the Hakea Road trapping grid which showed some of the mammals representative of the suite of northern jarrah forest fauna. Species caught at the grid and seen on the day included the yellow-footed antechinus or mardo, *Antechinus flavipes*, the western quoll or chuditch, *Dasyurus geoffroii*, and the woylie or brush-tailed bettong, *Bettongia penicillata*.

More than 400 woylies were translocated to the study area from Dryandra forest. Intensive radio-telemetry monitoring of the translocated woylie population, combined with assessing fox densities, has shown the extent of fox density reduction needed to enable native fauna populations to increase and be sustained.

CALM researchers and ecologists are constantly reminded of the consequences of fox predation. The trip gave the opportunity to remind the board members of the ecological nature of the problems the PAC CRC is facing.

Although the PAC CRC may develop a vaccine, the ultimate test will be to see if immunocontraception is an effective tool in the field and can reduce fox density as efficiently as the current 1080 baiting programs.



TIWEST's General Manager of Corporate Services, David Charles (right) and General Manager of the TIWEST Cooljarloo mine, Stuart Merrick, with a rarely-seen puggle or baby echidna, at a CALM ceremony to acknowledge TIWEST's sponsorship. Photo – Ernie McIntock

TIWEST finds Western Shield exciting

TIWEST's General Manager, David Charles, says support for *Western Shield* is a two-way street between CALM and TIWEST.

"Until now we have not sponsored projects because none was ideally suited to our philosophy . . . but when we heard about *Western Shield*'s fox baiting program and animal reintroductions we were immediately keen," he said.

"We also liked the five-year timespan because we'll be able to see the results of our sponsorship in terms of animal relocations."

The official handover of the first \$60,000 sponsorship cheque happened on the foreshore near CALM's Matilda Bay head office.

Stuart Merrick, the General Manager of TIWEST's Cooljarloo site in the baiting area said the company was determined to leave no lasting impact on the environment.

"We want to see the return of native animals that were present before mining took place," he said.

"TIWEST has been more than happy to fund this ongoing *Western Shield* program in the Cooljarloo area.

"It is particularly exciting for TIWEST. We're delighted to be associated with the project because of our long term commitment to rehabilitation in the area," he said.

Some interesting facts . . .

- About 3.5 million hectares is baited annually.
- 770,000 1080 baits are dropped from a twin-engined Beechcraft Baron aircraft.
- Baiting happens every three months.
- Each season the plane flies 55,000 km which is more than a 40,000 km round-the-world trip!
- Each year the plane flies five times around the world.
- Each hour 1000 baits are dropped.
- Each bait covers 20 hectares.
- Quarterly baiting takes eight weeks. The plane is in the air eight months a year.
- Small reserves are baited monthly by hand.

Renaissance of animals

Monitoring is showing animals once on the brink of extinction in WA are returning and breeding in their natural habitats.

The crucial factor is the continued fox baiting under CALM's *Western Shield* program.

Fox predation helped cause the catastrophic extinction of 18 Australian mammal species, 10 in WA. Thirty more species clung to existence in low numbers.

Since *Western Shield* began in 1996, CALM has carried out 44 translocations of 16 animal species.

Species

The species are the chuditch, dibbler, numbat, bilby, quenda, western barred bandicoot, woylie, mala, tammar wallaby, western ringtail possum, Shark Bay mouse, Thevenard Island mouse, noisy scrub-bird, western bristlebird, malleefowl and western swamp tortoise.

They've been relocated in areas ranging from the cool south-west to the warmer Kalbarri National Park, Shark Bay and the Montebello Islands.

Western Shield is Australia's most extensive and far-reaching fauna conservation initiative. More than 3.5 million hectares of forest, parks and reserves are baited to control the destructive introduced predator, the European fox. CALM plans to increase the baited areas to include arid areas where predation by feral cats is a significant native wildlife threat.

Effective

Baiting has been so effective that translocations of between 20 and 40 animals result in the successful establishment of new populations.

WA is the only area in the world where



Illustration – Laurie Guthridge

three mammals—the tammar wallaby, the quenda and the woylie—have been taken off the endangered fauna list because of management action.

The small hopping marsupial, the woylie has been relocated to more than 30 places.

Woylies are now the most abundant medium-sized mammal in Batalling forest block as a result of their reintroduction in the early 1980s and 10 years of fox baiting.

In April last year the bilby, which underwent a massive decline in its natural range in the last century, was returned to the Dryandra forest as part of a breeding program. A second translocation happened in September.

Wild populations of chuditch—released in Kalbarri National Park with woylies last year—were re-established in several areas after being restricted to south-west forests and the southern Wheatbelt during the 1970s.

Western Barred Bandicoots—extinct in the wild on the mainland—were this year translocated to field breeding enclosures within Dryandra Woodland. It was the first time in more than 90 years the bandicoot had existed in the south-west. This marsupial survives naturally on Bernier and Dorre Islands in the world heritage listed Shark Bay area. When you consider the last mainland sighting was at

Rawlinna on the Nullarbor in 1929, the success of *Western Shield* begins to be apparent.

Early success

Some earlier translocations were astoundingly successful such as the reintroduction of quenda to the Dongolocking Nature Reserve in the Wheatbelt. Within three years, farmers on surrounding properties were regularly seeing quenda in their paddocks.

CALM zoologist Peter Orell, said *Western Shield* also trained staff in fauna management and acquired radio transmitter collars for animals released in new areas.

Although providing radio collars is expensive (\$350 a collar) CALM can keep track of the animals to accurately determine their survival and use of their new habitats.

"During the first translocation we use radio transmitters to find out if they survive and how they disperse through the site. If an animal species is seriously threatened we may use radio transmitter collars for several translocations to give us feedback on the best habitats in which to release animals in the future.

"The outstanding success we have had to date has given us great hope for the future," Peter said.

"As long as fox baiting is implemented and maintained, native animals are likely to survive . . . CALM officers are breaking new ground by putting animals back into their old territory and employing different methods of monitoring."



A tiny Western barred bandicoot
Photo - Martin Kennealey, Community Newspapers

Lessons learned in managing animals



CALM has held its ninth fauna management course for staff who manage and handle animals.

The course is popular for CALM staff and attracts people from mining companies and eco-tourism businesses keen to know how to safely handle and manage native animals.

It is the only course offered in WA that deals with the practical everyday issues of managing fauna and is presented by people who are experienced in fauna management.

CALM's diversity is reflected in the range of people selected to attend the five-day camp. Forestry workers rub shoulders with managers, junior researchers, junior scientists, rangers, operations officers, ecologists, conservation officers, environmental people, wildlife experts and CALM's law enforcement officers to absorb information about how to trap, relocate and re-release native wildlife.

They are assessed by CALM staff running the course, using field accreditation to assess trapping and handling skills. Other assessments take place when the participants are back in their districts.

The venues used to date include Batalling Forest near Collie, the Millstream-Chichester National Park in the Pilbara and the Perup Forest Ecology Centre near Manjimup.

Traps are set and checked, fauna

specimens identified, spotlighting tours are undertaken and animal ethics discussed.

Western Shield zoologist Peter Orell said the aim was to introduce CALM staff and people from industries and ecotourism businesses to the techniques of animal trapping and surveying. Volunteers had also taken part.

"The benefits to CALM are enormous," Peter said.

"The CALM districts are reaping the rewards because their staff—with our assistance—are carrying out their own translocations and animal management programs," he said.

"The Manjimup, Mornington, Albany and Walpole districts are outstanding examples because they've set up Western Shield sites and are recording data. Late last year the Manjimup District staff organised its own translocation of woylies into the Pemberton area."

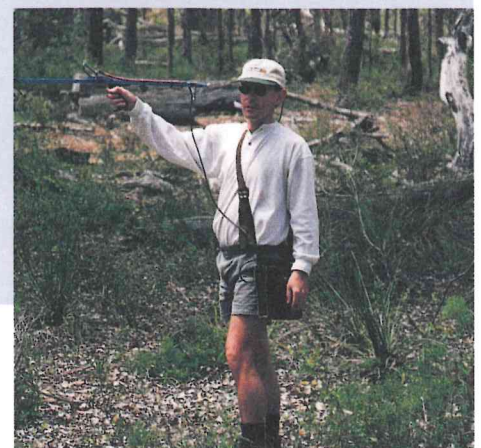
CALM's Albany district ecologist, Sarah Comer, took part in this year's course and recommended it to everyone in CALM.

"Because it's a wonderful overview of how CALM manages wildlife, everyone from administration staff to managers would get something from it," Sarah said.

So far 146 people have been on the course. Albany leads the tally with the highest number of graduates followed by Walpole, Mornington, Mundaring and Esperance districts.

People taking part in the fauna management course at Perup were: 1) Claire Hall, Land for Wildlife administration officer, wildlife branch, Kensington 2) Alan Wright, forest ranger Mundaring 3) Janine Liddelov, forest ranger Blackwood District 4) Glen Wilmott, ranger-in-charge Leeuwin-Naturaliste National Park 5) Michael Phillips, resource volunteer co-ordinator Hills Forest Discovery Centre 6) John Riley, technical officer, wildlife branch Kensington 7) Isaac Lee, national park ranger Walpole 8) Alice Reaveley, flora conservation officer Moora District (Jurien) 9) Sandra Maciejewski, regional bushcare facilitator, South Coast (Albany) 10) Geoff Burrow, CALM volunteer Moulyinning 11) Charles Salamon, ranger-in-charge Porongorup National Park 12) Peter Orell, zoologist (Western Shield) wildlife branch, Kensington 13) Dr Peter Mawson, senior zoologist (Western Shield) wildlife branch, Kensington 14) Adrian Wayne, forest ecologist, CALMscience, Manjimup 15) Peter Wilkins, assistant conservation officer, South Coast (Albany) 16) Paul Tholen, national park ranger, Yanchep National Park 17) Sarah Comer, regional ecologist, South Coast (Albany) and 18) Meredith Soutar, CALM officer, South West Capes (Busselton) Photo - Sue McKenna

CALM's rare flora technical officer, John Riley, at the latest course.



March of the fox

The first reports of the red fox, or European fox, appearing in Western Australia were in 1911 when the State's Chief Rabbit Inspector (Mr A. Crawford) recorded them west of Eucla.

The rest is history—fox predation contributed to 10 native animals becoming extinct and, until a few years ago, another 30 being put on the brink of extinction.

The fox was introduced to Victoria between the 1840s and the 1880s so settlers could enjoy fox hunts. But the sport had unintended consequences as the fox devoured its 'fast food' of small, predator naive marsupials.

WA's early settlers remarked on the diverse range of native wildlife. But by the time the fox appeared it was already a voracious feeder of native species. A standard strategy of many of our wildlife species was to avoid predators by staying still or hiding in nests or burrows. But it was no match for the fox and its keen sense of smell.

The trail

By 1916 the predator was at Esperance and Sandstone.

By 1919 it was at Wagin and by 1925 it was in the mid-west at Geraldton, Mingenew, Northampton and Moora.

A year later it was at Mount Barker; the following year it was around Albany and by 1929 it was in the Augusta-Margaret River area.

In the early 1930s the fox began to breed in the Manjimup area. At the same time it was ranging across country at Nullagine, Marble Bar, the Roebourne Tablelands and Broome.

Within 26 years from the time of the first sighting it occupied most of the state except the Kimberley region.

By 1943 foxes were at Halls Creek and Wyndham; by 1949 at Port Hedland and beyond.

Menace

Because land was being cleared, foxes were seen to be a menace to sheep, cows and other livestock. The Government offered payments, or bonuses, for fox scalps. Between 1929 and 1959 a total of 893,000 fox scalps were presented for Government bonus payments.

However foxes still persisted. Foxes are now common in the south-west and adjacent north-east interior, and the upper west and lower north-west coasts.

They are present but uncommon in the south-east and midwest interior. They are rare in the Great Victoria, Gibson and Great Sandy deserts and the Pilbara highlands, upper north-west coast and south and east Kimberley.

There are records of foxes on islands off



the Pilbara and Gascoyne coast, including Depuch, Legendre, Harry Rock, Dolphin, Gidley, Keast, Hauy and Angel islands.

However it is only on Depuch Island where they have colonised, having existed for more than 20 years.

What allowed the fox to expand its territory so quickly and to permanently occupy those areas was the march of the rabbit that preceded it. Rabbits released in Victoria for hunting escaped their enclosures and spread through the southern two thirds of the continent by 1932.

The rabbit took advantage of the existing habitat used by native wildlife for food and shelter. Bilbies disappeared rapidly because rabbits used their burrows which were later fumigated for rabbits.

Fox follows

As rabbits spread across the landscape the fox followed. In times of drought when the rabbit population declined the fox ate the next most abundant food—native wildlife.

Vulnerable native wildlife went into a steep decline. It clung on in low numbers in areas where rabbits were few and vegetation dense.

In 1950 rabbit baiting began. There was an improvement in native wildlife populations. Poisoned rabbits made an easy meal for a fox.

As myxomatosis was introduced to control rabbits landowners reduced the use of 1080 and fox numbers began to increase again. This time there were few rabbits so native wildlife was again under siege and declined rapidly.

Foxes breed from the age of 10 months, have a 53-day gestation and produce litters of between one and 10 cubs. A female can produce more than 20 cubs in four years.

Not until the adoption of *Western Shield* did fox control become a focus for government agencies and landowners. WA is witnessing a recovery in native fauna populations as baiting operations make an impact on fox populations. In some areas the wildlife has recovered to levels that were evident three or four generations ago.

Sponsors essential for success of wildlife

(Continued from page 1)

Western Shield's Project Manager, Roger Armstrong, said money from sponsors paid for aircraft and baits, bought hardware and plant, facilitated species' reintroduction and funded education programs.

"Sponsorship is absolutely essential for the continued success of *Western Shield* and the wildlife we are protecting."

Sponsorship has also come from mining companies such as WAPET which provided helicopter transport for CALM staff to travel to islands to carry out baiting, fauna monitoring and recovery operations.

Other examples are power utility Western Power and the joint venture partners of Boddington Gold Mine (Normandy Mining, AngloGold Australasia and Newcrest Mining). Western Power underwrites baiting and wildlife monitoring around Muja Power Station near Collie and assisted in a successful woylie translocation to the site. Normandy Mining, AngloGold Australasia and Newcrest Mining support Operation Foxglove between Dwellingup and Collie.

"Many opportunistic things like that happen and we'd like to say thanks," Roger said. "We receive quite a bit of corporate support which is 'in kind' rather than in cash."

"Corporations don't have to get involved in nature conservation because it adds little to their bottom line. The fact that they do get enthusiastically involved and are willing to commit significant time and financial resources is an indication of their maturity as corporate citizens and their commitment to our unique environment."

New sterility bait

Three of Western Australia's leading environmental research organisations are working together to create contraceptive vaccine baits for the predatory European fox, the house mouse and the rabbit.

CALM, Agriculture WA and the University of Western Australia, under the auspices of the Co-operative Research Centre's Pest Animal Control project, are developing immunocontraception techniques for the animals.

The aim is to develop cost-effective methods to reduce the impact of pests on the environment and farming communities.

The work will help CALM to successfully recover more threatened species.

The use of non-toxic fertility control baits will help CALM to expand fox control into areas where lethal baits are not appropriate for human and pet safety reasons.

If the bait development is successful, farmers and urban bushland managers will be able to control foxes without the risk of poisoning dogs, greatly increasing the ability to control foxes in the semi-rural fringes of cities and towns.

The CRC is funded by the Federal Government's CRC program and the State Government, which has already contributed \$2.76 million.



CALM technical officer Kathy Himbeck in Dwellingup Forest with an echidna, one of the native species expected to thrive if the vaccine succeeds. Photo – Peter Garside, courtesy Alcoa World Alumina Australia

School's in!

Any WA school can be involved in CALM's *Western Shield* schools program.

Thousands of students and hundreds of teachers are already involved in *Western Shield* through CALM's schools program which began five years ago and which is increasing in popularity.

A free Action Pack, a classroom resource about threatened species designed for upper primary students, can be ordered by faxing (08) 9334 0498 or printed from

CALM's website, www.naturebase.net for use in the classroom.

Since 1996 more than 40,000 students and teachers have been made aware of *Western Shield* and the importance of saving threatened species.

CALM's EcoEducation Section provides field nature conservation experiences at different sites around the State.

Camps have been run for students and teachers at Batalling Forest near Collie,

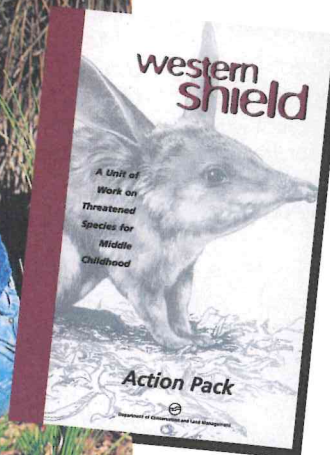
Perup Forest Ecology Centre, Dryandra Woodland Ecology Centre, the Wellington Discovery Forest and The Hills Forest. Excursions and camps are run at The Wellington Discovery Forest, Hills Forest and Dryandra.

An important part of the program is professional development for teachers of the Science and Society and Environment learning areas.

They can 'Be a CALM Nature Conservation Officer For a Night,' take part in *Western Shield*'s small animals

monitoring program and receive information about excursions for students, a *Western Shield* Action Pack, video and other resources to prepare students for field trips.

The professional development camp is so successful teachers are lining up to be involved. For more information contact Liz Moore on (08) 9334 0387 or email lizm@calm.wa.gov.au



Lynwood Senior High School students with traps at The Hills Forest. Photo – Liz Moore

Fire creates extra baiting

The ashes of a WA wilderness area have provided the opportunity for extra fox baiting to protect native animals in the wake of fires that blazed through 2700 ha of conservation land.

Wildfires started by lightning burned the Walpole-Nornalup National Park's Nuyts Wilderness for five days in early March.

But one area which was the habitat of a quokka population was saved as fire crews worked to suppress the blaze.

"As soon as the fire was under control we began fox baiting around the quokka habitat," CALM's Walpole District Manager and Incident Controller Greg Mair said.

Four trails, three beaches and an area around lakes was hand baited to ensure animals going to waterholes for a drink would not be attacked by foxes. Aerial baiting of the entire burned area has already begun.

Other animals affected in the fire were ringtail, brushtail, honey and pygmy possums, bandicoots, mardos, bush rats and kangaroos.

The fire's biggest tragedy was the destruction of two years' work by one of CALM's senior research scientists, Dr Allan Burbidge, CALM's Walpole and Albany district staff, and volunteers who had translocated endangered Western Bristlebirds to the area.

Until the fire there were high hopes the birds would repopulate their



Quokka. Photo – Babs & Bert Wells/CALM

former habitat: unfortunately most of the coastal heathland in which they were released was severely burnt. CALM workers are still monitoring for their presence but at the time of printing the birds' distinctive call hadn't been heard.

The birds' mating calls are amusing to those who've heard them; the male's musical 'chip-pee-tee-peedle-pet' call answered by the female's call which sounds like 'quick more beer!'

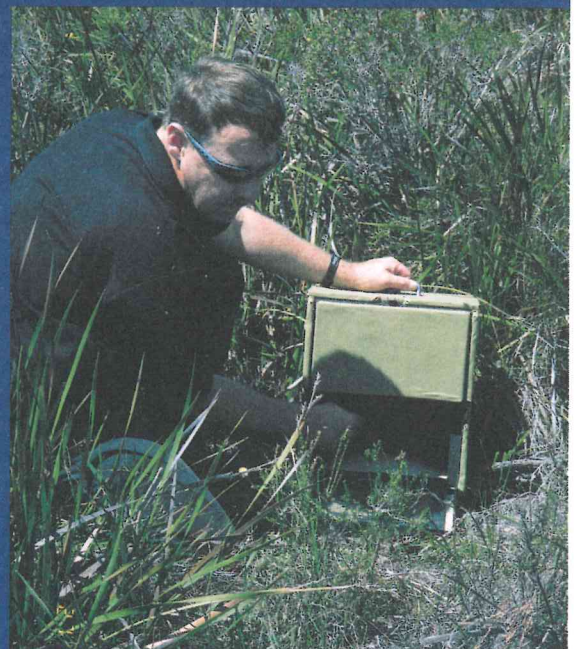
The best present for Dr Burbidge and all involved in the translocation

this year would be to hear a 'quick more beer!' call.

"It's very disappointing for everyone but the risks of translocating threatened species into a no planned burn area were acknowledged at the start of the program," he said.

"However this highlights the value of the strategy of translocating, in which the aim is to establish a number of separate populations to reduce the risk of catastrophic loss by wildfire, which could occur if all the birds were in just one or two populations."

Below left: The Western Bristlebird. Below right: Releasing the Western Bristlebird in Walpole Nornalup National Park late last year. Photos – Neil Hamilton, CALM volunteer



Woylies released on Harvey farms

Forty woylies were released on two Harvey farms in early December as part of CALM's program to reintroduce native wildlife to former habitats.

The 124 hectare farm Wildwater and the 300 hectare farm Sunnyvale, neighbouring properties on the banks of the Harvey River, are listed with CALM's Land for Wildlife scheme where part of the land is registered as wildlife habitat.

Land for Wildlife is a voluntary scheme where land owners manage part of the property for nature conservation. It is an integral part of the State Salinity Strategy and part-funded by the Natural Heritage Trust.

First time

It was the first time woylies were released on private property in WA without predator-proof fencing. Farmers Don and Jan Watts and Warren Tucker baited for foxes using 1080, a toxin that occurs naturally in a groups of plants known as the 'poison peas' (*Gastrolobium* species).

At Wildwater, foxes have been baited with eggs injected with 1080 every two or three months since 1994. Brushtail possum and quenda now are regularly found on the farm and in surrounding areas. At Sunnyvale, the owner baits nearly every month and no foxes or feral cats are now seen on the property.



Western Shield zoologist, Peter Orell (left) and farmer Don Watts release a woylie. Photo – Nigel Higgs

"Always interested"

Don Watts from Wildwater said he had always been interested in having wildlife on properties. As a sheep farmer in Cunderdin in the Wheatbelt he re-introduced kangaroos to his property.

"When we moved to Harvey we started fox baiting to increase the wildlife in the

farm's bush; our interest in woylies began after a visit to Dryandra. We also did a CALM course," he said.

Jan said it was important people did things such as this because they wanted to.

"That's what makes it work," she said.

Four months after the translocation, they can see the woylies' diggings, meaning they are adapting to life in the farm's bush.

More releases

Another 40 woylies will be released in the Hadfield Forest Block which borders the farms.

The animals came from Batalling Forest between Collie and Darkan. Batalling is a virtual native animal hotspot, particularly for woylies.

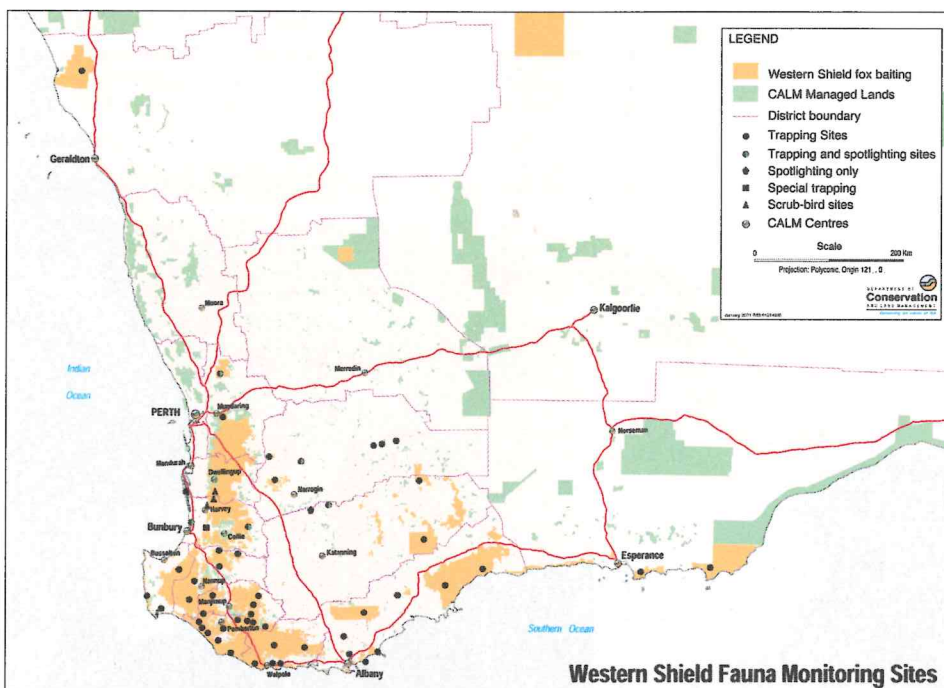
As well as the release on to private property, forty woylies were released into Shannon and Strickland National Parks for the first time.

Monitoring

CALM will monitor the progress of the animals for the next three years.

Woylies are continuous breeders under suitable conditions, eating underground fungi, bulbs, tubers, seeds, insect larvae and resin.

Because woylies are prolific breeders, they're a very good 'indicator species.' If they are thriving it is an indication that the ecological processes that sustain the environment are also healthy.



For further information please contact your nearest CALM office, or the State Operations Headquarters at 17 Dick Perry Avenue, Kensington WA 6151. Phone (08) 9334 0333 Visit NatureBase at www.naturebase.net

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AND LAND MANAGEMENT
Conserving the nature of WA

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