Conservation and Community connections

Two Peoples Bay Nature Reserve is one of Western Australia's conservation jewels. The reserve plays a vital role in the conservation of species like the Gilbert's potoroo and the noisy scrub-bird, and since 2014 many community members have been involved in a regular fauna trapping program, which was established to understand more about this amazing reserve. This program has provided an opportunity for people to gain an appreciation of the remarkable wildlife living in their backyard and learn more about the work being done to protect it.

by Charlene Dekker, Mark True, Deon Utber, Jon Pridham and Sarah Comer

Previous page
Main Two Peoples Bay Nature Reserve.
Photo – Peter Nicholas/DBCA
Inset Gilbert's potoroos were presumed extinct in the area until the species was rediscovered in 1994.
Photo – Jiri Lochman

Above The stunning beaches of Two Peoples Bay Nature Reserve attract visitors year round.
Photo – Tourism WA

Located 35 kilometres east of Albany on the south coast, Two Peoples Bay gleans it European name from a chance meeting in 1803 between French and American mariners. The pair named the bay *Baie des Deux Peuples* or 'Bay of Two Nations', which is literally translated as Two Peoples' Bay. The bay has a long history of use by Aboriginal people, maritime explorers, travellers, sealers, whalers and also attracts many visitors who enjoy spending time in the spectacular reserve. It was on the verge of becoming a town site when, in 1961, the noisy scrub-bird (*Atrichornis clamosus*) was re-discovered and the area was set aside to protect native species (see 'Back from the brink: 50 years of conservation at Two Peoples Bay', *LANDSCOPE*, Spring 2011). In 1967 the area was reserved as an 'A' Class Nature Reserve to protect the habitat of the noisy scrub-bird, and then, in 1994, the Gilbert's potoroo (*Potorous gilbertii*) was re-discovered after not being seen for 120 years (see 'Gilbert's potoroo: eight years on', *LANDSCOPE*, Winter 2003).

Two Peoples Bay is one of the State's conservation hotspots, in particular for mammals, birds, freshwater fish and invertebrates, with three threatened mammals, seven threatened birds, a threatened fish and three threatened invertebrates recorded in the nature reserve. Diverse vegetation communities, wetlands and rivers provide habitat for many of these fauna species and from the 1960s were managed to reduce the frequency of bushfires. From 1988 this management was complemented by fox control, delivered through the department's *Western Shield* program. A monthly fox baiting program, which covers the whole nature reserve, has been in place ever since. In 2014, the department included feral cat baiting using *Eradicat*® baits in the program for the reserve. These baits look like small chipolata sausages and are made of kangaroo mince, chicken fat and flavour enhancers that are highly attractive to feral cats. The sausages are dosed with sodium monofluroacetate (compound 1080), which is toxic to feral cats, to create the bait product known as *Eradicat*®.

STEP BACK IN TIME

Twenty years after it was gazetted as a nature reserve, significant effort has been made to understand the area's plants and animals, with a particular focus on rare species. One of the earlier studies was conducted in 1980–81 by Professor Stephen Hopper, from the then Department of Fisheries and Wildlife, who conducted a pit trap survey of small mammals, lizards and frogs. Ten pit lines were placed in different vegetation communities, landforms and soil types, covering areas from the western end of the reserve north of Moates Lake, to the north-western slopes of Mount Gardner, the dunes that are nestled to the west of Two Peoples Bay, and the coastal heath west of Little Beach. The primary purpose of the original sampling was to determine whether honey possums (*Tarsipes rostratus*) were present in the reserve in numbers comparable to those found further east near Mt Manypeaks and Cheynes Beach. The secondary objective was to increase knowledge of the small vertebrates in the reserve.

In 2014, with help from Stephen, a number of the old fauna monitoring sites were relocated and Ecological Field Methods students from The University of Western Australia (UWA) re-established the sites as part of their field course. The students based themselves at the research quarters at Two Peoples Bay under the watchful eyes of course coordinator Dr Peter Speldewinde. Each of the sites had an identical setup, with pit traps on drift fences and Elliot, funnel and larger cage traps. The mixture of traps was deployed to try and maximise the diversity of different species caught, and with a wide range of frogs, mammals, reptiles and birds trapped so far, this combination has been a resounding success.

In subsequent years, students from the same UWA course have continued to

"... Twenty years after it was gazetted as a nature reserve, significant effort has been made to understand the area's plants and animals, with a particular focus on rare species."

run these traplines. In addition, DBCA's South Coast Region spent a week during most months of between 2015 to 2017 surveying five of the original sites plus one new site. This new site was established in long unburnt vegetation that was on the prescribed burning program to create a reference site for the proposed burn. This effort is documenting the changes to the fauna following the introduction of cat baiting, and also helping to understand the seasonal patterns in native mammal and reptile activity.

The Integrated Fauna Recovery Project (IFRP) team has spent five years determining when the optimal time is to deliver feral cat baits. Understanding when and if there is a period where the native prey activity is low will inform the optimal timing for baiting (see 'Heeding Kyloring's warning: south coast species under threat', *LANDSCOPE*, Spring 2010). These data will help to answer this question, by painting a picture of when the biomass of available food in the landscape is highest, and how this relates to drivers of productivity like rainfall and temperature. The monitoring also focuses on the longer-term survival of some of the animals known to be targeted by feral cats. All quenda, which are favoured prey items, are marked with microchips that provides insights into the survival of these animals, which have been found by the IFRP team to be a favoured prey item of the feral cat in South Coast reserves.

NATURE'S LABORATORY

Stephen's interest in honey possums has been continued by one of his Honours students, Kirsty Vogel, who used the

Above Honey possums occur in the area.
Photo – Sallyanne Cousans

Above right This common scaly foot is a legless lizard caught in a pit trap following the 2015 fire on Mt Gardner.

Right The proximity of the reserve to Albany has made it possible for community members, including primary school children, to take part in the trapping surveys.
Photos – Sarah Comer/DBCA

Top Primary and high school students, the Young Naturalists Club, Indigenous trainees, neighbouring landowners, university students and other members of the community have been involved in the program.

Above Charlene Dekker, who helped start the monitoring program, processing a mardo.
Photos – Sarah Comer/DBCA

re-established trapping sites and data collected to look at the relationship between fire, habitat structure and honey possums. Interestingly, Kirsty's work found that the diverse sites across Two Peoples Bay were all able to support honey possums, with these animals able to use the range of nectar resources available in the different vegetation associations.

The proximity of Two Peoples Bay Nature Reserve to Albany has also made it possible for local community members to take part in the trapping program; high school students, primary school students, the Young Naturalists Club, Indigenous trainees from South Coast NRM, neighbouring landowners, university students and other interested community members have been involved since 2014. More than 300 people have enjoyed the opportunity to view native animals and gain an appreciation for the variety of wildlife located close to town, not seen every day.

The Two Peoples Bay program is affiliated with the CSIRO STEM Professionals in Schools program, and the relationship with local high schools in particular has given students exposure to the role of science in conservation. By spreading trapping sites in different vegetation communities and fire ages, the students have gained insights into what makes habitat suitable for various species. Some of the rarer fauna of the reserve, like Gilbert's potoroo and the quokka, have only been trapped at long unburnt sites on the granite headland, while the remarkable square-nosed snake is only ever seen on the site fringing wetland areas. Threatened species recovery programs and basic ecological principals, monitoring and wildlife management techniques are discussed during trapping sessions. Animal welfare is promoted through the program, with participants gaining an understanding of the challenges associated with working with wildlife and ethical considerations that need to be factored into trapping programs.

Community involvement in the Two Peoples Bay program has also encompassed a global community. Two students from the University of Bristol, supervised by UWA Albany, have completed Masters projects using data collected over the past three years and by collecting more information on the specific species they were studying. One of these students – Irune Martin – looked at the relationship between the carnivorous group of mammals found at Two Peoples Bay and food resources. This group of marsupials (the Dasyuridae) is represented by the dunnarts and mardo (*Antechinus flavipes*) at Two Peoples Bay, and Irune looked at rainfall and peaks in trap success for the two most commonly trapped dasyurids (the grey-bellied dunnart (*Sminthopsis griseoventer*) and mardo). Kayleigh Reid, also from Bristol, looked at scat samples from animals trapped while she was in Albany. From these, she completed a study of gastrointestinal parasites in the range of mammals caught over a four-month period. This work was important to help understand the general

Left To date, 46 species have been caught during 26 sampling sessions.

Above The moaning frog (*Heleioporus eyrei*) was one of two species of burrowing frogs frequently caught in pit traps.

Below The sun setting on Two Peoples Bay Nature Reserve.
Photos – Sarah Comer/DBCA

level of parasite burdens in mammal communities across the reserve, and also the diversity of parasites in comparison to mammalian diversity.

NEW FINDS

While it was generally thought that the fauna of Two Peoples Bay was well known, there have been some surprises in the traps. While the 1980–81 work was conducted over two short periods, the longer-term monitoring has revealed rarely seen, and even new species in the traps. A high proportion of the species recorded by Stephen have been recorded in the 2014–17 trapping session, but many additional species have also been seen. To date, 46 species have been caught during 26 sampling sessions over 12,000 trap nights.

Some exciting captures of animals not previously recorded, or with unconfirmed observations, included the pygmy possum (*Cercartetus concinnus*) and white-tailed dunnart (*Sminthopsis granulipes*). Other noteable captures have been reptiles not previously recorded in the reserve, including the south-western orange-tailed slider (*Lerista distinguenda*), four-toed earless skink (*Hemiergis initialis*) and shrubland morethia skink (*Morethia obscura*), and the sand frog (*Heleioporus psammophilus*). A number of square-nosed snakes (*Rhinoplocephalus bicolor*) trapped near Moates Lake, created great excitement for both primary students and their parents who had a great opportunity to look closely at this marvellous small elapid snake.

Ecosystem recovery following fire has also had some notable fauna captures. Eighteen months after the Black Cat Creek fire of October 2012, honey possums were captured in pits on one of the sites located in the burnt area. The recovery of the plants after the fire provided not only enough shelter for this unique animal to be living back in the area, but also enough flowering plants and therefore pollen. Kirsty also recorded that honey possums appeared within two years of the intense 2015 bushfires on Mt Gardner, demonstrating that the rapid resprouting flowering plants are able to support this unique nectarivorous marsupial. Similarly, the captures of the western crowned snake (*Elapognathus coronatus*), common scaly- foot (*Pygopus lepidopodus*) and the grey bellied dunnart (*Sminthopsis griseoventer*) in the six-month period following the lightning strike that burnt most of Mount Gardner in 2015 reflect the recovery of the area.

Other interesting captures included Gilbert's potoroos, noisy scrub-birds (caught in an Elliott trap), and a painted button quail. These species are rarely observed, so seeing them was a highlight.

INTO THE FUTURE

The Two Peoples Bay fauna monitoring program was established with some clear goals, and to date many of these have been met. However, the opportunity to engage schools and the community in learning about our native wildlife is one that will continue. While the regularity of trapping is no longer as frequent as it was initially, there are still opportunities for schools, university students and other interested groups to take part in what we hope will remain a long-term monitoring program showcasing the remarkable wildlife of Two Peoples Bay Nature Reserve.

Charlene Dekker is a DBCA South Coast Region conservation employee.
Mark True is a DBCA Two Peoples Bay Nature Reserve ranger.
Deon Utber is the DBCA South Coast regional leader nature conservation.
Jon Pridham is a DBCA South Coast regional wildlife officer.
Sarah Comer is the DBCA South Coast regional ecologist.

Enquiries about the project can be directed to Sarah Comer, who can be contacted on (08) 9842 4513 or by email (sarah.comer@dbca.wa.gov.au).