Saving our Species, **Saving our State**

A two-year, $15 million biodiversity conservation initiative will enhance ongoing conservation work and boost immediate efforts to protect the unique biodiversity of Western Australia.

By Katie Schoch

Western Australia is internationally recognised for the diversity of its flora and fauna. Our State has eight of Australia's 15 national biodiversity hotspots and the south-west of WA is the country's only internationally recognised terrestrial hotspot for biodiversity, one of just 34 world-wide.

This unique biodiversity provides extensive benefits to WA, from helping maintain the quality of the atmosphere and regulating the climate to providing economic benefits through tourism.

Although we depend on it for our quality of life, the impacts of years of human activity mean there are now grave risks to this biodiversity. The recently released State of the Environment report into the condition of the environment in WA found that threats to the State's biodiversity were among the highest priority environmental issues of our time. As such, the Department of Environment and Conservation (DEC) has drafted a 100-year biodiversity conservation strategy for WA, with the aim of recovering and conserving the State's biodiversity within 100 years.

Biodiversity in Western Australia

Biodiversity refers to the variety of all life forms—the different plants, animals, fungi and micro-organisms, the genes they contain, and the ecosystems they form. With an area of 2.5 million square kilometres and a coastline that stretches 13,500 kilometres, WA's biodiversity is among the richest in the world. It includes 11,500 named species of vascular plants, an estimated 226 species of mammals, more than 600 species of birds, an estimated 560 species of reptiles and 73 named species of freshwater fish.

Alarmingly, 11 mammal species and 14 plant species are already presumed extinct and 204 native animal species and 378 native plant species are formally listed as threatened. As well as this, 66 of the State's ecological communities are also considered threatened.

Saving our species

Enhancing ongoing efforts to protect WA's unique plants, animals and ecosystems is the focus of *Saving our Species*, a WA State Government initiative providing $15 million towards strategic biodiversity conservation projects over the 2006–2007 and 2007–2008 financial years.

Saving our Species projects are targeting the key areas of *Phytophthora* dieback, invasive animal control, environmental weed control, cane toad control, the recovery of threatened species and ecological communities and biological survey and research.

The initiative is supporting the recurring programs of DEC and other agencies by providing an injection of short-term, strategic and focused investment to address critical biodiversity conservation priorities in the State.

These priorities include weeds and pest animal species that can be eradicated or reduced to a level where recurrent programs can maintain effective control, the protection and recovery of high-value biodiversity assets under threat, filling important gaps in scientific knowledge and

Previous page
Main Juvenile woylie.
Photo – Sabrina Trocini/DEC
Inset Research scientist Tania Jackson working on a flora translocation project.
Photo – Katie Schoch
Background Ant on a parrot bush.
Photo – Keith Claymore

Above The introduced weed watsonia competes with native flora species.
Photo – Dennis Sarson/Lochman Transparencies

Left Swamp starflower.
Photo – Andrew Brown

research, and meeting 'good neighbour' commitments that aim to strengthen partnerships between DEC and landowners whose properties join DEC-managed lands.

Saving our Species is about being proactive in biodiversity conservation, taking action now to prevent further problems and the need for a far greater level of expenditure in the future if the problems were left unchecked.

In this way we can help ensure that all Western Australians, as well as visitors to the State, have the opportunity to appreciate our flora and fauna and their diverse habitats, both now and in the future.

Phytophthora dieback: the 'biological bulldozer'

There are more than 50 species of *Phytophthora* (pronounced fy-tof-thora), but the species that causes the most severe and widespread damage to native plants in WA is *P. cinnamomi*. *P. cinnamomi* (the pathogen that causes *Phytophthora* dieback) is an introduced water mould that attacks plants and causes root rot, which kills the plant by limiting or stopping the uptake of water and nutrients.

In the south-west of WA about 40 per cent of the region's flowering plant species are susceptible to *Phytophthora* infection. Fitzgerald River National Park, located 180 kilometres north-east of Albany, is known for its floral diversity, degree of endemism and large number of mammal species including the critically endangered western ground parrot and the endangered dibbler. Unfortunately the park has a serious infestation of *Phytophthora*, introduced in this area in the 1970s by earth-moving equipment constructing an illegal access track, now known as Bell Track.

The Bell Track infestation has led to almost total collapse of the overstorey vegetation and the loss of most understorey species over a 265-hectare area. At present the infestation is confined within a discrete micro-catchment. If the infection was to escape into the adjoining catchments, control of the infestation would become an impossible task, with an area of about 30,000 hectares being immediately exposed to potential infestation. The long-term consequences for Fitzgerald River National Park could be devastating.

Above Projects are under way to prevent the spread of the dieback causing pathogen *Phytophthora cinnamomi*. *Photo – Marie Lochman*

The goal of the Bell Track *Saving our Species* project is to hold the disease front within the current micro-catchment. The affected area will be fenced to prevent the spread of the pathogen by humans and native and feral animals, and a range of approaches are also being tested to contain the disease.

In other *Saving our Species* *Phytophthora* dieback projects, strategic and operational mapping and risk-assessment modelling are being carried out to identify where on-ground measures can be taken to protect and manage areas of high conservation value by preventing the introduction and spread of the pathogen.

Invasive animal control

A 2004 report into the impact of invasive animals in Australia found the economic costs of control to be at least $370 million each year. The cost of tackling the damage they cause to the nation's environment and biodiversity was estimated at $345 million annually. This totalled more than $700 million without even including their significant social impact, which was unable to be quantified.

In WA, invasive animals, including feral pigs, camels, wild dogs, donkeys, feral goats, cats, foxes and birds such as starlings and rainbow lorikeets, impact on native species by predation, competition for food and shelter, habitat destruction and by spreading diseases and pathogens.

Saving our Species is targeting pest animal species in key areas where there are known impacts and where it is feasible to eradicate or significantly reduce populations to protect biodiversity values. To date, more than 6000 pest animals have been removed through *Saving our Species* projects State-wide and more than 106 kilometres of fencing have been installed.

Under the *Saving our Species* initiative, feral goat control operations have been undertaken in Kennedy Range, Cape Range, Kalbarri and Francois Peron national parks. Feral goats have severe grazing impacts in these parks, causing soil erosion and preventing regeneration, fouling waterholes and acting as a vector for weeds.

Top left Projects are under way to slow the advancement of the common starling into WA.
Photo – Jiri Lochman

Left Feral goat.
Photo – Geoff Taylor/Lochman Transparencies

Top Black-flanked rock wallabies are threatened by feral animal invasion.

Above Cane toad.
Photos – Jiri Lochman

Feral goats are also a threat to the protection and recovery of threatened species, significantly impacting on native animals through habitat destruction and direct displacement, and competition for food and shelter. In Kalbarri National Park, feral goats have been linked to the recent disappearance of the vulnerable black-flanked rock wallaby (*Petrogale lateralis*).

The control program has significantly reduced goat numbers in these parks. While eradicating feral goats is an impossible task, the objective of the program is to reduce and maintain goat numbers to a level that enables the protection and recovery of the natural ecosystems.

Other invasive animal control projects under *Saving our Species* include wild dog control in the rangelands and parts of the eastern Wheatbelt; pig control on the Darling Scarp and Swan Coastal Plain and in the forests around Manjimup and Lake Muir; a camel survey in Rudall River National Park and control of introduced bird species in the metropolitan area and around Albany and Denmark.

Environmental weed control

Environmental weeds present a serious threat to WA's biodiversity because they compete with native species for resources, are often aggressive colonisers and will displace native plant populations, particularly following ground disturbance. Some weed species, such as the tamarix, have effects that are toxic (allelopathic) to surrounding native plants. Weeds will also alter the natural fire regime and can be toxic to native grazing species.

In WA, there are an estimated 1350 species of environmental weeds, of which 34 are a high priority for eradication under the 1999 Environmental Weed Strategy for WA. *Saving our Species* is targeting 40 weed species in an initial 18 projects. A number of these projects are attempting to eradicate entire weed populations at a local scale. Other projects will achieve a 'knock down' of weed populations to enable control under recurrent programs and the long-term recovery of native species.

Since the implementation of *Saving our Species* mid last year, State-wide control work has been undertaken on 47 species of weeds across more than 6000 hectares of DEC-managed land, metropolitan regional parks, and pastoral leasehold land.

The environmental weed control projects have provided DEC with the opportunity to work with private leaseholders, community groups and other agencies, in line with its Good Neighbour Policy to achieve eradication or control outcomes.

Saving our Species has also helped raise awareness of weed species around WA and has resulted in previously unknown weed populations being reported to DEC.

Saving our Species weed control projects are targeting asparagus fern (*Asparagus scandens*) in Denmark, Albany, Augusta and Margaret River, *Moraea fugax* at nature reserves west of York, watsonia at Chittering Lakes Nature Reserve east of Bindoon, neem (*Azadirachta indica*) in Kununurra, succulents and other weed species on the south coast, date palms (*Phoenix dactylifera*) in Pilbara wetlands, athel pine (*Tamarix aphylla*) at Lake Boonderoo on Kanandah Station, prickly acacia (*Acacia nilotica*) in the Durack River in the Kimberley and cactus (*Cylindropuntia fulgida*) on pastoral land at Quobba Station, north of Carnarvon.

Cane toad control

Cane toads were introduced into Australia to control beetles that were destroying sugar cane crops. Unfortunately they failed to control the cane beetles and became major pests themselves. Having now invaded the Northern Territory, Queensland and parts of New South Wales, cane toads are approaching WA, and DEC estimates they could reach the border by 2012.

The cane toad, nominated as among 100 of the world's worst invasive species, will consume almost any living thing that it can fit into its mouth and as a predator is a threat to many small native species. It is toxic in all stages of its lifecycle from egg to adult, and native species that predate on the cane toad are also at risk. Should the cane toad enter WA, the impact on biodiversity is likely to be significant across the Kimberley.

Funds from *Saving our Species* are supplementing ongoing efforts of the WA Cane Toad Initiative, launched by the State Government in 2004 to slow down the advancement of cane toads into WA. All field work so far has been conducted in the Northern Territory, where the Cane Toad Initiative team has covered more than 100,000 kilometres in the course of its work controlling toads through strategic trapping and also by hand.

Since the introduction of *Saving our Species* last year, the WA Cane Toad Initiative has acquired a sniffer dog, Nifty, who has been trained to detect cane toads. Nifty is currently being used in the field to assist in identifying cane toad habitat and at the WA/NT border checkpoint to inspect vehicles and deliveries of produce for the presence of cane toads.

Efforts by the State Government, together with enthusiastic and committed community groups, represent the first time an Australian State or Territory has taken pre-emptive action against toads before they reach its border.

Threatened species and ecological communities

Not only is *Saving our Species* targeting introduced species that need to be controlled and eradicated, the initiative also aims to significantly advance the recovery and conservation of WA's threatened species and ecological communities.

It supports activities that are carried out under recovery plans, for individual threatened species and ecological communities and management plans, which cover the entire threatened flora in a DEC region or district.

One species being supported is Gilbert's potoroo (*Potorous gilbertii*), the world's most endangered marsupial, with less than 40 animals known in one natural population near Albany and a small translocated group on nearby Bald Island. Since the inception of *Saving our Species*, scientists have

Right Nifty the sniffer dog is trained to detect cane toads.
Photo – Errol Kruger/DEC

Below Weed eradication at a Bush Forever site.
Photo – Brian Inglis/DEC

Left Juvenile Gilbert's potoroo.
Photo – Tim Button

released three potoroos onto Bald Island in two separate releases.

They have also conducted five monitoring trips to the island to track the translocated group. On their most recent monitoring trip they discovered that the first independent island-born young was now fostering a pouch young herself. The monitoring trip previous to this had discovered the second independent island-born young, the first potoroo conceived on the island. As well as indicating that potoroos are capable of breeding on the island and that the island can sustain a new population, the early success of this project gives reason to hope that the Gilbert's potoroo might one day be a more secure species.

Flora translocations are also being carried out under *Saving our Species* to bring six of the State's critically endangered plant species back from the brink of extinction. Current populations of the species, originating from the Wheatbelt, Midwest, south coast and Perth metropolitan area, have been threatened by frequent fires, clearing of habitat, weeds and in some cases soil salinity and prolonged waterlogging.

The species have now all been propagated and will be transferred to new secure locations. Successful translocation will ensure the survival of these species and will help conserve the unique biodiversity assets of each region.

Other threatened species and ecological community projects include ecological assessment of a high biodiversity hotspot in Badgingarra, assessment and protection of biodiversity assets of the Nullarbor karst, monitoring of ecosystem health on Bernier and Dorre islands (see 'Bernier and Dorre: islands of marsupials, mice and men' on page 46) in the Shark Bay World Heritage Area and conservation work on several Bush Forever sites, which have been identified as regionally significant bushland to be retained and protected forever. So far more than 80 tonnes of rubbish have been removed from these sites.

Biological survey and research

Saving our Species is investing in important biological surveys and research that will provide the knowledge necessary for future biodiversity conservation planning and actions.

Taxonomists at DEC's WA Herbarium, in collaboration with botanists from around Australia, are in the process of describing and naming more than 50 new plant species, many of which have conservation priority or are under threat from mining activities. Providing scientific descriptions of these plants will allow their conservation status to be assessed and will ultimately help identify appropriate areas to be protected.

Saving our Species is also funding partnership projects between DEC and CSIRO to study interactions between fire and biodiversity in the Kimberley and Wheatbelt regions.

As well as this, FloraBase, DEC's online plant identification website, and NatureMap, DEC's interactive biodiversity information website, are being upgraded and improved with funding from *Saving our Species*.

Biodiversity and the future

Although there is no short-term cure for biodiversity loss, *Saving our Species* is a critical part of the overall long-term plan to restore and protect WA's biodiversity assets for the future. It is hoped that by increasing immediate efforts to protect WA's unique biodiversity, DEC, the State Government, community groups and other agencies can help have a long-term, lasting effect on biodiversity conservation in WA.

If you would like to find out more about *Saving our Species* and WA's biodiversity, or to access FloraBase or NatureMap, visit DEC's NatureBase website at www.naturebase.net.

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contents

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